

Food that Matters: Sustainability and the Material-Discursive Boundaries of Carnist and Vegan Food Practices

A thesis submitted to the University of Manchester for the degree of Doctor of Philosophy in
the Faculty of Humanities

2019

Steffen Hirth

School of Social Sciences

[Blank page]

Contents

List of Figures	7
List of Tables	8
Abstract.....	9
Declaration	10
Copyright Statement	11
Acknowledgements	13

Introduction

1. Research Problem.....	16
1.1 One Hunter or 1,000 Gardeners: Social-Ecological Footprints of Livestock	20
1.2 The Boundary-Drawing Practices of Veganism – Structure of the Thesis	26

Part I: Design

2. Positioning of the Research	30
2.1 Social Studies of Food and Consumption.....	30
2.1.1 Agricultural Geography vs. Geographies of Food.....	31
2.1.2 Reading Ethical Consumption for Difference rather than Dominance	32
2.1.3 Political Ecologies of the Possible	34
2.2 Drawing the Boundaries of Veganism	36
2.2.1 Scientific Analyses and Popular Books	36
2.2.2 Social Sciences and Humanities.....	37
2.2.3 Sociology and Human Geography	41
2.3 Relational Materialism and Posthuman Performativity.....	51
2.3.1 Relational Sociology	52
2.3.2 Material-Discursive Practices in Accordance with Agential Realism	56
2.3.3 Political Ontology in a Relational Manifold: Conceiving Possibility as a Spatial Degree of Freedom.....	63
3. Objectives and Methods: A Material-Discursive Ethnography of Vegan and Carnist Foodscapes	71
3.1 Research Objectives and Questions	71
3.2 Methodology: Reading for Difference	73

3.3 Data Collection	78
3.3.1 Preserving Websites	80
3.3.2 Conducting In-depth Interviews	80
3.3.3 Ethnographic Observation and Participation.....	82
3.4 Data Analysis	84
3.4.1 Interpretive Analyses of Sustainability Websites in Retail.....	84
3.4.2 Analysing Interviews and Other Data	86
3.4.3 Limitations	87

Part II: Analysis

4. Posthumanist and Humanist Politics of Possibility in Agri-Culture	89
4.1 A ‘Personal’ Decision: The Case of Bradley Nook Farm	89
4.1.1 Social-Ecological Reasons for Quitting Animal Agriculture.....	91
4.1.2 Media Echo No. 1: BBC Countryfile—‘whatever your views on veganism, you have to admire him’	94
4.1.3 Media Echo No. 2: The Daily Express—‘viewers in melt-down as vegan farmer eats an egg’	98
4.2 Humanist ‘Sustainability’ and the Carnist Apparatus	101
4.3 <i>Conclusion</i> : Veganism as a Representational Eating Practice	106
5. Entangled with Carnism: Vegan Advocacy’s Fuzzy Boundaries	108
5.1 Co-operating with Carnism?.....	109
5.1.1 ‘Co-operate or die’	110
5.1.2 A Vegan Politics of Possibility.....	114
5.2 Excluded from Ethical Veganism: Environment, Wildlife, and Production	118
5.2.1 Drawing the Boundaries of Ethics: ‘the ethical-moral position was just about animal rights’	119
5.2.2 Vegan Politics of Possibility—Addressing the Materiality of the Production Side.....	120
5.3 <i>Conclusion</i> : Repoliticising Mutual Aid and Existence	123
6. Sustainability within the Productivity Paradigm	125
6.1 Sustainable Intensification: A Productivist Oxymoron.....	126
6.2 Producing Dairy on Arable Land: Feed vs Food Crops	128
6.3 Feeding the (more-than-human) World with Vegan Productivity	138
6.4 <i>Conclusion</i> : Finding a ‘Correct Balance’ to Survive the Sixth Mass Extinction	142
7. Sustainability within the Efficiency Paradigm	144
7.1 Sustainability on the Far Horizon: How Efficiency Gains License Practices in Absolute Terms	145
7.1.1 Sustainability as Dictated by the Invisible Hand.....	145
7.1.2 ‘It’s not a Sustainability Conversation’: Vegan and Organic Products as Consumer Beliefs	147

7.1.3 Sustainability's Complexity and Change.....	149
7.2 Increasing Efficiency, Saving Practices.....	150
7.2.1 Saving Animal Agriculture	151
7.2.2 Saving Chicken (Food Waste).....	152
7.2.3 Saving Culinary Culture (Meat and Dairy Substitutes)	154
7.2.4 Saving Bananas.....	155
7.3 The Boundaries of Sustainability in Dairy Farming.....	157
7.4 <i>Conclusion</i> : How 'Getting Better' Saves Practices not the World.....	162
8. Vegan Organic: An Emerging Food Practice	164
8.1 Omitting Fascist Food Practices: Blood and Soil.....	165
8.2 (Post)Humanist Intra-Actions in Agri-Culture.....	168
8.2.1 Humanist Encounters: Retiring Cows and Bad Badgers.....	169
8.2.2 Posthumanist Encounters: Vibrant Matters of Humus Soil, Green Manure, Humanure, and Dead Bodies	171
8.3 Beyond 'Conventional Organic': Veganism as Intra-Active Process rather than Individual Identity	174
8.4 <i>Conclusion</i> : Food Practices as Social-Ecological Entanglements	179
 Part III: Synthesis 	
9. <i>Discussion</i>: How Representational and Relational Boundary-Drawing Determines Possibility Space.....	182
9.1. De- and Reconfiguring Practices in an Impure Manifold.....	182
9.2 Deconfiguring the Representational Boundaries of Veganism	184
9.2.1 Patterns of Representational Boundary-Drawing.....	184
9.2.2 Dematerialised Language: 'Plant-Based', 'Water-Energy-Food Nexus', 'Food Waste'	189
9.3 Reconfiguring: Drawing the Boundaries of Veganism Relationally	191
9.3.1 Vegan Organic Cultivation Practices: Locking Nutrients in and Domesticated Animals out	191
9.3.2 Meeting Carnism Halfway? Towards Vegan Food Practices.....	193
9.3.3 ...on a Shared Planet? Implementing the Half Earth Proposal.....	196
10. A Posthumanist Declaration of Dependency: Redrawing Boundaries Towards Politically Mature Food Practices	198
References	203

Appendix

Appendix A: Tracing Websites for Discourses and Practices of Sustainability..... 219

A.1 Identifying the main themes: <i>What</i> is addressed?.....	219
A.2 <i>How</i> are themes addressed and put in practice?.....	222
A.2.1 Framings of Sustainability.....	222
A.2.2 Sustainability = Efficiency.....	224
A.2.3 Sustainability = Sufficiency.....	227
A.2.4 ‘Co-operate or die’	228
A.2.5 Competition, Fairness and Food Justice	230
A.2.6 Soil and Food Security.....	232
A.3 Conclusion	234

Appendix B: Interpretive Material-Discursive Analyses (Coding)..... 238

B.1 Websites and Corporate Social Responsibility Documents.....	238
B.1.1 Asda.....	238
B.1.2 Unicorn Grocery	240
B.1.3 Tolhurst Organic	241
B.2 List of Tags	242
B.2.1 Asda.....	242
B.3 Example of a ‘messy map’	264
B.4 Photographs.....	265

List of Figures

Figure 1: Food relations among matter, plants, nonhuman, and human animals	17
Figure 2: Three simplifying models to illustrate conversion losses	22
Figure 3: The first four spatial dimensions represented in a two-dimensional picture.....	67
Figure 4: An extract of Ladies in Beef's homepage.....	103
Figure 5: A blackboard at Unicorn Grocery comparing different supermarket's food prices.....	113
Figure 6: Cover of a cookbook found at Unicorn Grocery.....	115
Figure 7: Pastures around Manor Farm with the cheese dairy on the right hand	131
Figure 8: Aerial image of the land around Manor Farm.....	132
Figure 9: Tolhurst Organic near Reading using their arable land for growing crops by a vegan organic standard	135
Figure 10: Manor Farm Vintage Cheddar on a shelf at Asda	160
Figure 11: A flier distributed by the Vegan Organic Network illustrating their way of drawing the boundaries of veganism	178

List of Tables

Table 1: Karen Barad’s diffractive methodology in contrast to reflection/reflexivity.....	74
Table 2: Overview of the in-depth interviews conducted between Jul and Dec 2017	81
Table 3: Material-discursive exclusions of the media’s humanist reception of the case of Bradley Nook Farm	93
Table 4: Differences between conceiving vegan and carnist food practices representationally or relationally	185
Table 5: The main sustainability-related themes that occur on the websites of two retailers	221

Abstract

Acting upon *Livestock's Long Shadow* to mitigate climate change, mass extinction, and other social-ecological crises requires fundamental changes in food practices. Labelled as “ethical consumers”, vegans, vegetarians, and meat-reducing carnists already attract considerable attention. However, food practices on the production side, which are just as much an ethical issue, also require reconfiguration in order to achieve sustainable development. In a critical assessment of tendencies that depict consumer demand as the only legitimate means of change and depoliticise absolute reductions of animal-sourced foods, this thesis extends the locus of *vegan food practices* to various productive processes drawing on cases such as stock-based and stockfree farms, retailers, and food-related advocacy networks. By exploring these foodscapes, it is examined how the material-discursive boundaries between vegan and carnist food practices are drawn, particularly in response to animal agriculture as a sustainability challenge.

Inspired by practice and materialist turns, my research builds on debates on ethical consumption, responsibility, and sustainability within sociological and geographical food studies. Relational and posthumanist approaches are drawn upon to conceptualise practices and conduct material-discursive analyses. Qualitative methods are applied to outline relations within and between agricultural and retailing foodscapes in Greater Manchester, Derbyshire, and South West England, involving a mix of participant observation (incl. field notes and photography), in-depth interviews with stakeholders on site, and an interpretative examination of their sustainability-related websites and reports.

The findings revolve around the marginal but emerging agricultural and culinary paradigm of “vegan organic” production. It excludes the use of manure, bone meal, or other animal derivatives for the replenishment of soil fertility and relies instead on nutrient-fixing plants and practices such as composting or mulching. Thus, veganism, rather than being a dietary identity, becomes a *relationally grounded* approach to how vegans and plant foods come into being performatively through material-discursive practices. Conventionally, however, the term “vegan” as applied in both food regulations and everyday life, is merely a label either for people who abjure from animal products or for vegetal products. This dematerialised consumption-based mainstream conception of veganism personalises food practices, confines ethics to a sentimental care for domesticated animals, and depoliticises social-ecological reasons for veganism. In order to maintain a safe operating space for all life on Earth, I suggest that *performing* vegan food practices as much as possible is an undogmatic responsibility of ethical producers and consumers alike, regardless of their personal identities as vegans, vegetarians or “meat eaters” (carnists).

Declaration

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

Copyright Statement

i.

The author of this thesis (including any appendices and/or schedules to this thesis) owns certain copyright or related rights in it (the “Copyright”) and s/he has given The University of Manchester certain rights to use such Copyright, including for administrative purposes.

ii.

Copies of this thesis, either in full or in extracts and whether in hard or electronic copy, may be made only in accordance with the Copyright, Designs and Patents Act 1988 (as amended) and regulations issued under it or, where appropriate, in accordance with licensing agreements which the University has from time to time. This page must form part of any such copies made.

iii.

The ownership of certain Copyright, patents, designs, trademarks and other intellectual property (the “Intellectual Property”) and any reproductions of copyright works in the thesis, for example graphs and tables (“Reproductions”), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property and/or Reproductions.

iv.

Further information on the conditions under which disclosure, publication and commercialisation of this thesis, the Copyright and any Intellectual Property and/or Reproductions described in it may take place is available in the University IP Policy (see <http://documents.manchester.ac.uk/DocuInfo.aspx?DocID=24420>), in any relevant Thesis restriction declarations deposited in the University Library, The University Library’s regulations (see <http://www.library.manchester.ac.uk/about/regulations/>) and in The University’s policy on Presentation of Theses.

This thesis is a
Declaration of Dependence
and dedicated to
Greta Thunberg
and everyone participating in
Extinction Rebellion

Acknowledgements

“The two of us wrote Anti-Oedipus together. Since each of us was several, there was already quite a crowd”

(Deleuze & Guattari 1987: 3)

Some say writing a thesis can be a very lonesome process. I am grateful that, in the course of writing this, I did hardly ever feel that way. Taking seriously the relational outlook on the nature of being which I employ in this thesis, I cannot even claim individual authorship. Rather than “my” thesis, this is the product of a multiplicity of relations, the ones which I happened to intra-act with in the midst of a flow of space, time, and possibilities, and it led to this hard or digital copy of more or less condensed matter and meaning.

In acknowledgement of the not only more-than-individual, but also more-than-human agency that went into producing this thesis, which, as vast as it is, can neither be put in words nor fully grasped, I would nonetheless like to say thank you to some specific co-authors. My supervisor Alan Warde as well as my co-supervisors Josephine Mylan and David Evans have generously granted me a well-balanced mix of guiding conduct and creative freedom. More than anything, I would like to emphasise the invaluable merit of discussing and evolving this thesis with my friends and colleagues Marc Hudson, Ulrike Ehgartner, Ema Johnson, Malte Rödl, Anna Wienhues, and Harald Wieser during our PhD seminars, lunch and coffee breaks, and after-work pints.

Furthermore, I am grateful to many other people of the Sustainable Consumption Institute (and its broader environment). Alison Browne and Richie Nimmo provided me with helpful critique as my annual reviewers. Many thanks also to Tally Katz-Gero for challenging me to formulate my research goals and lending me her books on Michèle Lamont’s work on boundaries; Catherine Walker for helping me develop my critique of reductive tendencies in approaches on the water-energy-food nexus; Raichael Lock for our shared admiration of Karen Barad and organising a posthumanist reading group.

Philipp Dapprich, Ivan Drlitchka, Iván Montenegro, Nelson Rodriguez, and Erik Swyngedouw have been greatly influential as part of Erik’s Marxist Political Economy course. I genuinely appreciate his warning (see Swyngedouw & Ernstson 2018) concerning depoliticising tendencies in posthumanist approaches—having deployed new materialist theory, I can only hope to set a tolerable example of research with systemic critique and truly egalitarian aspirations for all life on Earth.

Beyond the scope of the University of Manchester, I would like to thank the people without whom, I believe, would not be here today.

In terms of academic support, this includes Anke Strüver and Ulrich Ermann who conveyed a great deal of trust in the recommendation letters they wrote. Special thanks to Anke for introducing me to the works of Foucault, Butler, and Massey, for her support in developing my research proposal, and my quest (or odyssey?) for funding this thesis. I owe many thanks to Markus Keller of the Institute for Alternative and Sustainable Nutrition (IFANE) for his mentoring, our interdisciplinary co-operation, and co-authoring on questions of nutritional ecology.

In terms of life support, this involves, last but not least, my family and friends. I don't need to mention your names or what you did—if you belong to this group you will know (and probably it is me who has to catch up on sending out love which is not always easy from afar).

...

This non-exhaustive list of contributors illustrates how we depend on each other, even for the most banal daily practices. In the past, people have rightfully *declared independence*, for example, from churches, aristocracy, empires and colonisers. However, amidst neoliberalised economic practices—the social imaginary of individual entrepreneurs of the self—any further declarations of independence are not necessarily emancipatory. In order to mitigate climate change and mass extinction (i.e. *peaking life* rather than just peaking oil), we now need posthumanist, biocentric *declarations of mutual dependence*. This is at least how I read Barad's (2007) materialist call to 'meet the universe halfway'. In the context of food, this means to politicise established practices and address the humanist hubris within (the current extent of) carnism.

Introduction

1. Research Problem

A spectre is haunting the global foodscapes—the spectre of veganism¹. Catastrophic climate changes and the sixth mass extinction in the history of the planet (Ceballos et al. 2015) are not only anthropogenic but also food-related phenomena, and the scientific evidence for *Livestock's Long Shadow* (FAO 2006) is strong: animal-sourced foods play a major role in these crises. By contrast, so called “plant-based” or vegan food principally requires less land, energy, and other resources. While more and more vegans publish their views, their aims, their tendencies, in the face of the whole world, ethical veganism and particularly the social-ecological reasons for it are not yet more than a nursery tale. As stigmatisation in public, scientific, and political debates still limit the potential of veganism to mitigate the world's existential crises, this thesis examines the boundary-drawing practices which constitute veganism in its materiality and its meaning.

People have been interpellated as “ethical consumers” throughout 21st century (Barnett et al. 2011). That those who have the opportunities to *have* a choice do respond as “good citizens” may give rise to hope, but it obscures that changing unsustainable practices at their very root also requires social-ecological citizenship in form of *ethical producers*, ethical provisioning networks, and nonconsumption (Goodman et al. 2010). What matters over and above changes in consumption is an *absolute* reduction of animal agriculture (Fuchs et al. (2016). Therefore, my analysis of ‘ethical foodscapes’ (Freidberg 2010, Goodman et al. 2010) focuses on producer efforts to demonstrate and enact “sustainability” in relation to vegan or animal-sourced foods. Looking at retailers, farmers, and advocacy groups, what are the practices by which the boundaries of veganism in particular, but also “good” and “normal” food in general, are drawn?

Surely, food is an essential part of daily life for everyone. *Food practices*, however, are not reducible to individual moments of purchase and eating. From a sociological and geographical perspective, they are complex and inextricably entwined social, material, and spatial processes which, next to *consumption* in its narrower sense of an action performed by “the consumer”, involve agriculture, processing, distributing, advertising, policy issues, disposal, and other practices broadly subsumed under *production*. Ignoring the latter aspects means to deploy an individualised, dematerialised, non-relational account of how food in general and especially vegan food practices come into being. With the hope to overcome the ‘metaphysics of individualism’ (Barad 2007: 128) within current conceptions and performances of food

¹ By way of analogy, I refer here to the (in)famous ‘spectre of communism’ (Marx & Engels 1992 [1848]); this will be picked up again in ch. 10.

practices, my analytical aim is to look at the boundary-making practices by which the production and consumption of both vegan and animal-sourced foods are differentially delineated as either “normal” or “problematic”. It means to take account of ‘how this boundary is actively configured and reconfigured’ (ibid.: 136).

As a response to livestock’s major impact on the environment, food policy bodies often suggest to increase its production efficiency through better practices (for details see section 1.1). This demand fails to acknowledge that, in the big picture, the sector’s impact has little to do with “bad” practices *within*. Neither should its impact primarily be attributed to the difference between conventional and organic modes of production. At best, the difference between grazing and feed crop systems has a stronger significance because consistent grazing would considerably lower the output and, thereby, the impact (see Smil 2014). However, the number one but often neglected factor to be taken into account is the inevitable metabolism of living and moving animals resulting in a negative rate of energy input (feed crops) in relation to the output (meat, dairy, eggs and fish). Simply put, the human-animal-plant food relation requires more steps and, thereby, more energy than the direct human-plant food relation. Eating vegan food is a nutritional shortcut, whilst animal-sourced food is a detour (see Fig. 1; see also 1.1).

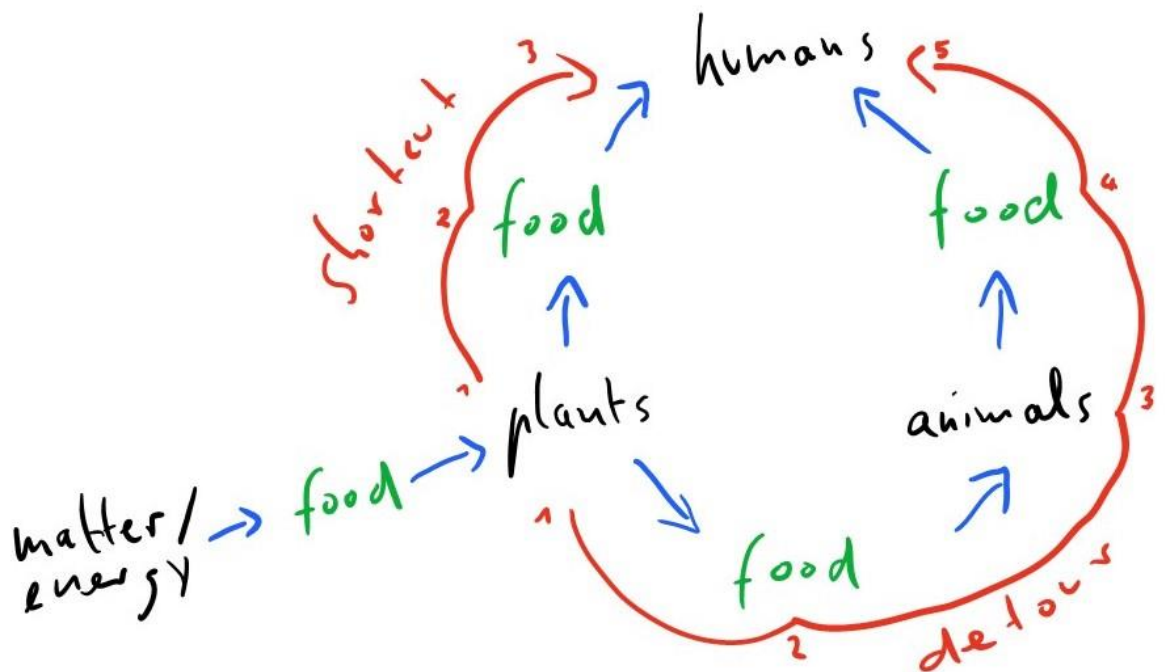


Figure 1: Food relations among matter, plants, nonhuman, and human animals (source: SH)

On first sight, the boundaries of *veganism* appear clearly defined and self-explanatory: a purely plant-based diet (or lifestyle)² in which nonhuman animals are consistently left out of productive processes. In theory, this definition may be apt but my material-discursive analyses show that what is usually referred to as “vegan” turns out less straightforward in practice. For a start, the seemingly simple and binary pathways between vegan and animal-sourced foods require a preliminary definition of three further terms used in this thesis. Firstly, *carnism* denominates a dietary ideology which, unlike veganism and vegetarianism, states that eating meat is normal, natural, and necessary (Joy 2010; see 2.2.3 for a detailed account).³ Secondly, *vegetarianism*, usually involving the consumption of dairy and/or eggs, like carnism, intrinsically relies on the pathway of animal husbandry but excludes the consumption of any animal flesh like meat or fish⁴ (Leitzmann & Keller 2013). Thirdly, there is the category of *flexitarians* or *meat-reducers* who practise a carnist diet but, for various reasons, attach importance to consuming animal-sourced foods at rates considerably below average (Mylan 2018, Raphaely & Marinova 2014, Springmann et al. 2018).

Distinguishing vegan, vegetarian, flexitarian, and carnist eaters covers most of the current spectrum of food practices. However, reproducing what these terms usually mean in common sense is only the beginning of examining the boundaries of veganism and other food practices. Just a slightly closer look reveals that these material-discursive practices cannot be so quickly defined. For example, what was defined as vegetarian above is actually a “Western” or euro-centric definition better described as ovo-lacto vegetarianism (from Latin *ovum* meaning “egg” and *lac* meaning “milk”; see also Pimentel & Pimentel 2003). The example of India, where eggs are traditionally not regarded as vegetarian, shows that the boundaries around vegetarianism are rather fuzzy, context-, and place-based (Dragsdahl 2016). On a comparatively marginal scale, an article from *The Guardian* similarly illustrates how the boundaries of material-discursive practices are socially negotiated. It is about ethical “veggans” eating eggs from rescued battery hens who do not face slaughter. Some regard this as a grey area *within* veganism. By contrast, for the *Vegan Society*, depicted in the article as the

² Obviously, veganism involves more than food, for example, clothes, but this thesis stays within the scope of food relations.

³ Carnists are not equal to carnivores because the latter have to eat meat to survive. As is well known, humans are omnivores not carnivores. Being an omnivore involves that, unlike herbivores, we *can* digest meat. However, it does not mean that we *have* to consume it. Terms from biology such as “omnivore”, on the one hand, can have naturalising effects on meat consumption. Just saying “meat-eaters”, on the other, obscures that, with hardly any exceptions, the so depicted eat plants, too. Moreover, it does not do justice to vegetarians or vegans whose denomination suggests a dietary ideology or a set of beliefs that you can share or not. Seemingly neutral terms can have normalising effects on meat consumption. Only *carnism* avoids this by pointing out that the vast majority of meat-eating people do so although, anatomically, and where they live, they do not have to (Joy 2010).

⁴ Although pescetarians, who eat fish, are sometimes categorised as vegetarians because they reject meat from land animals, in this thesis, they will be regarded as carnists for their consumption of marine animal flesh.

“true” vegans, such practices are not compatible with veganism because hens cannot give consent (Salter 2016).

This leeway in performance-making gives an idea of why it is worthwhile to examine veganism by help of the ‘boundary-drawing practices’ (Barad 2007) that configure materiality and meaning of all food practices. An understanding of this is key for social-ecological reconfigurations towards sustainable food practices. In this context, Twine’s recent work (2017, 2018) is an important contribution for looking at veganism as an ‘eating *practice*’, emphasising the significance of *materiality*, and taking a *posthumanist* stance and, thereby, adopting a ‘sociological ontology which partly decentre[s] the sovereign human subject’ (2018: 167). However, looking at veganism as an ‘*eating practice*’ entails a focus on vegan consumers which unnecessarily confines the realm in which materialities and relationalities are explored. Conceiving it instead as a *food practice*, as I do, opens the scope to the whole productive process of the phenomenon, i.e. the human and nonhuman agencies that go into enabling and performing any food practice.

So far, veganism has been treated largely as a consumer rather than a producer phenomenon. By examining international food policy reports and producers of “ethical” and “sustainable” meat in Australia, Arcari (2017a, 2017b) covers important parts of production in her research but mainly focuses on the discourses on carnism. Following from her research on the enduring normalisation of nonhuman animals as food, she urges critical analysts to focus on ‘the material infrastructures, competencies, and primarily meanings that support’ (2017b: 46) carnism and make visible ‘non-human animals as actors/agents’ (ibid.) as well as ‘the normative practices and associated elements of which they are a part’ (ibid.).

Looking at boundary-drawing practices in foodscapes of production, this thesis broadly follows the research pathways Arcari suggests, but special attention will be devoted to *vegan* food practices. Examining material-discursive practices in the context of retailers, farmers, and vegan advocacy will help to understand, firstly, how the boundaries of veganism are drawn in practice and, secondly, what drives or prevents a wider adoption of vegan food practices. Shooing away the spectre of veganism will not work—as a phenomenon it is here for a reason. Ignoring it by saying “plant-based” instead of “vegan” food might, in specific cases, help to make it less scary. This, however, comes at a risk—a depoliticised and dematerialised account of food practices, incapable to see the massive base of plants that goes into and gets lost in animal agriculture. The biomass occupied by livestock, rather than a normal, natural, and necessary part of human agriculture, not only represents but embodies anthropogenic climate change and mass extinction. What is at stake is no less than the well-being of all current and future life on Earth.

1.1 One Hunter or 1,000 Gardeners: Social-Ecological Footprints of Livestock

‘There where one hunter lives could also home ten pastoralists, a hundred farmers or a thousand gardeners.’ (Skriver 1980: xxii)

Whether this quote truly originates from famous geographer and naturalist Alexander von Humboldt (1769-1858) is unproven⁵ but irrelevant in the context of this thesis. As I have argued before (Hirth 2015), its elegance lies in illustrating the effects of conversion losses which are based upon the laws of thermodynamics and must be considered as the single most important reason for animal agriculture’s high social and ecological footprint. This section summarises the physical and biological background of why and how keeping animals for food contributes notably to climate change and mass extinction; it also addresses how this is communicated in food policy and academia.

The infamous ‘anthropocene’ (Crutzen 2002), our human-dominated geological epoch, entails rapidly closing windows of opportunity for a safe operating space for humanity (Rockström et al. 2009, Pelletier & Tyedmers 2010). Firstly, catastrophic climate changes need to be kept low (IPCC 2007, 2014, 2018). Secondly, and closely related, the sixth mass extinction in the history of the planet has to be averted—a term that describes the human-induced and already ongoing process of rapid collapse of biodiversity which is unprecedented since the fifth wave, the one that caused the extinction of the dinosaurs 65 million years ago (Ceballos et al. 2015). Extrapolating current trends, Worm et al. (2006) project the global collapse of fishery by 2048. Against this background, arising social movements such as *Extinction Rebellion*⁶ warn that *all* life on Earth is affected, including the possible extinction of the human species or, bad enough, considerable rates of population extinction.

At the beginning of the millennium, it was a report with the gloomy title of *Livestock’s Long Shadow* (FAO 2006) that addressed the specific impact of animal agriculture on the ecosphere. It caused some sensation with its finding that the livestock sector is responsible for 18 percent of global greenhouse gas emissions, which is more than the transport sector emits (ibid.: xxi). By contrast, Goodland and Anhang (2009) claim that the FAO overlooked livestock respiration and other factors which, if considered, would sum up to 51 percent. The validity of their objections, however, has been questioned (Herrero et al. 2011).

Coming up with revised methodology (and a more upbeat title: *Tackling Climate Change through Livestock*) seven years later, the FAO now attributes 14.5 percent of all anthropogenic

⁵ Theologian Carl Anders Skriver (1980), who compiled a list of historical quotes advocating implicitly or explicitly for vegetarianism or veganism, claims that the quote is from Humboldt without specifying the source.

⁶ <https://rebellion.earth/>

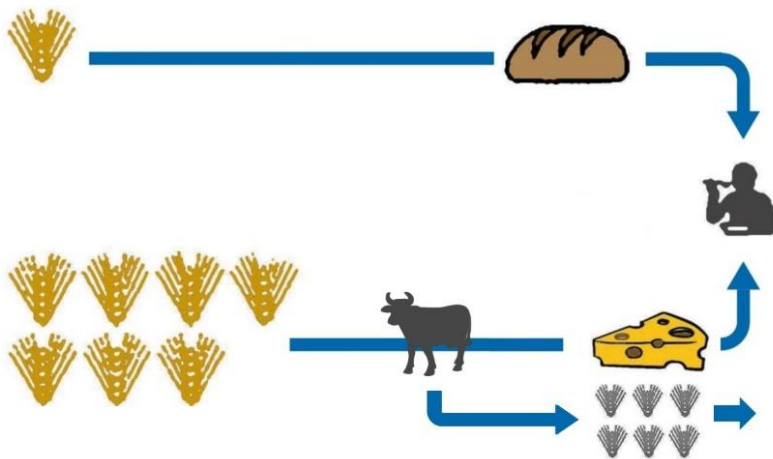
greenhouse gas emissions to livestock supply chains (Gerber et al. 2013: 15). Even this number is still staggering and makes livestock one of the major drivers of climate change. It represents 7.1 gigatonnes CO₂-equivalents out of humanity's 49 gigatonnes per year (ibid.). The report expresses an urgent need for collective global action and states that increasing production efficiency is key to reducing emissions. I emphasise that when speaking about production efficiency, they refer to *animal husbandry's* efficiency, for example, feeding practices and technologies (ibid.). What they consider are improvements of animal agriculture rather than its degrowth. This resonates with Arcari's findings that in FAO (2006), IPCC (2007, 2014), and other reports, 'the focus is on how to maintain current levels of production' (Arcari 2017a: 73) and 'how to mitigate these impacts so that meat may retain its role' (ibid.: 74). Thus, what these reports do not (sufficiently) address is an alternative—and much more effective—possibility of increasing productivity: Choosing more efficient diets, namely more direct human consumption of plants, which excludes conversion losses of nutritional energy (see Fig. 1 and Fig. 2).

Understanding the relation between what I call *conversion losses* and the energy within animal-sourced foods, feed efficiency, and social-ecological problems such as climate change and mass extinction requires some physical basics. The laws of thermodynamics (see Dilworth 2009, Lünzer 1979) imply that

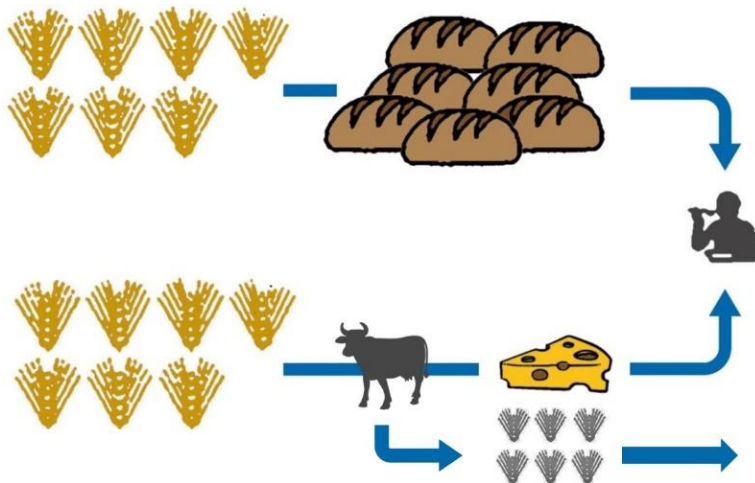
- (1) energy can be transformed from one form to another but the total energy of an isolated system remains constant and
- (2) a thermal engine can only transform a limited amount of heat into the concentrated, desired form of energy (=exergy). The rest of the heat is *lost* to the system (=anergy). Diffused into the environment, this type of energy is non-exploitable. It cannot perform work.

Losses in processes of energy conversion do not only occur in motorised vehicles or electric power plants but also apply to living beings. Plants transform sunlight, water, and carbon dioxide into sugars, fats, and proteins (= food from the perspective of herbivores) as well as oxygen (which all animals "feed" on). Approximately, as animals, we are thermal engines that transform food, water, and oxygen into our bodily performances. We build flesh and/or milk but we also execute movements, produce and emit warmth and carbon dioxide into the environment—in short, we have to maintain our metabolism which is work and costs energy. In animal agriculture, flesh or milk is the output, the desired form of energy, the exergy, the food, whereas losses of nutritional energy are undesired side-effects, the anergy, the emissions of the "thermal engine" that livestock is (see Fig. 2). Though reducible, conversion losses are

a) Plant foods require less land to produce the same amount of nutritional energy. Animal-sourced foods are thus actually *more* plant-based than so-called “plant-based food” (see 9.2.2 for a more detailed discussion).



b) Taking the same amount of agricultural land as a reference, plant foods provide more nutritional energy and can feed larger populations than animal-sourced foods.



c) The possibility of *replacing* energetic detours via animals with plant-food-pathways opens up space for producing *slightly* more nutritional energy while freeing considerable amounts of space for alternative uses such as reforestation, intensive gardening, and others.

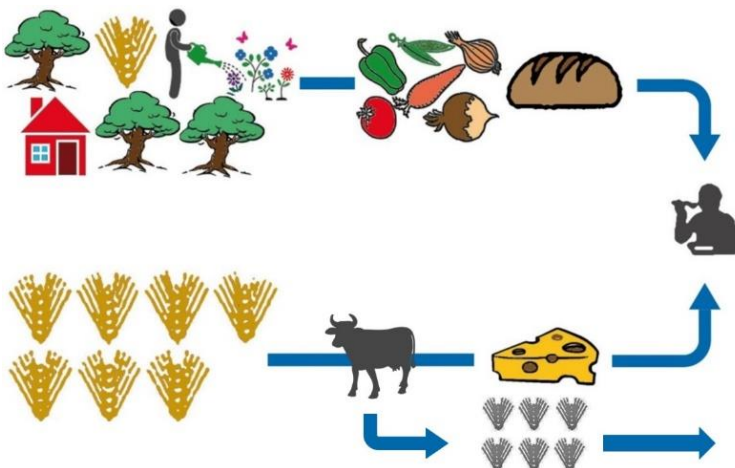


Figure 2: Three simplifying models to illustrate conversion losses and different agricultural and dietary pathways on a patch of arable land. The symbols do not represent mathematically correct values for bread or cheese production but suffice as generalised approximations for the choice between a *purely* plant-based pathway and a *plant-animal-based* pathway. The latter produces one unit of animal-based nutritional energy while six units are lost to the animal’s metabolism and result in emissions (source: Hirth 2015: 45; inspired by Strahm 1985: 46 who uses data from Cottrell 1955: 20).

physically inevitable in livestock (Smil 2014). In light of this it is comprehensible that cultured meat from cellular agriculture which, by contrast, does not involve *animate* beings promises to have a lower environmental impact (see Stephens et al. 2018, Tuomisto & Teixeira de Mattos 2011).

The *feed conversion ratio* is a measure of the efficiency of the productive process and usually describes how much kg of feed is needed to get one kg of output (Gerber et al. 2013: xix). For example, chickens have a feed conversion ratio—input (feed) divided by output (food)—of 2/1. Turning only half of the feed into actual food is quite a loss. In comparison to pork (3.6/1) or beef (18.5/1), however, chicken is still relatively favourable (de Ruiter et al. 2017: 75). Not only do different species or different breeds transform feed to food with different efficiencies, the more fundamental lesson of thermodynamics for agri- and culinary culture and, last but not least, *sustainability* is that the pathway of eating animal foods comes with a ‘woefully poor energetic efficiency’ (Greenhalgh 1976: 1), while eating plants directly is inevitably a more efficient use of nutritional energy.

The basics of conversion losses have been long understood. Before climate change and greenhouse gas emissions became a more salient issue in the 1990s, livestock had received critical attention in two interdependent contexts. Firstly, energy use, including concerns about the energy/fossil fuel crises in the 1970s; secondly, feeding the world, particularly the discrepancies between hunger in the Third World and the land- and energy-intensive diets in so-called “developed” countries (Cottrell 1955, Greenhalgh 1976, Lünzer 1979, Pimentel et al. 1973, Spedding 1981, Strahm 1985). As a result of the inefficient feed conversion ratio, four important factors in agriculture are aggravated whenever plants are converted into animal-sourced foods rather than being eaten directly:

- land use (see Fig. 2a, c)
- feeding populations (see Fig. 2b)
- resource use; e.g. water and fossil-fuels in form of fertilisers (nitrogen and phosphates)
- emissions of greenhouse gases as well as acids, biocides, copper, and other substances

Conversion losses are so crucial to food security and sustainability because they visualise the materiality of production. For example, they help understand Monbiot’s (2018) seemingly paradoxical claim, ‘[...] if you want to eat less soya, then you should eat soya’, and refute the popular prejudice that, by consuming tofu, vegetarians or vegans would equally contribute to the destruction of rainforests. Actually, the production of protein from meat requires 6 to 17 times more land and 6 to 20 times more energy than from soya (Reijnders & Soret 2003: 665).

Furthermore, conversion losses are key to understand the materiality and spatiality behind von Humboldt's opening quotation that suggests that one hunter or a thousand gardeners require the same land for their livelihoods. These exact numbers will not be mathematically accurate but they point to the unassailable principle that, wherever cultivating crops is possible, more people can be nourished if the crops are consumed directly by humans (see Smil 2014, Pelletier & Tyedmers 2010). Today, producing food crops instead of feed crops for domesticated animals could feed an additional 4 billion people (Cassidy et al. 2013). If the grains fed to livestock in the United States alone were eaten by people directly, they could feed another 840 million people (Pimentel & Pimentel 2003: 661) which just happens to match the current number of undernourished people in the world (= 821 million; FAO 2018).

Coming from a food system that involves animal agriculture, increasing efficiency can be achieved either by improving feed conversion, and hence staying *within* the boundaries of the animal system, or by replacing animal-sourced foods by plant foods. In principle, productivity gains (or energy savings) from increasing efficiency by moving *beyond* the animal system will always outperform feed efficiency approaches because only this alternative *socio-cultural-agri-economical* choice is able to cross the *physical* boundary set by the laws of thermodynamics (see Smil 2014). Consider, for example, Pelletier and Tyedmers' (2010) analysis which, as they claim, 'includes generous assumptions regarding efficiency gains over time', and yet they emphasise that 'such objectives [moving the world to a safe operating space] are unlikely to be met by technological means alone' (ibid.: 18372). Modern animal agriculture constantly strives toward further increases in feed efficiency and thus toward that physical boundary, but it is intrinsic to working *with* livestock that this boundary cannot be crossed. By driving animals to their bodily limits, intensive livestock production risks human exposure to infectious agents (McMichael et al. 2007). In social as well as environmental and nutritional sciences, the voices that consider or suggest a reduction of consumption and, less so, production of animal-sourced foods have become numerous since the beginning of the century and more prominent in recent years (see, amongst others, Cassidy et al. 2013, Emel & Neo 2011, Hedenus et al. 2014, Jalava et al. 2014, McMichael et al. 2007, Morris & Kirwan 2006, v. Koerber et al. 2007, Leitzmann & Keller 2013, Naylor et al. 2005, Nijdam et al. 2012, Pelletier & Tyedmers 2010, Poore & Nemecek 2018, Reijnders & Soret 2003, de Ruiter et al. 2017, Searchinger et al. 2018, Smil 2002, Springmann et al. 2016, 2018, Willett et al. 2019). As mentioned above, organisations such as FAO or IPCC nonetheless address efficiency rather in terms of feed conversion improvement than dietary changes. Considering how much is known about efficient agri-culinary practices from a bio-physical perspective, their reticence is better explained by social and cultural predispositions against absolute reductions of animal-sourced foods.

Perhaps it has to be understood against the background of rising pressure that, in a more recent report on the occasion of the Paris Agreement to confine global warming to 1.5 °C, dietary changes are actually considered by the IPCC (2018). Far from figuring prominently, however, the ‘reductions in demand’ included in three future mitigation scenarios translate only indirectly through a fourth scenario to a shift away from ‘greenhouse-gas-intensive lifestyles, including high demand for [...] livestock products’ (ibid.: 16). In sum, the most powerful voices in food policy and environmental sciences still do not sufficiently or only recently consider reductions in meat and dairy consumption which, due to worries about the rising world population, not necessarily includes a reduction in *production* of animal-sourced foods (cf. Searchinger et al. 2018).

Pimentel (2009: 516) describes the growing world population as the ‘prime obstacle to seeking solutions to the global food problem’, but as much as I share the concerns about population growth, to me, carnism, or the lack of thinking and acting beyond animal-based agri- and culinary culture, at least appears as an equivalent obstacle. The unassertive way in which absolute reductions of animal husbandry are communicated is not due to a lack of evidence. Not unlike the collective knowledge on climate change, the evidence provided by the data accumulated over decades, if not centuries (considering von Humboldt’s alleged quote), is strong. Certainly, my empirical research will not have anything to contribute to the debates about animal agriculture’s environmental footprint but I agree with Mark Harvey that, ‘rather than attempting to construct a parallel social science “materiality”’, academics should first turn ‘to current state-of-the-art natural and environmental science’ (2014: 163). I feel thus entitled, if not obliged to treat it as a given that, regardless of dogmatic debates about ethically sound diets, a reduction of animal products has a large potential for establishing and sustaining a minor ecological impact of food practices, i.e. less land and energy use. The laws of thermodynamics clearly tell us that hunters and pastoralists, even in their modern forms, are—socially and ecologically speaking—high maintenance in comparison to gardeners and gatherers.

Therefore, the open question is not so much how sustainable nutrition might look like. Rather, it is why social and spatial consequences of production and consumption, most notably conversion losses, appear to play no significant part in the everyday practices of most agents involved in human food relations, both consumers *and* producers. Analysing the tensions within the boundary-drawing practices around veganism and carnism, this thesis is an attempt to approach this question.

1.2 The Boundary-Drawing Practices of Veganism – Structure of the Thesis

Observing how differential boundaries are drawn around veganism and carnism will help to understand how sustainability efforts towards a reduction of animal agriculture can be achieved. In sociology, theoretical accounts of boundary drawing (Lamont & Molnár 2002, Pachucki et al. 2007, Lamont 2012) have been applied to food studies, for example, by Yeh (2013, 2014) who examines how the boundaries of vegetarianism are drawn. So far, scholars who have analysed these boundaries largely tend to treat veganism, vegetarianism, or carnism as *eating* practices and thus as *consumer* phenomena. From a social-ecological perspective, my concern is that this excludes the materiality and meaning of the agencies which are part of the productive process of food. Therefore, this thesis looks at veganism as a *food* practice which, rather than being confined to consumers' eating habits, involves the materialities of foodscapes of *production* and the spatio-temporal possibilities within them.

In order to examine these boundaries, I mainly draw upon Karen Barad's (2003, 2007, 2010, 2012a, 2012b, 2012c, 2014, 2016) theoretical account of material-discursive practices. In light of her relational, posthumanist approach, boundary-making practices are formative of the matter and meaning that enact vegan or carnist food practices as phenomena. Examining the specific agential intra-actions through which the boundaries and properties of veganism and carnism become determinate (or: materialise), requires a sense for a multiplicity of agencies that goes beyond consumers and humans. A relational approach, digging deeply into the relations of phenomena and practices, can be seen as contrary to a representational one. According to Barad, representationalism is 'the belief that words concepts, ideas, and the like accurately reflect or mirror the things to which they refer' (2007: 86). The representational trap in the study of veganism, then, is the belief that veganism accurately mirrors, and exhausts itself in, the relation between vegan subjects (eaters) and objects (plant food). In other words, that the boundaries of the phenomenon lie in what vegans do with vegan food.

This thesis argues that veganism tends to be conceived representationally, that is, as a culinary ideology, a consumer identity, and a property of foods. However, in reconfiguring veganism as a relational and material practice, one which also includes production, lies a chance to free it from some of its dogmatic burdens and (re)politicise it in view of climate change and mass extinction. In order to relieve the ecosphere by enacting absolute reductions of animal-sourced foods, what I call *vegan food practices* can be performed *regardless* of one's dietary identity as a vegan, vegetarian, or carnist consumer or producer. Considering that climate change and mass extinction are an existential threat to all current life on Earth, performing

vegan food practices *predominantly* can, where possible, reasonably be declared as the ethical minimum of both agricultural and culinary practices.

• • •

The following depiction of the conducted research is structured in three parts: design, analysis, and synthesis. The first part involves literature reviews for the contexts of social scientific food studies and relational theory (ch. 2) as well as a chapter about research objectives and methods applied (ch. 3). The second part encompasses the main analytical chapters (ch. 4 to 8). Each of them illustrates the empirical data in a thematic way and ends with a short conclusion. Finally, these conclusions are condensed and discussed in part three (ch. 9 and 10). Some empirical data such as the discursive website analysis, though surely a factor of indirect influence, did not find a way into the actual thesis and is attached in the appendix (A).

- *design* -

The second chapter positions my research within the sociology and geography of food (2.1), reviews how the boundaries of veganism have so far been drawn by scholars (2.2), and takes root in relational theory in order to operationalise material-discursive practices and formulate a political ontology that is meant to (re)materialise vegan food practices and expand their possibility space (2.3).

Chapter three summarises how this research was conducted, including research objectives and questions (3.1), methodology (3.2), data collection (3.3), and data analysis (3.4).

- *analysis* -

As part of the empirical analysis, chapter four depicts tensions between humanist and posthumanist accounts of (agri-)culture by drawing on the case of a former beef and dairy farm that was given up for vegan organic crop cultivation (4.1); another section uses *Asda's* homepage to illustrate how humanist framings of “sustainability” are driven by the carnist apparatus (4.2).

Chapter five looks at a grocery store and worker's cooperative. Although not selling meat, dairy, or other animal-sourced foods and having a vegan political agenda, it is to some degree entangled with carnism (5.1) as well as with the agencies that exclude the environment, wildlife, and production from the realm of ethical veganism (5.2).

The sixth chapter addresses how sustainability is subsumed under the productivity paradigm in food policy and agriculture. A quick look into the productivist literature on sustainable intensification and its role for feeding the world (6.1) is followed by, firstly, an interview-

based debate on productive, efficient, and sustainable land use in the case of conflicting interests between growing either feed or food crops (6.2) and, secondly, alternative views on productivity and feeding the world through vegan food practices held by actors of the vegan organic movement (6.3).

Chapter seven takes the examples of a big retailer and its cheese supplier who mainly frame sustainability within the confines of the efficiency paradigm. Justified by views that the market is dictated by consumer beliefs only and that sustainability is an extremely complex issue, the retailer depicts increased efficiency—improving practices in *relative* terms—as the one and only means toward sustainability while practices are maintained in *absolute* terms (7.1); this is further explored by example of animal agriculture, chicken and food waste, meat and dairy substitutes, and bananas (7.2) as well as the case of a dairy farm supplying *Asda* with ‘100 per cent green’ cheddar (7.3).

The last empirical chapter introduces vegan organic agriculture as an emerging food practice by delineating conventional, organic, and vegan organic production practices (8.1), juxtaposing humanist and posthumanist intra-actions in different agricultural practices (8.2), and outlining how ‘conventional organic’ practices, which *involve* animal agriculture, are challenged by vegan organic practices that render veganism as an intra-active process rather than an individual identity (8.3).

- *synthesis* -

In the last part, the insights of the empirical chapters are compiled in the discussion chapter nine that reconceptualises the representational boundaries of veganism towards *vegan food practices*. This involves a brief theoretical account of de- and reconstructive analysis (9.1), a review of patterns of representational boundary-drawing in my own data and beyond (9.2), and an attempt to reconfigure the conventional boundaries relationally and undogmatically towards veganism as a performative practice (i.e. vegan food practices). This may enrich debates and initiatives to save us from the worst impacts of climate change and mass extinction such as the Half Earth proposal (9.3).

Finally, in the concluding tenth chapter, the findings are summarised and put in context to the currently heating (political) climate, followed by a suggestion to use the notion of vegan food practices in order to make the “spectre of veganism” less scary, rather than shooing it away.

Part I: Design

2. Positioning of the Research

In this chapter, I position my research within social scientific studies of food (2.1) and review how the boundaries of veganism have so far been drawn by scholars (2.2). Theoretically, I take root in relational approaches in order to operationalise material-discursive practices and formulate a political ontology that is meant to (re)materialise vegan food practices and expand their possibility space (2.3).

2.1 Social Studies of Food and Consumption

‘Social change also requires bodies that think social change ought to occur. How do bodies become tuned to the status quo (or to alternatives)? What makes bodies want change? These are important questions; yet they go largely unanswered in the agro-food studies literature. Lest we forget, at the heart of change/status quo are living bodies.’

(Carolan 2011: 13)

Animal products contribute massively to sustainability problems, but overall, they are part and parcel of everyday food production and consumption. Rather than suggesting an overall reduction of animal husbandry, a major part of agricultural policy calls for a high increase in productivity in view of the spectre of a growing world population (for a critical account see Tomlinson 2013; see also 6.1). It is in this contradictory and controversial context that the human-animal-plant-energy food relation (as well as the material-discursive practices it involves) is to be put on the spot, both in its stability as a phenomenon perceived as “natural” and in the ways its “naturalness” is questioned and re-negotiated.

Within this scope my research project parallels broader debates around the moral imperative of responsible food consumption, on the one hand, and the neoliberalised politics behind sustainability discourses, on the other. When it comes to questions of food (in)security, the literature in agricultural and economic geography still appears to be preoccupied with production—especially its efficiency—whereas another strand of food-related literature, inspired by the cultural turn(s), is rather focused on consumption, particularly on the (controversial) role of ‘alternative food networks’.

My project builds upon and can be located within the academic contexts of geographical and sociological research on food (2.1.1). It also touches debates on ethical consumption practices (2.1.2) and on sustainability; the latter most notably in the field of political ecology (2.1.3). In the following paragraphs I will outline the ways in which my research resonates or dissonates with (a non-exhaustive selection from) the broad field of social scientific research at the nexus

of food, environment and responsibility. Subsequently, I will return to my conceptual reference points within social and spatial theories.

2.1.1 Agricultural Geography vs. Geographies of Food

The ‘crisis’ of agricultural geography can be seen as a starting point of the relatively recent debates around ‘food geographies’ emerging since the end of the 1980’s. In essence, the ‘traditional’ approaches were criticised for their unidirectional focus on the productivity of agricultural businesses: Animals merely appeared as objects of mass production and humans as the ‘production factor labour’, whereas broader societal contexts, especially the consumption of agricultural produce, were neglected (Bowler & Ilbery 1987, Atkins 1988). The disparities between famines in African countries and the European Community ‘food mountains’ nonetheless raised questions and revealed negligence in research (Whatmore 1991). While Bowler and Ilbery (1987: 327) attested agricultural research ‘every sign of diminishing returns’ merely suggesting to re-define it, Atkins (1988: 282), in view of ‘tedious typologies’, declared provocatively: ‘Let us be bolder. Agricultural geography is dead: long live the geography of food!’ (ibid.).

The first part of Atkins’ postulate might have been a bit hasty, as the productivist paradigm dominating agricultural policy (Lang & Barling 2012), is actually quite alive even in current textbooks of agricultural geography: Food insecurities in the face of an increasing world population, according to Klohn and Voth (2010: 100), must be responded with a quantitative rise in food production. In view of a lack of land, this requires increased productivity through efficiency gains—especially in the ‘developing countries.’ They even claim that almost doubling global meat production is a necessity (ibid.). While there is no doubt that hunger and malnutrition should be declared as a central problem, it is questionable when the core of the problem is (solely) located in a lack of productivity in the Global South, whereas “Western” modes of production and consumption remain unquestioned. This resonates with the neoliberal ‘vocabularies of the economy’ identified by Massey (2013: 16) which tell us in a contradicting manner that, on the one hand, ‘our very self-identification, lies in our ability to choose [...], while at the level that really matters – what kind of society we’d like to live in, what kind of future we’d like to build – we are told, implacably, that, give or take a few minor variations, there is no alternative – no choice at all.’ In other words, the productivist claims described above naturalise both meat production and the alleged superiority of the so-called “developed world” and its modern conceptions of (agricultural) productivity.

The latter part of Atkins' (1988) postulate, however, turned out to be quite to the point. During the 1990s approaches emerged which, under the influence of the 'new cultural geography', crossed sub-disciplinary borders and focused more on the socio-cultural aspects of the broader field of agriculture (see Bell & Valentine 1997, Cook & Crang 1996, Cook et al. 1998, Goodman & Watts 1997, Le Heron 1993; for an overview see also Morris & Evans 2004). While the traditional 'commodity chain' approach (Friedland 1984) proposes to follow a commodity's way along the supply chain, the new approaches, inspired by relational epistemologies and ontologies, intend to understand the complex interrelations between producers, consumers and their food—from farm to fork and beyond (Cook et al. 2006). The attention for the 'biographies and geographies' of food (Cook et al. 1998) is connected with an interest in the relational contexts of food knowledges, the respective processes of meaning-making, and moral economies of food (Jackson et al. 2009). Recently, material and bodily connectivities have received increased attention (Carolan 2011, Law & Mol 2008, and, more general, Strüver 2012). Senses of taste, for example, are no longer regarded as an objective, innate given but as mutable and contested (Caldwell 2004, Carolan 2011). Acknowledging that meaning, knowledge, and experiences in the context of food are socially constructed and continuously (re)negotiated, the material and embodied practices of everyday life are no longer conceived as independent from the political: 'such relationalities underlie all (food) knowledges, making those connectivities inherently political' (Carolan 2011: 14).

With its tendency to neglect the social dimension, "traditional" agricultural geography must be attested a lack of complexity in its political perspective. Goodman et al. (2010) remind rightfully of the political and moral imperative to examine the geographies of food against the background of socio-ecological inequalities.

2.1.2 Reading Ethical Consumption for Difference rather than Dominance

Finding fault with certain strands of literature and their one-sided preoccupation with production, critical scholars sought to use ever more complex concepts to describe the relations between production and consumption—from chains to circuits and networks. Cook and Crang's (1996) notion of 'circuits of culinary culture', for example, suggests that 'there are two-way interrelations between providers and users' (ibid.: 141). Other terms like 'commodity networks' (Whatmore & Thorne 1997) or 'konsumtiv-produktive Netzwerke' (Ermann 2006) clearly trace back to Actor Network Theory (see also 2.3.2).

The renunciation of a strict divide between production and consumption comes along with an increased interest in sustainable consumption and its moral implications. Since the 1990s, there has been a lot of debate on ethical forms of consumption within the framework of ‘alternative food networks’ (Whatmore et al. 2003). Referring to Murdoch et al.’s (2000) earlier work, Renting et al. (2003: 394) use the term *alternative food networks* (AFN) ‘as a broad embracing term to cover newly emerging networks of producers, consumers, and other actors that embody alternatives to the more standardised industrial mode of food supply’.

An emphasis on ethical networks of producers and consumers, however, contains the risk to neglect not only the implicit, non-reflective norms that routinise daily practices and particularly food practices (Barnett et al. 2011, Jackson 2015, Warde 2016, 2017), but also the responsibilities of *conventional* producers and policy makers. Focussing on the ethical rather than the non-reflective, and on the “good” choices rather than the “bad” ones, is a bias for which the literature on AFN has been criticised. According to Julie Guthman (2007: 264) the focus on the freedom of consumer choices implies ‘a neoliberal anti-politics that devolves regulatory responsibility to consumers’ via their dietary choices’. Governmentality approaches, explaining how subjects are reigned by means of both direct conduct and indirect self-conduct, have been applied to outline that the choice paradigm has become hegemonic. Through this lens, ordinary people who consent to their role as ‘a key agent of social change’ (Barnett et al. 2011: 12), trying to consume ‘ethically’ or ‘alternatively’, are seen as mirroring the de-politicised neoliberal endorsement of private responsibility. Correspondingly, ethical consumption campaigns and alternative food networks too are under suspicion to reproduce the individualised logic of private responsibility. Guthman’s critique on the dominance of neoliberal politics resonates with Mansvelt’s (2010: 231) claim to ‘examine how relations of power are constituted through the actions of, and the absent presence of, “the dominant” in everyday places and practices.’ In conclusion, the dominant has to be taken into account because it is precisely the normalising effect of its all-encompassing presence which makes the dominant practices, ideas or ideologies appear ‘absent’, and thus even more powerful and persistent.

However, criticising how neoliberal economic ideologies artificially inflate consumer’s agencies by means of the choice paradigm, can in turn all too easily result in inflating dominant structures. In their effort to adopt a more balanced approach to ethical consumption Barnett et al. (2011) aim at dismantling these interpretations which, in their view, derive from all too “strong” hypotheses about neoliberal subjects [and] might be in need of some revision’ (ibid.: 20). Perspectives such as Guthman’s, as Barnett et al. argue, involve a certain ‘degree of suspicion directed towards consumer-based forms of social

activity, often interpreted as indices of consumerist individualism or neoliberal hegemony' (ibid.: 16). Although I principally agree with their claim in its tendency, I would like to challenge their inclusion of Guthman in the circle of those who artificially elevate neoliberalism. Coming to her defence, I would hold that one cannot accuse her of adopting a simplistic position towards neoliberal hegemony only because she highlights it. Elsewhere, self-critical towards her glance on it, Guthman (2008: 1181) admits that 'it is difficult to know what something outside of neoliberalism might look like when all is seen as neoliberalism'.

Harris (2009) provides a helpful discussion of how to deal with neoliberal subjectivities without inflating them to an all-powerful structure which precludes any alternative emergences. For him it is objectionable that academic research all too often reproduces neoliberal subjectivities by granting it so much attention and representing it 'not only as self-reproducing, but also as able to colonise all alternatives even as they emerge' (ibid.: 60). Because a binary reading of an all-encompassing neoliberalism and quickly colonised alternatives is not only discouraging, but may actually prevent positive socio-environmental changes, Harris suggests a different reading of 'alternative food networks'. Referring to Gibson-Graham's (2006) 'reading for difference, rather than dominance' (see also 3.2), he calls on academics to recognise AFN-practices as new political openings. While only reading for dominance carries 'the potential to reinforce the alleged dominance of discursive neoliberalism, and thus to close down openings for constructive socio-environmental change' (Harris 2009: 61), an additional reading for difference is an approach 'that can recognise openings in AFN practices, and that support[s] a politics of the possible' (ibid.: 62). I will come back to Gibson-Graham's (2006: xxvii) 'politics of possibility' in the theoretical (2.3.3) and an empirical chapter (5.1). In recognition of these debates, this thesis investigates both dominant responsibility discourses, which constitute normalised food practices and marginalised attempts of resistance and reconfiguration, regardless how insignificant they appear.

2.1.3 Political Ecologies of the Possible

Because I take the scientific accounts of the ecological impact of meat, dairy and other animal products as a given that I can refer rather than contribute to (see 1.1), my focus from a sociological and human geographical perspective is rather on the social, spatial and political dimensions of the ecological problems to which this category of food is connected.

Unlike the behaviouristic approach of human ecology, and unlike cultural ecology which tends to operate with an objectivist, coherent and essential notion of culture, political

ecology—next to its marxist backgrounds—was clearly influenced by the ‘cultural turn(s)’. As a result, political ecology examines ecological problems without adopting a realist conception of nature and culture (Flitner 2003). From the 1990s poststructuralist approaches come in political ecologists’ fields of vision increasing the conceptual and methodological importance of discourses, narratives and popular imaginaries for the analysis of environmental problems (e.g. Blaikie 1995, Escobar 1998, Hecht 1998, Braun 2002, Bauriedl & Wissen 2002, Bryant & Goodman 2004, St. Martin 2005). At the core of political ecology’s focus are ecological knowledges, and the question by whom, why and how they are produced, represented or questioned (Blaikie 1999). Ultimately, ecologies, environmental problems, sustainability and their social construction are so relevant to the political because whenever a causal relation is ascribed this is likely to come along with the (often implicit) identification of guilty, liable or (ir)responsible individuals or groups.

In the awareness of scarce resources on a finite planet it appears likely to regard environmental destruction as a problem of greed and excesses. Superficially, a few bad “sinners” can easily be identified, for example, among the oil and chemical industries, multinational corporations for consumer goods, fast food chains or the agrobusiness and their factory farms. Surely, *British Petrol*, *Dow Chemical*, *Nestlé*, *McDonald’s* and *Monsanto*, to name just a few, meet with criticism. Not rarely, specific politicians or even whole countries are accused for their “bad” environmental policies and practices; depending on one’s perspective China or the USA might come to mind. While it is indeed tempting to identify some “bad” practitioners, Peet et al. (2011), in their account of a ‘Global Political Ecology’, make an important, and maybe counter-intuitive, point that is supposed to prevent premature individualisation of responsibility suggesting ‘that something scarcely credible might indeed be happening: “normal” production and consumption destroy the natural environment, historical origin and material source of human existence’ (ibid.: 14). In the context of food, it is therefore crucial to take into account how daily and broadly accepted practices of production and consumption contribute to problems of human and nonhuman existence (see Emel & Neo 2011, Guthman 2011).

Pointing out the *normality* of environmental destruction, I would like to highlight that it is neither my intention, nor would it be in any way sufficient to suggest that all the actors are equally involved in this process (e.g. individual consumers, companies, governments, etc.) or that all the countries or regions are equally contributing to it. Quite the contrary, socio-ecological inequalities do matter (see Goodman et al. 2010), and it is precisely the mapping and the discernment of different possibilities and responsibilities that I am interested in as unequal power relations are an effect of a multiplicity of different agencies. Being able to talk

justly about responsibilities for environmental crises requires to take into account how a multiplicity of interrelated or, in Barad's (2007) terms, 'intra-acting' agencies perform "normal" practices such as carnism that contribute to these crises. In particular, this requires asking how this normality comes into being. Against this background, the normalisation of everyday practices is, on the one hand, an equally acute problem of sustainability as it is a chronic one. On the other hand, it provides a starting point for creative reconfiguring in the sense of 'political ecologies of the possible' (Peet et al. 2011: xiii, *italics original*). Social scientific analyses of food, claiming to be sensitive to issues of power and responsibility, have to disclose the political and socio-spatial efficacies which provide the predominant food practices with their normality, and to understand their apparent naturalness and social stability instead as a contingent material-discursive configuring—a relation between the actual and the possible in which normalisation is a practice that excludes other possibilities from materialising.

2.2 Drawing the Boundaries of Veganism

Rather than a one-time question of concise definition, drawing the boundaries between veganism, vegetarianism, and carnism is an ongoing, intra-active, material-discursive process both scholars and their research objects are involved in. Vegetarianism is an important part of this literature review as veganism can either be included in vegetarianism (often referred to as "strict vegetarianism") or differentiated from it (i.e. when consuming dairy and/or eggs is considered part of the food practices of vegetarians, whilst vegans abjure all animal-sourced products; see also ch. 1). The following will touch upon carnism as another dietary ideology in a row with what will be the main focus: vegetarianism and veganism. This review comprises

(2.2.1) scientific analyses from natural, environmental and life sciences and cross-referring popular books;

(2.2.2) social sciences and humanities, particularly social psychology and moral philosophy;

(2.2.3) sociology and human geography.

2.2.1 Scientific Analyses and Popular Books

The current era, characterised by various environmental crises and initiated by fossil-fuelled capitalism, is often referred to as the 'anthropocene' (Crutzen 2002). This term, due to its focus on human agency and its tendency to naturalise our species' social-ecological

‘obscenity’, was elsewhere rectified to the ‘capitalocene’ (Moore 2016) and the ‘anthropo-obscene’ (Swyngedouw and Ernstson 2018). Whatever the best term for the phenomenon, it has generated research from natural, environmental, and life sciences broadly concerned with mitigating climate change, assessing agriculture’s ecological impacts, and securing global food supply.

As already touched upon in the introduction (ch. 1), there is a strand of literature based, for example, on life cycle analyses which—in order to assess the ecological impacts of different dietary regimes—explicitly accounts for vegetarian or vegan diets (Cassidy et al. 2013, Scarborough et al. 2014, Springmann et al. 2016, Stoll-Kleemann & O’Riordan 2015), whereas others compare the environmental impacts of animal and plant-sourced foods without using dietary labels (e.g. Poore & Nemecek 2018). While the above literature shows that specific diets avoiding animal-sourced foods are by now a relatively well-researched field, there is hardly any explicit engagement in the environmental and agro-ecological literature with vegan or stockfree production (see 6.3 and ch. 8). Most agro-ecological accounts focus on *organic* agricultural approaches that *include* animal derivatives for fertilising the fields. An exception is Schmutz and Foresi’s (2017) introduction to the standards of vegan organic horticulture and its prospects for global food security.

In nutritional sciences, accounts of vegan and vegetarian diets typically foreground questions of individual or social health (Leitzmann & Keller 2013), for example when evaluating nutritional risks and values of vegan and vegetarian meat substitutes (Huber & Keller 2017), but there is also the related field of ‘nutritional ecology’ which, in its focus on the impacts of purely plant-based diets, is closely in line with the environmentally concerned literature mentioned above (Leitzmann 2003, Metz & Hoffmann 2010, Sabaté 2001).

Finally, there are popular books broadly and comparatively concerned with problematising animal agriculture in its modern form as factory farming, on the one hand, and looking into meat-free diets, on the other (e.g. Foer 2009, Marcus 1998, Pollan 2006).

2.2.2 Social Sciences and Humanities

The literature from social sciences and humanities vastly focuses on ethical veganism or vegetarianism either in form of

- (a) the theoretical debates on speciesism and animal rights,
- (b) empirical studies about the movements’ internal values, motives, and attitudes,
- (c) empirical studies about external discourses on veganism.

a) Social sciences and humanities engage with veganism and vegetarianism in diverse ways. In Andreatta's (2015) performative autoethnography, for example, she reconstructs her own experience of becoming vegan which is a rather unique methodological account of herself as a researching vegan subject. Most literature, however, is interested either in vegan consumers as research objects or in theoretical and ethical questions about veganism or vegetarianism. Central to the latter are critical accounts of the relations between humans and nonhumans.

Animal rights are discussed as the ethical basis for non-violent, non-exploitative lifestyles particularly from a view of moral philosophy (Alvaro 2017, Castricano & Simonsen 2016, Deckers 2016, Matheny 2003, Saja 2013, Tolstoi et al. 2010). Critically evaluating whether the consumption of animal products should be forbidden, Deckers (2016) argues for a qualified ban. From a comparatively neutral philosophical standpoint, Saja (2013) assesses and quantifies the 'moral footprint' of animal products. Whilst being a vegan is supposed to be the most effective way of minimising the harm done to animals, he argues that those who nonetheless continue to eat meat should not only consider the animal's quality of life in farming but also quantifiable factors such as the consumed species' body weight and its efficiency. Minimising animal deaths and suffering without totally abjuring meat, he concludes, makes meat from bigger animals such as beef and pork a more reasonable option than chicken and fish. Saja's reading is in potential conflict and in contradiction to concerns over the major impact on climate change and deforestation particularly of cattle farming (see Garnett & Godde 2017). Crucial to the assessment, I suggest, is whether the minimisation of animal deaths and suffering refers to domesticated animals only or whether wild animals and the destruction of their habitat is considered. Saja (2013) included, there is certainly a risk and perhaps a tendency among both scholars and consumers to reduce animal ethics to the realm of farm animals suffering directly in the process of production while the anthropogenic 'sixth mass extinction' in the history of Earth (Ceballos et al. 2015) is overlooked (see also 5.2). In other words, whilst a cow or an ox may provide a high quantity of meat for what on first sight causes only one individual animal's death, the feed efficiency of beef farming is unarguably lower (e.g. relative to chicken; see 1.1). Therefore, its ecological impact in form of its land use, habitat destruction, and emissions is higher, and hence its contribution to (wild) animal deaths and suffering.

(Eco)feminist approaches are supposed to keep a more critical eye on the materiality and multiplicity of suffering as they look at the intersections between ecosystems, speciesism, ethical veganism or vegetarianism, and gendered and racial identities (Adams 1990, Bailey 2007, Doyle 2016, Hamilton 2016). In particular, they examine how both meat consumption and vegetarianism are gendered in the context of food attitudes (Ruby et al. 2016), which role

gender plays in the adoption of ethical veganism (Diaz 2017), and the ways in which veganism is to be seen as a challenge to hegemonic masculinity (Greenebaum & Dexter 2017). Adams' (1990) classic on *The Sexual Politics of Meat: A Feminist-Vegetarian Critical Theory*, shows the parallels between patriarchal culture, including the rape and abuse of women, and the unequal relationships of human and nonhuman animals. For (eco)feminist accounts of a specific sociological alignment, which are reviewed in more detail in 2.2.3, see Cole and Morgan (2011a, 2011b), Cole and Stewart (2017), Cudworth (2014), Greenebaum and Dexter (2017), as well as Twine (2014).

Apart from the academic literature that is either openly or implicitly supporting a vegan or vegetarian agenda, on the one hand, and the factual empirically-focused and thus rather neutral accounts, on the other, there is also normative moral critique of vegetarianism from academic advocates of carnism (e.g. Archer 2011). Arguing from an openly anthropocentric perspective, Hsiao (2017) defends industrial animal farming against the charge of cruelty by claiming that linking industrial farming with cruelty is person-dependent and merely shows 'that working with animals is not for everyone' (ibid.: 37). While there are good reasons for acknowledging the ways in which human farm workers may or may not suffer, the paper simply elides the charge of cruelty against *nonhuman animals* although that would certainly be the main concern of ethical veganism or vegetarianism. It is precisely out of that concern, however (next to broader ecological concerns), that new prospects of (bio)technologies such as meat that is grown in vitro without killing animals gives rise to hope among those who do care about animal cruelty and who ask whether it is our moral obligation to develop and deploy these technologies (Hopkins & Dacey 2008).

b) Other social scientific contributors concentrate more clearly on empirical, rather than theoretical, accounts of moral or ethical veganism or vegetarianism. Social psychological research raises questions about the motivations for vegetarianism and the underlying attitudes, values, and worldviews (Ruby 2012). Similarly, some research focuses on the specific reasons or motives for becoming or being vegan, drawing upon either qualitative interviews (Hirschler 2011, McDonald 2000) or quantitative survey data (Janssen et al. 2016). Snejder and te Molder (2005) apply conversation analysis and discursive psychology to examine how participants in online discussions on veganism negotiate 'alleged health threats such as vitamin deficiency' by attributing 'responsibility for possible deficiencies to individual recipients rather than veganism' (ibid.: 675). Having conducted research on how people learn to become vegan, McDonald critically calls attention to her own research model's

'limitations [one of which] is its psychological emphasis. It does not give voice to the rich social milieu in which these vegans learnt. Further analysis, which was beyond the

scope of this paper, revealed psychological experience inextricably embedded in social relations and the dominant ideology of human superiority' (2000: 18).

That reductive (social) psychological emphasis, as McDonald terms it, is, I suggest, quite typical for the literature in this field.

c) Instead of analysing vegan subjectivities, a further strand of literature is concerned with the view of the general public, that is the vast majority of non-vegans' positions towards veganism (or vegetarianism respectively), especially debates in the media. An example from social psychology that Minson and Monin (2012) refer to as the 'do-gooder derogation' is the backlash moral minorities—in this case vegetarians—face as the mainstream feels morally judged. Bacon and Krpan (2018) try to better understand food choices in restaurants by experimenting with different grades of visibility of vegetarian dishes as part of the menu design. They emphasise the impact consumers' past behaviour has on the success or failure of nudging them into ordering a vegetarian dish. Taking the stigmatisation of dietary others into consideration, Doyle (2016) asks how celebrity vegans encourage veganism. She finds that a strong vegan ethical commitment and identity is compromised by celebrity culture's commodity logic. In defence against hostilities towards veganism, celebrities play down the term "vegan" to an innocuous "plant-based diet" (see also 9.2.2) and constitute the corresponding lifestyle as an individual consumer choice to be healthy, happy, and kind (Doyle 2016).

To summarise, the theoretical literature shows an emphasis on the suffering of farm animals which does not necessarily entail equal attention to the suffering of wild animals due to habitat loss (a). Likewise, the focus of the empirical literature on attitudes of vegans, debates by vegans (b), and discourses on veganism (c) is an expression of a relatively human-centred research focus. Assessing the existing literature against the background of the emerging posthuman ontological, epistemological, and ethical paradigm (e.g. Barad 2007, Bennett 2010; see 2.3), it can be concluded that the existing research falls short of accounting for the materialities and meanings around nonhumans—particularly the non-domestic ones—and ecosystems. Furthermore, the focus on veganism as an *eating* practice means a consumerist, (mainstream) economic, and psychological predisposition that tends to disregard other-than-consumers as well as the material-discursive social-ecological implications of veganism, particularly with regard to practices in agriculture. Lest we forget the human and nonhuman, animate and inanimate, sentient and non-sentient producers of vegan, vegetarian, or carnist foods—retailers, farmers, machines, domesticated animals, microbial life of the soil, chemicals, fossil fuels, sunlight, and more.

2.2.3 Sociology and Human Geography

In my assessment of the sociological and geographical literature on veganism, vegetarianism, and carnism, I distinguish four categories with each their very own focus:

- (a) the emergence of veganism, its ethical fundamentals, and its boundaries with vegetarianism and carnism,
- (b) understanding vegans
- (c) understanding discourses on veganism,
- (d) Critical and normative scholarly approaches to vegan networks and practices.

a) Sociologists have been engaging with veganism in the context of its historical emergence from the vegetarian movement, for example in England (Twigg 1981, Cole 2014), which includes the analysis of the constant boundary work done by its members to define the movement: ‘The exclusion of veganism from vegetarianism in the 1940s is a good example of a more exclusive boundary of the new vegetarianism’ (Yeh 2013: 305). While the *Vegetarian Society* was founded in 1847 (Twigg 1981), it took another century for the word “vegan” to be coined and the *Vegan Society* to form in Leicester in 1944 when members of the *Vegetarian Society* broke away. This happened after they were prohibited publishing articles in the journal of the society on not merely abjuring meat and fish but *all* animal products (Leneman 1999, Twigg 1981), but even then this idea was not totally new as there had already been a correspondence on the issue between 1909 and 1912 in the Vegetarian Society’s journal on the ‘two classes of vegetarians: those who use eggs and milk [...] and those who do not’ (Newcombe, editor of *The Vegetarian Messenger and Health Review*, as cited in Leneman 1999: 221). Retrospectively, the formation of the *Vegan Society* in 1944 was characterised as a reminder of *two* holocausts going on, both of which involved human delinquents while one involved human and the other nonhuman victims (ibid.: 227). Framing the split-off from the *Vegetarian Society* as critical of (human) society and its atrocities, might make it retrospectively ‘seem a positive choice’, as Leneman emphasises, although ‘[i]n reality [...] it appears that they [the new vegans] were pushed rather than pulled into this’ (ibid.) as the refusal of their publications left them with no other option than forming a new society.

Nowadays, dependent on the situation, veganism is still considered as either a part of or apart from vegetarianism. Framing their practice as ‘the second best option’ (Yeh 2014), vegetarians display both connection and disconnection by regarding veganism as the ethically most consistent, but also extreme interpretation of vegetarianism:

‘In many ways, the relation between veganism and lacto-vegetarianism parallels that of vegetarianism and dominant culture. Just as many meat-eaters acknowledge the animal-cruelty argument for vegetarianism and yet continue to eat meat, so too lacto-

vegetarians acknowledge vegan arguments but do not act directly on them, seeing them as being pushed beyond the socially normal and sensible.’ (Twigg 1981: sec. 8b)

The insight that drawing the boundaries of veganism is an ongoing and dynamic process (Yeh 2013) is illustrated by the shift towards the currently common practice of referring to our species as “human animals”. This posthuman terminology dissolves the culture/nature, human/animal binaries rather than reinforcing them by the suggestion ‘man’ could and should ‘supersede’ his animality which is how veganism was promoted a some decades ago:

‘The theme of the animalisation through the ingestion of animal products is also present: “If man is to supersede himself and become really man, not merely half animal and half man, he will be compelled to leave the animal part completely behind him, including the leaving of dairy produce out of his diet”.’ (The Vegan, Aut. 1965, p. 7, cited in Twigg 1981: sec. 8b).

Contemporary posthuman theory (see for example Cudworth 2014, McFarlane 2013) questions assumptions of human superiority which throughout 20th century were still quite salient even among vegans as we see above.

b) A major share of sociologically oriented literature on veganism encompasses people’s motivations, their ethics, and their identities. Research has been conducted in various geographical contexts, for example France (Véron 2016), Germany (Forchtner & Tominc 2017, Janssen et al. 2016), Spain (Díaz Carmona 2012, Díaz 2016), the United Kingdom (Beardsworth & Keil 1991, 1992), and the United States (Cherry 2015, Hirschler 2011, McDonald 2000, Shapiro 2015, Wrenn 2017), but it should not go without saying that the existing research on moral veganism is, to my best knowledge, entirely focused on consumers of the Global North, whereas vegetarianism is also discussed in the contexts of Argentina, Brazil, and India (see Ruby et al. 2016 for a psychologically-oriented paper). With the ‘Conformed Vegan’, the ‘Organized Vegan’, and the ‘Individualistic Vegan’, Larsson et al. (2003) define three types of vegans and identify ethics, health, distaste for meat, and preference for vegetarian food as internal reasons which influence the decision to become vegan. Some commentators explore the difference between vegetarians and ‘semi-vegetarians’ (De Backer & Hudders 2014) or ‘flexitarians’ (Raphaely & Marinova 2014). The latter two terms refer to reducing one’s meat intake significantly in relation to the average carnist but not omitting from it completely. Exploring the motives for different grades of vegetarianism, strict vegetarianism was associated with animal-rights, ecological concerns, and taste preferences, while semi-vegetarianism correlated with health motives (De Backer & Hudders 2014).

Rather tacitly, it seems, scholars as well as media and the broader public have shown avid attention for vegans’ or vegetarians’ ethical genuineness, in particular about their intention to

reduce animal cruelty. Interested in patterns of food selection and avoidance, Beardsworth and Keil (1991, 1992) have conducted qualitative interviews with vegetarians and vegans. They found that, whilst not the only factor, ethical considerations about the suffering of farm animals are clearly of major importance for explaining meat-avoiding food attitudes and practices. More recent empirical research shows this has not significantly changed (Wrenn 2017). Linked to this are questions about vegans' political attitudes beyond veganism itself. As vegans are sometimes stereotyped as being indifferent to *human* suffering, Wrenn (2017) examined how the American vegan movement intersects with human-centred social justice, and found that most vegans participating in the survey were engaged in various leftist movements, whereas only a small minority supported Trump's conservative agenda.

c) While a great part of the research focuses on self-reported identities, attitudes, and motives of vegans, a different strand of literature looks at veganism as an object of public debate. The depiction of veganism as a mere lifestyle or consumer choice, for example, is prevalent in journalistic discourse in Italy (Righetti 2016) and the United Kingdom (Cole & Morgan 2011a, 2011b). Exploring the resilience of speciesism, Cole and Morgan (2011a) look at its cultural reproduction through ridicule of veganism and denial of animal exploitation. In particular, the case of UK newspapers shows how veganism is 'presented as contravening commonsense [...] or as being difficult or impossible to maintain in practice. Vegans are variously stereotyped as ascetics, faddists, sentimentalists, or in some cases, hostile extremists.' (Cole and Morgan 2011a: 134). 'Vegaphobia' (Cole and Morgan 2011b) and the 'do-gooder derogation' (Minson & Monin 2012) are terms to describe the resistance moral minorities face as the majority is confronted with deviant values and practices. Leaving ethics out of consideration, 'the derogation of veganism [in journalistic discourse] helps non-vegans to avoid confronting the ethics of exploiting, imprisoning and killing nonhuman animals' (Cole & Morgan 2011b: 149). Likewise, Quinn's example of popular cinema reveals social and cultural anxieties about veganism and a latent speciesism which justify situating 'veganism as a radical queer mode of being' (2016: 507). Furthermore, in discourses on meat reduction, vegetarianism, and veganism, environmental organisations have received attention for their—in a way surprising—reticence to advocate dietary behaviour which may be linked to their prudence not to repel carnist corporate or individual sponsors (Freeman 2010, Laestadius et al. 2014).

Other literature focuses on boundary-drawing practices or narratives within the vegan movement, for example, when 'ethical vegans' present a narrative of themselves in relation to both other 'ethical vegans' and those defined as 'health vegans' who abjure animal-sourced products purely for their individual well-being (Greenebaum 2012). Forchtner and Tominc

(2017) illuminate the boundaries of veganism by example of a group of German vegan neo-nazis who present recipes garnished with racist and fascist ideology on their Youtube channel. This shows that veganism is not by default related to leftist, liberal, pacifist, and anthroposophic attitudes. Following from the need to detach veganism from particular political attitudes, I suggest a vigilant analytical differentiation between *vegan food practices*’ unchanged avoidance of animal suffering, on the one hand, and *vegan practitioners*, on the other, who may very well engage in violent ideologies and actions. It should also be noted that the case of vegan neo-nazis does not challenge the empirical evidence that the vast majority of vegans are engaged in various leftist movements: As vegans are sometimes stereotyped as being indifferent to *human* suffering, Wrenn (2017) examined how the American vegan movement intersects with human-centred social justice, and found that only a small minority engaged in what she calls ‘Trump veganism’, a term to describe the 14 per cent of vegan respondents who sympathised with or were indifferent to Trump’s conservative agenda and who proved to be more likely to be vegan out of self-interest.

d) The range of topics that social scientific commentators from sociology or human geography concerned with veganism touch upon broadly encompasses

- a posthuman ontology, epistemology, and ethics,
- normative approaches (incl. the introduction of carnism),
- social network, practice, and political economy approaches,
- and a focus on boundary-drawing practices.

Having to do with veganism and its boundaries rather implicitly, the disciplinary boundary of sociology, traditionally designated to ‘the social’ and defined as an exclusively human domain, has received the attention of critical sociologists who draw upon animal studies to argue that social lives relate to and are made of a multiplicity of species (Cudworth 2014, McFarlane 2013). ‘[E]ven if the goal of sociology is to explain human behavior’, as McFarlane (2013: 53) notes, ‘this goal is not obtainable if the analysis is limited to humans.’ Producing research ‘on the body, on work or on the “family” for example’, sociology conventionally ‘assumes that all bodies or workers are exclusively human and that we dwell in single-species households’ (Cudworth 2014: 19), but just taking the agricultural term of a dairy cow’s “milk performance” into consideration should suffice to elucidate that what she is doing is (forced and unpaid) labour. Therefore, a ‘critical sociology *for* non-human animals must be a politicised sociology’ (ibid.: 32; italics original) examining and challenging ‘the intersected dominations of all the beings on this planet’ (ibid.).

Following from the above, an important aspect concerns researchers’ own positionalities towards veganism. Rather than veganism being a mere research issue, a considerable number

of commentators quite clearly understand their role as supporting vegan advocacy and activism (Cole & Morgan 2011a, 2011b, Jenkins & Twine 2014, Joy 2010, MacDonald & Montford 2014, Wrenn and Johnson 2013). Some literature is dedicated to the tension between veganism as a practice that challenges social norms while being normative itself. Whilst veganism is a way of eating, living, and working that its advocates usually want to see universalised, there is also—and especially among scholars—unease about patronising cultural others, in particular when concerning the lower classes and the Global South (Twine 2014). Culture, however, should not be regarded as an essential, unchangeable substance as Twine argues rehearsing posthuman ecofeminist debates on intersectionality. Research on speciesism is precisely about ‘not assuming an anthropocentric and atemporal conception of “culture”’ and moving it ‘away from norms of animal exploitation’ (ibid.: 205). Concerned with a sound practice of posthuman methodology and research ethics, MacDonald and Montford (2014) intend to politicise and challenge the position that vegan or vegetarian researchers should accept meat offered by hosts only for the sake of developing rapport and getting access to ‘good’ data, while nonhuman animals are sacrificed and denied subjecthood. As ‘food consumption is figured as a private and individual choice’, they object, ‘animals are not considered subjects in research’ (ibid.: 737).

Being normative does not merely include advocating alternatives but also revealing the normal and dominant. Melanie Joy’s (2010) book *Why We Love Dogs, Eat Pigs, and Wear Coats* is a landmark at the verge of food-related social psychology and sociology inasmuch as it establishes the term “carnism” to denominate another dietary ideology which, unlike veganism and vegetarianism, states that eating meat is normal, natural, and necessary. For Joy, naming carnism is a ‘first step in deconstructing meat’ and it requires ‘exposing the principles and practices of a system that has since its inception been in hiding’ (2010: 21). An important aspect of carnism is that ‘[w]e don’t see meat eating as we do vegetarianism—as a choice, based on a set of assumptions about animals, our world, and ourselves. Rather, we see it as a given, the “natural” thing to do [...] This invisible belief system is what I call *carnism*’ (ibid.: 29). Joy’s work fills an important theoretical and empirical gap as it goes beyond the unidirectional flashlight approaches that illuminate veganism and vegetarianism as deviant and spectacular ideologies and practices while the dominant culture remains unmarked and unnamed (and thus unquestionable) in the dark.

Introducing carnism has to be understood as an egalitarian move in the sense that it treats *all* food practices as ideologies—period. At the same time, it is not necessarily meant to remain ‘egalitarian’ beyond that move. Considering all food practices equally as ideologies should not be mistaken as an advocacy for an equal co-existence of vegan, vegetarian, and carnist food

practices in a harmonic consumer choice paradise. Rather, Joy's work is also, and clearly, directed against carnism, has an ambiguous relationship to vegetarianism, and advocates vegan food practices.

Regarding carnism as a belief system that is largely invisible to carnists, embedded in practical routines, and involving unconsciously acquired taste preferences, Joy encourages us to explore how the dominant food practices can most effectively be tackled with the least resistance. Avoiding blame and shame is part of this strategy. Her emphasis on norms and invisible beliefs shows that the choice to eat meat (or dairy) has nothing to do with individual choice or free will. She nonetheless recognises that as soon as carnism becomes visible 'we have the power to choose a different path: we have the opportunity to make our choices freely, without the psychological constraints of a covert and coercive system' (2010: 144). While I regard it as crucial to emphasise both the structural constraints that reproduce carnism and the agential possibility to alter food practices, I am concerned that Joy's framing of carnism as 'psychological constraints' evokes a rather individualist approach that might overemphasise the degree of freedom in our choices and overlooks that carnism is not only in people's heads—psychological—but also embedded into the materiality and the spatio-temporal economic organisation of our foodscapes, i.e. restaurants, supermarkets, farms, media, and popular culture.

For contributing towards more vegan food practices, I suggest, scholars have to move away from the existing inclinations to study food consumption as an issue of (social) psychology. As I will outline in more detail, a full recognition of food practices as an outcome of material-discursive relations is needed which frames choices as both never fully structured and never fully free. This implies an account of how changing practices requires material-discursive work. That work, understood as directed application of energy within the dimensions of space, time, and possibility (see 2.3.3) is able to break old and build new configurations (see ch. 9).

Both social network and practice approaches involve moving away from a psychological emphasis. Having conducted ethnographic interviews with vegans both of the punk subculture and those who were not, Cherry (2006: 155) argues 'that maintaining participation in the vegan movement depends more upon having supportive social networks than having willpower, motivation, or a collective vegan identity'. Taking Cherry's assumption seriously, and considering that there is already a respectable volume of literature on vegan consumers' motivations and identities from psychological perspectives (e.g. Ruby 2012) but also intersectional (eco-)feminist approaches (Bailey 2007, Cole & Morgan 2011a, 2011b, Cole & Stewart 2017, Cudworth 2014, Doyle 2016, Hamilton 2016), it can be concluded that more

research on social networks of vegans is needed—whether supportive of veganism or contravening it. In a more recent paper, Cherry (2015) has made a start by looking at both youths’ initial recruitment and their retention in veganism as a lifestyle movement. While recruitment was about learning, reflection, and identity work, retention required both social support from friends and family as well as cultural tools to maintain the practice. For example, participants reported eating in advance or bringing food to social events in a carnist environment with no vegan food available (e.g. when invited to a birthday party in a steak house) which is an important cultural tool ‘to save face in difficult situations’ (ibid.: 64); other cultural tools included learning and sharing cooking skills, and being part of the punk subculture as a particular form of a social network helped to maintain a ‘virtuous circle’ that consolidated vegan food and activist practices (ibid.: 67).

Both the social scientific and the specifically sociological literature on veganism appear to be preoccupied with veganism as a social movement which, relative to ordinary eaters, stands for spectacular or at least extraordinary ethical values and norms. This might explain why scholars, as Véron (2016: 756) argues,

‘have retained a major bias [...] focussed on alternative community spaces such as autonomous social centres and protest camps, and paid less attention to “ordinary” practices and spaces of activism [although the] seemingly banal practices may be central to strategies for social change.’

While Véron does acknowledge other commentators’ concerns that the promotion of a vegan lifestyle alone will not bring about social change, she nonetheless makes a case for looking at the everyday practices of vegans as they offer a means to ‘devise alternative ways of living [and thus] a point of alterity’ (ibid.: 770) against which hegemonic everyday practices can be subverted and resisted and may no longer appear natural, normal, and necessary (see Joy 2010). Similarly, drawing upon the evidence from large-scale analyses (see 1.1 and 2.2.1) that warn against animal agriculture’s major impact on the environment, Twine (2017: 195) suggests that

‘an important sociological role [is] to focus on the normalisation of everyday practices which maintain unsustainable patterns of consumption. Veganism as a small but growing practice [...] that contests such normalisation should also be an obvious empirical focus because of the potential to comprehend the knowledge required to successfully perform the practice’.

Whether researchers refer to social networks or whether they draw on social practice theories is, I suggest, secondary. The important lesson is that ‘researchers should strive to show how networks [or practices] operate rather than simply showing that social ties and collective action are linked’ (Cherry 2006: 158). An interest in illuminating how networks or practices operate entails questions of an appropriate conceptual and empirical focus. Jenkins and Twine

(2014) critically examine conceptual framings such as autonomy, privacy, and choice to explain social inertia around practices of food consumption and production and to challenge how ‘contemporary Western [...] societies are [...] largely facing *away* from fundamental questions about normalised practices’ (ibid.: 225; italics original). Their warning not to confuse food choices with free will is supposed to remind of the political contexts and the normative environments through which people’s food practices materialise. In his most recent work, Twine (2018: 178) argues for ‘focusing on vegan materialities’ and ‘how food is actively worked with as part of the practice’. This corrective shift towards materiality (see also 2.3.2) which practice approaches bring about, as Twine exhibits, is absolutely crucial. However, when Twine speaks about those ‘vegan materialities’ it appears that his conceptual focus is implicitly confined to veganism as a material *eating* practice performed by consumers. Whether I am doing justice to Twine or not, sociologists who extend their scope towards materiality have to be wary not to focus solely on the materiality of consumption while taking for granted how what is conventionally regarded as “vegan food” is actually *produced*.

While social network or practice approaches are suitable to overcome overly psychological and individualist approaches by looking at everyday life from a more structural angle, other authors who take a structural stance prefer to stress the broader aspects of political economy. Winders and Nibert (2004) critically examine the agricultural abuse of animals from a perspective they dissociate from the typical critique by animal rights activists as those ‘tend to focus on the ethics and morality of such practices, but often overlook social structural forces – such as the integral links between a “free market” economy and government economic policies and the consumption of other animals as food’ (ibid.: 76). The authors link the subsidised overproduction of corn, wheat, and soya in the USA to structural economic pressures to produce and consume more meat. The increased oppression of animals, both in numbers and intensity, is thus an effect of

‘the definition of other animals as commodities and as food, a social construction exacerbated by the fundamental processes of the capitalist market – the drive for profit, expansion and capital accumulation – and the state’s role in supporting that market. Without acknowledging this link between capitalism, and animal oppression, both animal rights and human rights activists will face increasingly greater obstacles in alleviating all the various forms of entangled oppression.’ (ibid.: 91).

Following from the various and diverging perspectives on how food comes to matter, I suggest that alone neither micrological nor macrological approaches are helpful to profoundly understand food and bring about change. Social network and practice approaches certainly help reducing the psychological emphasis in favour of a more structural account, but it is precisely the further impetus from posthuman approaches which calls for an additional corrective—taking nonhumans more seriously, a balanced account of structures and agency is

needed that does not reduce food practices to moments of purchase, eating, and consumer ethics of vegans, vegetarians, flexitarians, carnists, or other labelled groups. Rather, the *materiality* of the networks and practices as well as the human and nonhuman side of *production* require more attention while avoiding to reduce production to purely macrological forces and thereby essentialising the continuity of capitalism (especially since Marx and Engels 1992 [1848] were more than clear that capitalism is no more and no less than a historically particular mode of production; see also Gibson-Graham 2006, Fish 2013). The delicate balance suitable for explaining food relations with a normative and political (i.e. world-improving) mandate must be somewhere between the dichotomous social parameters of structure and agency as well as matter and meaning. Therefore, I suggest that social networks can be understood as material-discursive environments for performing vegan food practices. But whilst most of the existing literature focuses on vegan eating or *consumption* practices, I argue that “vegan food practices” (see 9.3.2) should just as well comprise vegan *production* practices. The latter may include practices of growing or retailing, both as *part* of the consumptive process and as pre-condition for vegan eating practices, but also overlapping with the ‘embodied political practices’ of vegans (Cherry 2015: 71; see also 5.1.2 for an account of specific vegan politics of possibility).

To this end, I will make use of the notion of foodscapes as a conceptual term to encourage research on the naturalcultural urban and rural landscapes enabling vegan, vegetarian, or carnist food practices. While there is already a considerable number of papers, mainly from human geography, dedicated theoretically or empirically to foodscapes (see, for example, Cummins & Macintyre 2002, Dolphijn 2005, Goodman 2016, Johnston et al. 2009, Johnston & Goodman 2015, Miewald & McCann 2014, Mikkelsen 2011, Morgan 2010), including an explicit focus on ‘ethical foodscapes’ (Goodman et al. 2010, Freidberg 2010), more research is needed specifically on how foodscapes encourage or discourage *vegan* food practices. This includes ways in which self-identified meat-eaters may intentionally or unintentionally perform vegan food practices, e.g. simply because they have a vegan falafel sandwich for lunch or the conference they attend caters vegan food. As a consequence, I suggest that looking at vegan food practices in relation to self-identified vegans is crucial but insufficient. With a stronger focus on materiality, veganism as an eating practice can be performed regardless of ethical considerations as long as one’s meal is free of animal-sourced foods (and, more strictly speaking, coming from production free of animal-derivatives; see ch. 8). Likewise, growers could principally adopt vegan organic production practices solely for economic reasons. This is neither to deny that *usually* ethical motives are somehow involved (and that it makes a difference) nor that a purely economic impetus for vegan agriculture nonetheless *implies* discourse—it surely does, but it is important to acknowledge that, whilst

not being equal to moral veganism, those vegan production and consumption practices which are unintentional and apolitical still have a real material impact on the world, and in some way or another they do matter to the lives of domesticated animals as well as the preservation of ecosystems for all human and nonhuman beings inhabiting this planet.

Speaking about vegan food practices rather than about vegans is a conceptual move that acknowledges the perhaps surprisingly fuzzy boundaries of veganism, vegetarianism, and carnism, and it broadens the scope towards the ways in which not merely consumers but also producers engage in the boundary-drawing practices that materialise vegan or other food practices. While Yeh (2013, 2014) has already provided important groundwork, the engagement with the boundaries of different food practices needs to be extended and modified in scope. Exploring how the *identities* of carnists, vegetarians, and vegans are managed, Yeh examines the explicitly ‘hierarchical boundary-work’ with which, as she finds, vegetarians represent themselves as ‘the second best’ option—before the undesirable meat-eating side but behind vegans who embody the most consistent ethical food practice (Yeh 2014). As her focus was on vegetarians, Yeh encourages future research on meat-eaters’ and vegans’ boundary work. While further understanding of carnist and vegan identities is surely worthwhile, I would like to emphasise once more that a focus on eaters’ identities should be complemented with the material-discursive boundary work of producers.

Another question revolves around the boundaries researchers draw around production and, more specifically, whether veganism or vegetarianism are considered at all by social scientific scholars, particularly those which focus on food production. Morris and Kirwan (2006) ask why human geographers who examine alternative food networks appear not to consider vegetarianism as part of the alternative food economy. As they conclude, ‘investigation is needed of how they [vegetarians] view their practices in relation to debates about more sustainable agricultures’ (ibid.: 208). While the literature on veganism or vegetarianism displays a psychological emphasis, the other side of the coin that equally reduces the movement to idealism is its absence in the literature that deals with the (alternative) food economy, agriculture, and its materiality (= agro-food studies; see 2.1.1).

To summarise, this literature review has shown that, on the one hand, the majority of research on veganism or other ways of eating has a psychological, consumer-focused, and ultimately human-centred emphasis (albeit a *social* psychological one). On the other, there are initial signs of going beyond those constraints by drawing on concepts such as social networks and practices which better allow for a move towards posthuman and (‘new’) materialist accounts extending the realm of ‘the social’ towards nonhumans (see 2.3.2). This may help overcoming the limitations set by both conventional sociology and the dominant

framing of our era as the anthropocene which in their very own manner can both be seen as in the way of sustainable development, but also preventing critical and practical engagement with our ecosystems in their human *and* nonhuman discursivity *and* materiality. For example, the dichotomisation of an ‘environmental veganism’ and a ‘veganism for the animals’ critically examined by Twine (2017: 194) showcases the linguistic or discursive disconnect between ‘ethical’ reasons for veganism (= suffering of *domesticated* animals) and ‘environmental’ reasons—as if protecting the environment was not an ethical issue and as if wild animals were not suffering under the living (or rather: dying) conditions that animal agriculture creates for them. Drawing on posthumanist theory and a producer-oriented perspective, my research will therefore explore the boundary-drawing practices that differentiate vegan from carnist (and vegetarian) practices of material-discursive food production and consumption.

2.3 Relational Materialism and Posthuman Performativity

This thesis examines the boundaries of veganism as an agricultural and culinary practice by theoretically drawing upon relational approaches. In the following subsection, relational theory from sociology and other disciplines will be introduced in order to develop a framework that is directed against an individualised and depoliticised conception of eating and allows for the reconfiguration of food practices (2.3.1). This entails a conceptualisation of practices in resonance with Karen Barad’s Agential Realism. Understood as entangled human and nonhuman agencies that continuously reconfigure matter and meaning, *material-discursive practices* perform the boundary work necessary to put veganism and carnism in practice (2.3.2). Finally, I bring together insights from feminist social theorists such as Barad, Massey, and Gibson-Graham. My reading of their accounts of spatial and social relations results in a posthumanist theoretical framework of practices in which space, time, and possibility are defined as spatial degrees of freedom entangled on an ontological level—an attempt to repoliticise the possibilities of spatial change through the deconstruction, crossing, and reworking of boundaries (2.3.3). My theoretical framework inspired by relational, new materialist, posthuman, and performative thinking is mainly but not exclusively about examining normalised food practices. It may also inform critical political interventions that aim at the land, soil, narratives, and norms that anthropocentric food practices occupy. This may help to reclaim that space for a global posthuman community that secures its social-

ecological thriving by bringing its human members to perform less animal agriculture and more vegan food practices.

2.3.1 Relational Sociology

Relational sociology emphasises how that which is identified as an “individual” is always already embedded in a multiplicity of relations, its very being connected with and dependent on others (Powell & Dépelteau 2013). This section appropriates relational thinking as an anti-essentialist and anti-individualist research tool in order to critically assess situations in which the relationality of food is excluded from mattering, reduced to a private affair of human or corporate individuals supposedly unrelated to political questions or social-ecological problems.

Relational ideas go back to the foundational works of Pierre Bourdieu, Nancy Chodorow, Norbert Elias, Michel Foucault, Bruno Latour, Karl Marx, Georg Simmel, Dorothy E. Smith, and others, but only since the 1990s is it ‘a self-conscious project’ (Powell & Dépelteau 2013: 1), particularly encouraged by Mustafa Emirbayer’s (1997) *Manifesto for a Relational Sociology*. More recent contributions have been made, among others, by Archer (2013), Carolan and Stuart (2016), Crossley (2011), Dépelteau (2015), Donati (2011), and Powell (2013). Relational approaches challenge the use of dichotomies such as individualism/holism, micro/macro, and agency/structure in social research (Crossley 2011). At the heart of their agenda is to reject individualism or particularism—the idea that the world consists of individuals endowed with nonrelational properties which are neither derived from nor have effects on broader social aspects. Furthermore, they stress the unequal power relations connected to the divisions which essentialise individuals:

‘Ideas of complete separation, and disembodied and atomistic ideas of the mind such as Descartes’s, are inadequate as accounts of human being, though as ideologies of dominance they have been very successful.’ (Redshaw 2013: 20)

The act of individualisation forwards an ideal of independence that does not adequately describe the nature of being but is very successful in enacting and stabilising power inequalities between the separated entities, for example, in the contexts of gender, race, class, nations, and species.

A worthwhile digression beyond sociological accounts showcases that individualism, also referred to as atomism, is equally problematic in modern as opposed to classical—i.e. Newton’s—physics (see 2.3.3). In her relational approach to material-discursive practices, which will be discussed in more detail in section 2.3.2, Karen Barad (2007) associates ideals of

positivist science and masculinity with the humanist hubris that prevents matter from being taken seriously. Conceived as ‘the center around which the world turns’ (ibid.: 134) and as an ‘individual apart from all the rest’ (ibid.), ‘Man’ acquires, or so it appears, objective scientific results by being at a distance from rather than close to his research object. However, neither modern quantum physics nor theories of relativity seem to be compatible with a worldview in which reality is independent from the observer—i.e. a realism in *absolute* terms. Hawking & Mlodinow (2010), for example, prefer to adopt a model-dependent realism. Other renown physicists highlight that objects have no clear outline: ‘It is not, believe it or not, that every object has a line around it! There is no such line.’ (Feynman et al. cited in Barad 2007: 153). As the same must go for bodily boundaries, Barad identifies the idea of individually determinate entities as an ‘atomistic metaphysics’ (2007: 137) or ‘metaphysical individualism’ (ibid.: 134) which works together with representationalism and humanism as a set of anthropocentric forces. Humanity—not long ago simply known as ‘man’—still tends to position itself in a god-like realm above the rest of the world, i.e. above nature, which is reduced to a research object (see, for example, MacGregor & Seymour 2017). From there, it is fairly easy to comprehend how we navigated into the geological era we now name in a rather ‘obscene’ (Swyngedouw & Ernstson 2018) way after ourselves: the ‘anthropocene’ (Crutzen 2002 in *Geology of Mankind*).

Generally, relational theorists highlight connections, interdependencies, multiplicity, dynamics, flows, and contingency rather than particularity, separation, stability, and fixation. However, the point of relational theory is not simply to state that everything is connected. Although relational thinking emphasises the co-constitution of social-scientific entities (and material phenomena) through their relations, it should not be mistaken as relativising all dualisms just for the sake of pointing out how complex the world is. Rather, looking at the foundations of relational sociology, Emirbayer emphasises that relational theory was, first of all, ‘constructed *against* other ways of thinking’ (2013: 210, italics original) and reminds us of its ‘original spirit as fighting words’ (ibid.). In specific, it is an anti-substantialist and anti-individualist project. For example, it becomes clear how

‘[s]ubstantialist assumptions are incorporated deeply into our everyday and scholarly discourses [if we] consider the legitimacy that rational choice theory derives from the dominance of economic and social individualism in American discourse’ (ibid.)

There are plenty of situations in which certain dualisms come to *appear* as essential and immutable to human subjects. Relational approaches have a normative element insofar as their task is to deconstruct how those dualisms are put in place.

To give a second example, relational approaches do not stop at saying that there is no natural (i.e. ontological) basis for the dualism between free choice and determinism or agency and structure. As those ‘accounts of the subject that position the human as either pure cause [free choice/agency] or pure effect [determined by structures]’ (Barad 2007: 136) display quite imbalanced extremes, relational approaches rather aim at understanding *empirically* how

‘a person, in a given moment, perceives himself or herself as exercising a free and independent choice, [which means that] we must inquire into what figurations produce not only this action but this perception—what enabling mechanisms and what naturalizations go into the moment in which a figuration can say or think “I am freely choosing” and believe it’ (Powell 2013: 200).

In his approach of *Radical Relationism*, Powell (2013) emphasises that phenomena cannot strictly be categorised as either agential or structural. He proposes to treat ‘all structures as generated through agency’ (ibid.: 198) and ‘all agential action as produced through the operation of structures’ (ibid.: 200). Whether researchers frame a situation they observe in agential or structural terms is ultimately a strategic question of what they want to show and achieve. Relational sociology therefore

‘does not simply dismiss essentialist claims as false. Rather, it offers sociologists the means of inquiring into relational processes that go into producing the experience of a phenomenon as essential’ (Powell 2013: 205).

Whilst eating is a natural necessity, what and how we eat—including the power relations that entails—is versatile and changeable. In daily life, however, those relations are rarely perceived in their performativity and contingency. Predominantly, eating is conceived as a private interior bodily enjoyment that has nothing to do with the world out there (Lemke 2012)—and yet eating is a relation; it is material and it has meaning. ‘Food’, as McFarlane 2013: 52) notes, ‘is the relation that emerges between the consumed object and the consuming subject’. Next to the unequal relation between the eater and the eaten, it involves power geometries between those who get to eat and the excluded others; between those who want to eat certain foods and those who do not; between those who control the means and conditions of production and those producers and consumers who are landless; between domestic agendas of reproduction (i.e. humans and bonded beings) and other beings wriggling about (i.e. wildlife); between the living of the present and of innumerable potential futures.

The ways in which agriculture effects and is affected by anthropogenic climate change (Carolan & Stuart 2016) and the current mass extinction (Ceballos et al. 2015) are clearly not considered in the everyday food practices of most humans. Overlooking the relationality of food is a tendency which is particularly problematic in the context of animal agriculture (see ch. 1), and it is an integral part of carnism (see 2.2.3). As Jenkins and Twine (2014: 225) note,

‘the consumption of animals as food is so taken for granted, normalized and habituated that it simply is not reflected upon as a relationship between humans and other animals.’

In order to address human hegemony as a *social* problem, some sociologists have highlighted the need to connect relational ontologies with ‘inhumanism’, as McFarlane (2013) calls it, or posthumanism, which is the more common term for a range of theoretical, methodological, and ethical perspectives in which humans are *part of* but no longer the *centre* of social concern. The unequal power relations between human and nonhuman animals are often expressed in form of the nature and culture divide. In particular the anthropocentrism within a seemingly progressive project such as humanism is, unfortunately, still not adequately reflected. In mainstream sociology, “the social” is almost always conceived as relations between humans alone; “culture” is equally seen as an exclusively human domain (McFarlane (2013, Nimmo 2010). However, the perception of human independence and exceptionalism, which results in the exclusion of nonhumans and their needs from the social, is not conducive to human accountability for anthropogenic catastrophes and an understanding of them as ‘naturalcultural’ phenomena (Barad 2007).

In the history of humanity, declarations of independence have had an emancipatory function in a humanist sense, for example, to free people from the confines of the church, aristocracy, or imperialism, and they arguably culminated in current neoliberal forms of individualism, in which power—less and less centralised—works on and through private entities with the subject as an ‘entrepreneur of the self’ (Foucault 1993, 2005). Against this background, the contemporary combination of relational with posthuman approaches has to be seen as an equally emancipatory declaration of *dependence* that acknowledges the social-ecological problems posed by an overshooting idea(l) of human(ist) independence in a “free” market society that neither puts materially significant boundaries to its ‘extractivism’ (Klein 2014) nor to consumer choice. Resolution is sought in a new socio-materialism, a biocentric approach for adequate well-being of and justice among *all* life on the planet understood as a posthumanist intra-dependent ‘community of fate’ (Wienhues 2017).

In conclusion, relational approaches are more than just a world view or an ontology. They unfold their epistemological value (and methodological potential; see 3.2) if they are conceptualised and operationalised as normatively inspired research constructed against individualism and other essentialisms and as political projects oriented towards socio-material change. My research asks, in broad terms, how the human-animal-food relation becomes experienced as essential. Relational posthuman approaches are theoretical tools for examining and repoliticising individualised food practices and the productive processes that enable their various forms.

2.3.2 Material-Discursive Practices in Accordance with Agential Realism

In the previous subsection, I have emphasised that a posthumanist approach to food in its relationality can be a tool to challenge orthodox views that privatise food choices, reduce them to a consumer affair, and depoliticise the social-ecological footprint of agriculture in general and animal husbandry in particular. How do specific socio-material relations prevent or bring about absolute reductions of animal-sourced foods? With this outlook and question, my thesis investigates the boundary-drawing practices that differentiate veganism from carnism or other moral ways of relating to food. This subsection adds more specific theoretical tools and terminology by conceptualising social practices in resonance with Karen Barad (2007). In critical acknowledgement of poststructuralist theorists, her *Agential Realism* is meant to rid discourse approaches from their human-centred elements by making a materialist turn. Her framework will be used to examine how human and nonhuman agencies continuously work together as part of material-discursive practices that perform the boundary work necessary to put veganism or carnism in practice.

Barad's critique of the linguistic, semiotic, interpretative, and cultural turns, which, for her, involve that 'language has been granted too much power' (2003: 801) while things and materiality are reduced to forms of cultural representation, resonate with a broader turn towards *materiality* and *practices* in the social sciences as well as across disciplines, topics, theoretical approaches, and authors' positionalities. Before returning to Barad's approach, I will briefly summarise two integral parts of this turn.

The first one consists in the ontological reworkings of New Materialism, usually understood as distinct from "old" Marxist materialism in its structuralist implementation. What combines these perspectives is that materiality—substances, things, beings—is taken seriously as an agential factor in the configuration of (human and nonhuman) bodies and the social-ecological relations they are situated in. Although there are differences and disagreements between approaches and authors, this broadly includes

- Haraway's groundwork on techno-social and human-animal hybridity (1985, 1991, 2003) as well as other feminists with a materialist and/or environmentalist focus (Alaimo 2012, Alaimo & Hekman 2008, Barad 2003, 2007, Braidotti 1994, Casselot 2016, Iovino 2013, 2015, Iovino & Oppermann 2014).
- Actor-Network-Theory (Callon 1986, Latour 2005) which regards human and nonhuman agency as assembled in dynamic networks (see, for example, Nimmo 2010 examining and challenging the nature/culture divide in the context of the British milk industry; see 4.2)

- Approaches based on Deleuze and Guattari's (1987) notion of agencement/assemblage, prominently deployed in Jane Bennett's (2010) vital materialism (see also Anderson et al. 2012, Fox & Alldred 2015, Gherardi 2015, Mattissek & Wiertz 2014, McFarlane 2009, 2011, McLeod 2014).
- Approaches with particular attention to the role of materiality in Foucauldian discourse (Hardy & Thomas 2014, Lemke 2015, Lundborg & Vaughan-Williams 2015)

New materialist approaches spread across disciplines but they have been particularly popular and influential in science and technology studies (Abrahamsson et al. 2015, Barad 2007, Mol 2002), political theory (Schlosberg & Coles 2016, Stengers 2010, Washick et al. 2015), studies of education and family relations (Hultman & Lenz Taguchi 2010), and sociology (Carolan 2011, Carolan & Stuart 2016). In human geography, a bias towards meaning, identity, representations, and ideology provoked calls to rematerialise social and cultural geography (Mitchell 1995, Jackson 2000) which found their equivalent in the emerging food geographies focused on material culture (Cook & Crang 1996). This came along with an interest of geographers in the 'more-than-human world' (Whatmore 2006; see also Braun & Whatmore 2010, Kazig & Weichhart 2009, Kirsch 2013, Lorimer 2012, Sarmiento 2017, Tolia-Kelly 2013, Zierhofer 2009). Beyond geography and across disciplines, posthuman accounts of ontology, epistemology, and ethics are used to defocus the social away from humans alone (Alaimo 2016, Barad 2003, Latimer 2013, Mazzei 2013, Nimmo 2010, Wolfe 2010). New perspectives on materiality have been deployed to examine a diverse range of more or less food-related topics such as food and body politics (Carolan 2011, Fox et al. 2018), visceral aspects of eating (Hayes-Conroy & Hayes-Conroy 2010, Goodman 2016), how nonhuman others become food (Evans & Miele 2012, Probyn 2011), or the relations between humans and the life of the soil (Puig de la Bellacasa 2010, 2015). More specifically, this includes, for example, relations between children, parents, and crabs as part of the environmentalist practice of rockpooling (Martens 2016).

The second meaningful turn is the one towards practices as the primary object or unit of inquiry. A big share of social scientific research revolves around the constitution of *subjects* (for an overview see Reckwitz 2010) which, basically, means no more than to examine the becoming of bodies within their social setting. From the rational and autonomous subject of the enlightenment to Foucault's self-governed subject which, indirectly conducted by neoliberal governmentality, only perceives itself as free (Bröckling et al. 2011, Foucault 2004a, 2004b), academia has witnessed diverging interpretations of subject formation over the course of its history. Closely linked to questions of power and subjectivity, the notion of

practices has been used as a means of explaining both stability and change. Whether practices are connected to discourse (Cooper 1994, Foucault 1977, 1991), performativity (Barad 2007, Butler 1990, 1993, Gibson-Graham 2006, 2008), or everyday routines in social theories of practice (Reckwitz 2002, Schatzki et al. 2001), contemporary approaches no longer assume the autonomy of the subject. Instead, the subject is in some way or another confined by practices but never subjected to them in absolute terms.

Applied in the context of the sociology of consumption (see Warde 2017), it is emphasised that theories of practice are a framework to describe routinised and thus mostly unintentional behaviour, but it is also acknowledged that people, for example, consumers ‘adapt, improvise and experiment’ since practices ‘also contain the seeds of constant change’ (Warde 2005: 141; see also Evans 2018 for a recent discussion). Framed by various kinds of media, authorities, and experts against the backdrop of increasingly industrialised and globalised food practices, anxieties or ‘food scares’, for example, are assumed to be

‘effective in rupturing the fabric of everyday life, disrupting established routines and rhythms, and persisting until a new order of understanding is put in place and a new consensus is firmly established’ (Jackson 2015: 47).

In *Globalizing Responsibility*, Barnett et al. seek to overcome a strong binary between consumers and producers suggesting that ‘provisioning and consumption are inextricably entwined’ (2011: 72) and that the analytical attention is thus in need to shift from consumers to ‘practitioners’ (ibid.). For them, turning towards practices is the key to understand the ‘relational dimensions of everyday consumption’ (ibid.: 38). Deployed to the context of this thesis, I intend to shift the focus away from vegan consumers in moments of purchase and towards the possibilities for change within the relationalities of *provisioning* for that food practice. Who, or rather *what*, provides for and is thus too part of enacting vegan food practices? Confining veganism to the narrow consumer end of the practical spectrum would not only overly responsabilise consumers (compared to farmers, policy makers, and others who are more or less directly involved in vegan or carnist food practices), but also depoliticise the seeds of change within the practices of the productive process.

Remarkably, to my best knowledge, there has been little explicit contact between social theories of practice and the way practices are referred to in discourse analysis. This might be due to the first strand building upon sociologists such as Pierre Bourdieu and Anthony Giddens (see Warde 2005, 2017), whereas the second one is in the tradition of poststructuralist philosophers such as Michel Foucault and Judith Butler (see Barad 2007 who builds on both of them). However, since Warde (2005) and Barad (2007) mention respectively how both strands are directed against individualist and holist accounts of subjects and their

practices—and both rooted in the ‘third option’ that relational ontologies are meant to be (Crossley 2011; see 2.3.1), I regard them as resonating similarly with a broader relational and processual account of social change, or what is perhaps best described as a

‘reconfiguration approach [that] seeks to identify and explain the multiple and inter-related processes of change (and inertia) that shape current ways of life’ (Southerton & Welch 2016: no p.).

For this thesis, my theoretical focus lies on the second strand. As my emphasis is on food relations against the background of sustainability—and thus involving social-ecological relations of human, domesticated, and wild animals as well as plants and the life of the soil—I attach particular importance to conceptualising practices in a *posthumanist* way (for literature against ‘methodological speciesism’ see McFarlane 2013 and Cudworth 2014, see also 2.2.3d and 2.3.1). My corrective shift away from consumption and towards production is accompanied by a shift away from

- putting humans at the centre of the analysis,
- regarding them as the sole carriers of practices (practitioners),
- and awarding them exclusive rights of belonging to the conceptual and ethical realm of “the social”.

Although my perspective is in some way or another inspired by most of the outlined approaches to practices and materiality, more than anything, I draw upon Karen Barad’s work (2003, 2007, 2012a, 2012b, 2012c, 2014, 2016). In her posthumanist performative account, material and social change is enacted through the intra-active dynamics of material-discursive practices. In her main work, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Barad (2007), by education both a theoretical physicist and a social scientific theorist, builds her theoretical approach, *Agential Realism*, and her notions of ‘apparatuses’, ‘material-discursive practices’, ‘phenomena’, and ‘intra-action’ on a sympathetic but critical reading of Niels Bohr’s quantum physics (which will be addressed in more detail in 2.3.3) as well as poststructuralist theorists Michel Foucault and Judith Butler.

Despite conventional understandings of ‘discourse’ as written or spoken language, Barad (2007: 57) highlights that Foucault’s contribution is precisely to move beyond ‘questions of linguistic representation and focusing instead on the constitutive aspects of discursive practices in their materiality’. Although she criticises him for not being very clear about it, she acknowledges that ‘the closest that Foucault comes to explicating this crucial relationship between discursive and nondiscursive practices is through his notion of *dispositif*, usually translated as *apparatus*’ (ibid.: 63; italics original). According to Foucault a *dispositif* is

‘a thoroughly heterogeneous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions—in short, the said as much as the unsaid’ (1980: 194).

Barad clarifies the latter aspect by stating that discourse is not simply what is said (‘representationalism’). Rather, ‘it is that which constrains or enables what can [or cannot] be said’ (Barad 2007: 146). I will come back to this point which is crucial for Barad’s posthuman perspective after summarising in which way she also builds on Judith Butler’s (1990, 1993) considerations of the performative constitution of bodies in the context of the sex/gender distinction. Barad emphasises that in Butler’s understanding, matter is not prior to discourse because matter is always already ‘fully sedimented with discourses on sex and sexuality that prefigure and constrain the uses to which that term can be put’ (Butler 1993: 29; cited in Barad 2007: 150). In her conceptual move from construction—the process through which subjects and acts emerge—to materialisation, Butler understands

‘the notion of matter, not as site or surface, but as *a process of materialization that stabilizes over time to produce the effect of boundary, fixity, and surface we call matter* [...] [C]onstruction [...] is itself a temporal process which operates through the iteration of norms [...] As a sedimented effect of a reiterative or ritual practice, sex acquires its naturalized effect, and, yet, it is also by virtue of this reiteration that gaps and fissures are opened up as the [...] reconstituting possibility in the very process of repetition’ (1993: 9; italics original).

On the one hand, Barad (2007) appreciates that Butler conceptualises the making of materiality and meaning as inextricably entwined, and through acts similar to Foucault’s regulatory power and discursive practices. On the other hand, she criticises that both Butler and Foucault maintain a nature/culture binary as Butler’s scope is confined to how *human* bodies materialise and both Butler and Foucault understand discursive practices and agency as belonging only to human social practices (ibid.). Their constitutive exclusion of the nonhuman and the insight that discourse, understood as a meaningful process of materialisation, is not just what is said, is not synonymous to language, leads Barad to attribute significance to the role of nonhuman agencies for enabling or restraining what can(not) be said. Meaning, rather than being made of seemingly immaterial place- and timeless symbols or thoughts (as in idealism), is always already embedded in the materialisation of the world—an ontological insight that is so aptly depicted by the double meaning of ‘mattering’. Although Foucault’s notion of dispositifs/apparatuses is also part of Barad’s terminology, for her, apparatuses are not only heterogeneous ensembles of human activities but

‘specific material reconfigurings of the world that do not merely emerge in time but iteratively reconfigure spacetime-matter as part of the ongoing dynamism of becoming’ (Barad 2007: 142)

Although the very notion of an apparatus may evoke a fixed entity such as we conventionally perceive a productive device, Barad challenges any assumptions of fixity in absolute terms—not only through the metaphor of matter being produced through constantly *sedimenting* discourse practices but also by defining apparatuses themselves as practices: ‘Apparatuses *are* specific material-discursive practices’ (ibid.: 146, emphasis added) which ‘produce differences that matter—they are boundary-making practices that are formative of matter and meaning’ (ibid.). Importantly, they are also ‘open-ended practices’ (ibid.). Thus, whenever in this thesis, I refer to the vegan or the carnist apparatus, they are meant to be the productive devices that, without having intrinsic boundaries, constitute and materialise veganism and carnism in their inseparable materiality and discursivity—they are indeed nothing more than vegan and carnist food practices conceptually forged into a metaphor of sedimentation. But neither can apparatuses be seen as limitless nor are their boundaries arbitrary (ibid.: 203). In *Agential Realism*, boundaries are indeed real but they are enacted or become determinate through agential intra-action, the boundary work done by entangled agencies.

Through the notion of *intra*-action, Barad expresses that agencies are entangled within relations. This is opposed to the conventional *inter*-action which is suggestive of agencies having individual nonrelational properties outside of phenomena. As outlined in the previous subsection (2.3.1), relational ontologies take relations as the primary ontological unit. Barad uses the term phenomena for relations. She conceives phenomena as ‘the basic unit of existence’ (Barad 2007: 333) and as entangled inseparable agencies. Although, intuitively, the notion of agencies may evoke a relation between two or more distinct entities (ontologically separate), in Barad’s relational approach, agencies do not have an independent existence outside of the particular phenomenon (ontologically entangled), and they should not be mistaken as being prior to or smaller than phenomena. Rather, their *entanglement* within a phenomenon implies that they are constituted through it.

In principle, the becoming of the world is agential and thus not determined on an ontological level. However, *Agential Realism* is more than just a non-deterministic world view. Conceiving boundaries ontologically as always in-the-making through intra-acting agencies does not mean that they are not real. In practice, boundaries do become determinate. The constant potential for change lies within the possibility of

‘changes in the apparatuses of bodily production [which] matter for ontological as well as epistemological and ethical reasons: different material-discursive practices

produce different material configurings of the world [...] Accountability must be thought of in terms of what matters and what is excluded from mattering' (ibid.: 184).

At the heart of Barad's approach is the making of reality through agential differentiation. The processes of constitutive inclusions and exclusions within phenomena are what draws the outlines of what thereby works as an apparatus. Open, but non-arbitrary, boundaries are the effect of specific 'agential cuts' (Barad 2007: 140). Though ephemeral and temporally bound to the agential cut, a boundary produced through that cut becomes determinate, it is *real* (thus *Agential Realism*).

Although not explicitly connected, Barad's call for analysing boundary-drawing practices resonates with the sociological literature on 'boundary work' (Lamont & Molnár 2002, Pachucki et al. 2007, Lamont 2012) which, as discussed in section 2.2.3, has been applied by Yeh (2013, 2014) to examine how the boundaries of vegetarianism are drawn. Lamont and Molnár (2002) suggest that symbolic boundaries—understood as 'conceptual distinctions made by social actors to categorize objects, people, practices, and even time and space' (ibid.: 168)—are equally used to 'enforce, maintain, normalize, or rationalize social boundaries' (ibid.: 186) as they are to 'contest and reframe the meaning of social boundaries' (ibid.). Similarly, Krüger and Strüver (2018: 217) ask in their analysis of narratives of "good food":

'Based on which interpretive patterns, values and spatial relationships do food identities, attributions of responsibilities and daily practices get normalized and hence stabilized or, on the contrary, politicized and challenged?'

As social boundaries are 'objectified forms of social differences' materialised in inequalities (Lamont & Molnár 2002: 168), the boundary work performed by social actors is—provided Barad's posthuman twist in which social/agentive forces do include nonhuman agencies—generally compatible with the idea of boundaries being agentially enacted within apparatuses. Moreover, the notion of boundary work resonates with Powell's (2013) suggestion to conceptualise relations as 'work'. Since work 'always changes something', he broadly defines it as 'the production of difference' (ibid.: 196). This perspective 'immediately entails a bidirectional analysis, prompting us [firstly] to inquire what transformation produces and [secondly] what work, what relations, went into producing that relation' (ibid.: 197). By way of inclusion or exclusion, material-discursive practices normalise or problematise and, thereby, continuously (re)configure present configurations or apparatuses.

A sociology of material-discursive practices must therefore examine the agential cuts or, in other words, the boundary-drawing practices that differentially configure what matters and what is excluded from mattering. What comes into being and is, thereby, meaningful and what is excluded from that possibility? In order to understand the boundaries of veganism, I

will examine the more-than-human work that goes into producing vegan and carnist food practices.

In the introduction (ch. 1), I have enacted an agential cut that laid the foundation of this thesis. By drawing on scientific research, I made a case for absolute reductions of animal-sourced foods to be desirable, at least if the major social-ecological problems we (*all* animals) face today—and face quite unequally—are to be solved. Whilst I do by and large exclude the carnist apparatus from the realm of the sustainable, all subsequent purpose of my thesis is not to enact normative/formative agential cuts but to *examine* them. The constitutive conditions for the degrowth of the carnist apparatus and the growth of the vegan apparatus will become clearer through an empirical material-discursive analysis of the boundary-drawing practices within different food practices that (re)configure these apparatuses.

2.3.3 Political Ontology in a Relational Manifold: Conceiving Possibility as a Spatial Degree of Freedom

‘Our lives are not our own. From womb to tomb, we are bound to others, past and present. And by each crime and every kindness, we birth our future.’

Sonmi-451, Neo Seoul in the year 2144

(from the film Cloud Atlas; Tykwer et al. 2012: 2h 33m 30s)

Today, we are indeed in a weird situation in which the anthropocene conveys that, as a species, human (and their domesticated) animals are the cause of changes on a global scale. These changes entail the possibility of humanity itself, or at least significant parts of it, being wiped out as part of the mass extinction (see Ceballos et al. 2015) we, *all* animals, and each in our own way, are currently witnessing. Are we, *humans*, and our brains simply not capable of coping with long-term problems? Is ignoring the cognitive dissonance of anthropogenic eco-suicide the evolutionary fate of modern society? Possibly. But what if the problem is not the nature of human nature but the way we look at the nature of nature? Perhaps the problem is an apolitical conception of evolution, a deterministic world view, while the key to resolving the contemporary contradiction is to adjust our understanding of how spacetime and possibility evolve in intra-action. In need of a political ontology, this section is an attempt to develop a political conceptualisation of the relational manifold we inhabit that conceives possibility as a spatial degree of freedom. My understanding of “space”, “time”, and “possibility” draws on feminist social theorists such as Barad, Massey, and Gibson-Graham who combine ontological insights from modern (as opposed to classical) physics and relational theory in order to politicise space and spatial change.

Curiously, Barad and Massey have, to my best knowledge, never made references to one another, although both have or had—Massey died in 2016—considerable influence in their academic domains, and their outlooks, terminologies, and conclusions have much in common. To begin with, they both insist on the radical openness of the future (Barad 2007, Massey 2005). Drawing on Einstein’s relativity (Massey 1992) and Bohr’s interpretation of quantum physics (Barad 2007), both conclude that space is equally open. This involves regarding the evolution of spacetime not just as unknown, and thus a purely epistemic affair, but as *undetermined* (i.e. ontologically open)—and yet entities *become* determinate, i.e. materialise, through contingent practices. The following paragraphs unravel how space, conceptualised relationally, can be used to challenge deterministic world views, practical orthodoxies, and social norms that confine the possibility space for political intervention out of social-ecological concerns to a precarious minimum.

Treating academic representations of space with particular scrutiny, geographer Doreen Massey (1992, 2005) criticises that time, strongly connoted with dynamism, has been given priority over space inasmuch as space, defined as a counterpart to time, is simply seen as stasis or the absence of change. Deprived of its role in history, she argues, space—and spatial change—is depoliticised. The very idea of entities separable in absolute terms, salient in the work of Descartes and other thinkers of the Enlightenment, is also part of Newton’s physics. In his view, space is a grid of coordinates, a fixed container in which matter exists, while time, made of linear intervals, ‘flows equably without relation to anything external’ (Newton as cited in Barbour 2009: 2; see also Fisaletti & Sorli 2015). Integral to classical physics is the positivist view that the universe is a strictly deterministic system which evolves in a way that can be both predicted and retrodicted in absolute terms (see Barad 2007: 107). In 20th century, however, modern physics developed alternative models to the assumption in classical physics that reality is an ‘evolution of a three-dimensional existence’ with ‘separate entities existing in their own right—a three-dimensional space, and a one-dimensional time’ (Stannard 1989: 35; cited in Massey 1992: 76). From large-scale astrophysics to the micro level of quantum physics, modern conceptions of space reject the classical particularism that, in Massey’s view, excludes space from mattering politically (not physically).

For example, in Einstein’s relativity theories, ‘the underlying reality consists of a four-dimensional space-time’ (ibid.). Based on inextricable connection, spacetime implies that being-in-relation is incorporated into the fabric of reality. Citing physicist Russell Stannard, Massey (1992: 77) shows how the emergence of space itself is relational:

“The existence of the spatial depends on the interrelations of objects: “In order for “space” to make an appearance there needs to be at least two fundamental particles”

([Stannard 1989] p. 33). This is, in fact, saying no more than what is commonly argued, even in the social sciences—that space is not absolute, it is relational.’

Time, in turn, does not just pass by, it is always related to the (re)configuration of space. As Barad suggests, time is not ‘an abstract idea for Einstein; time is what we measure with a clock’ (2007: 55). What happens with(in) space not only matters when we “measure” a day passing by as Earth revolves around itself—even atomic clocks rely on signals that electrons emit when they *change* their energy levels. Beyond Einstein, this resonates with timeless approaches in more recent physics in which ‘intervals of time do not pre-exist but are *created by what the universe does*’ (Barbour 2009: 2; italics original) which entails that ‘time exists only as a mathematical quantity measuring the numerical order of material changes’ (Fiscaletti & Sorli 2015: 126; see also Rovelli 2004). Conceiving space as the content, not the container, and time as no more than spatial change means adopting a view on the nature of nature as a relational manifold. Barad (2007) refers to interpretations of quantum mechanics based on relational ontologies which reject particularism (Mermin 1998, Rovelli 1996, Smolin 2001) in order to develop further her theoretical approach to social change:

‘space and time (like matter) are phenomenal, that is, they are intra-actively produced in the making of phenomena; neither space nor time exist as determinate givens outside of phenomena. As a result of the iterative nature of intra-active practices that constitute phenomena, the “past” and the “future” are iteratively reconfigured and enfolded through one another: phenomena cannot be located in space and time; rather, phenomena are material entanglements that “extend” across different spaces and times.’ (Barad 2007: 383)

By emphasising that entities have no determinacy outside of phenomena, Barad (2007, 2010) also draws on Bohr’s correction of Heisenberg’s uncertainty principle which refers to a necessary trade-off between measuring an electron’s position and its momentum. Since knowing its position means to *disturb* its momentum, Heisenberg claimed, we remain *uncertain* about its momentum’s value. By making it an epistemological issue of not knowing, Heisenberg implicitly assumed the electron’s momentum to have a determinate value that exists independently of the measurement. But Bohr pointed out that the problem is an ontological one: ‘For Bohr, the real issue is one of *indeterminacy*, not uncertainty [because] *the values of complementary variables (such as position and momentum) are not simultaneously determinate*’ (Barad 2007: 118; italics original). Barad suggests (with Bohr) that Heisenberg’s fault was to draw on a ‘Newtonian sense of objectivity denoting observation-independence’ (Barad 2007: 120). More generally, this dissent—which, as Barad notes, was resolved insofar as Heisenberg acquiesced to Bohr’s critique in a postscript (ibid.)—also relates back to Massey’s concern with space being depoliticised. Regarding the future as *uncertain* or unknown, implies that the universe follows a predetermined pathway in which political intervention is thus foreclosed. In contrast, an *undetermined* future resonates with Massey’s call for

‘imagining space as always in process [...] Only if the future is open is there any ground for a politics which can make a difference. [...] Not only history but also space is open. In this open interactional space there are always connections yet to be made, juxtapositions yet to flower into interaction (or not, for not all potential connections have to be established)’ (Massey 2005: 11).

Importantly, Massey acknowledges that spatiality and temporality are still useful distinctions but their entanglement on an ontological level requires ‘thinking in terms of space-time’ (Massey 1992: 84) and accepting that ‘the spatial is integral to the production of history, and thus to the possibility of politics, just as the temporal is [integral] to geography’ (ibid.). In what follows, I intend to deepen the political dimension Massey raises by a conceptual discussion of how space can be put in relation to (im)possibility.

In the previous subsection (2.3.2), I have already introduced Barad’s (2007) notion of apparatuses of bodily production which, through and *as* material-discursive practices, produce differences that matter. Meaning and materiality are not determinate *per se*. Instead, they become determinate through boundary-drawing practices and their constitutive exclusions. An apparatus, in other words, resolves the indeterminacy at the ontological level into a determinate—*real*—outcome through an agential cut. In the context of this section, it is important to remember that apparatuses, in Barad’s posthuman account, are not necessarily human-made. Likewise, agency is not a fixed property of human subjects and neither does its enactment require consciousness or intentionality. Rather, *Agential Realism* implies that nature itself works through differential practices of entangled agencies: ‘spacetime is an enactment of differentness’ (ibid.: 137). Barad’s notion of ‘spacetimemattering’ (ibid.: 182) means that the becoming of the world is nothing else than an iterative process bound to the apparatuses which enact that resolution of indeterminacy into determinacy through intra-active practice. The possibility for socio-material (=any) change lies in agential reconfigurings of the in/exclusions that materialise phenomena as part of agential cuts (which, in turn, condition subsequent agencies, practices, apparatuses, etc.). As a result of that change, different material enfoldings become determinate out of the relational manifold’s indeterminacy. But how are we actually supposed to imagine that indeterminacy? Barad also speaks of a dynamic ‘field of possibilities’ (ibid.: 147) from which matter and meaning, ‘statements and subjects’ (ibid.), emerge. If things first need to *become* determinate by being agentially realised, is the realm of indeterminacy, that field from which phenomena materialise, somehow immaterial, ideational, unreal, or even supernatural?

Rather than emerging from the supernatural, Barad (2016) connects materialisation to the physical notion of superposition. The differential constitution of matter, she claims, is nurtured from a state of superposition in which all possible histories are combined (ibid.).

Like the diffraction pattern created by two interfering waves, that superposition is a state beyond measurement, i.e. outside of where/when phenomena have become determinate through agential separability. Far from unreal or immaterial, it is real in the sense of a possibility *space*. At the crossroads of in/determinacy, that possibility space is where *and* when changes in the exclusions and inclusions of apparatuses happen and superpositions are resolved into “ordinary” positions by agential separation. It is, in other words, spacetime-evolution’s boundary workspace, or the locus of agency and intra-action:

‘Indeed, intra-actions iteratively reconfigure what is possible and what is impossible—possibilities do not sit still [...] new possibilities open up as others that might have been possible are now excluded: possibilities are reconfigured and reconfiguring. [...] The notion of intra-actions reformulates the traditional notions of causality and agency in an ongoing reconfiguring of both the real and the possible.’ (Barad 2007: 177)

Similar to Barad as well as Massey’s ‘interactional space’ quoted above, Carolan and Stuart (2016: 77) speak of ‘efficacious and efficacious [...] processes and virtual potentials that exist even when not active/enactive’. This resonates with Powell’s (2013: 200) definition of agency ‘as a potential, which acquires concreteness only in its exercise. To talk of agency is therefore always to refer to a movement from the present into the future.’ My apprehension, here, is that a terminology that links seemingly immaterial virtuality and potentiality to material existence and bodily movement appears contradictory, if not metaphysical. However, since I agree with the overall course, I suggest to reformulate that virtual field of possibility in terms of a *spatial dimension of possibility* which is beyond, and yet as real as, spacetime.

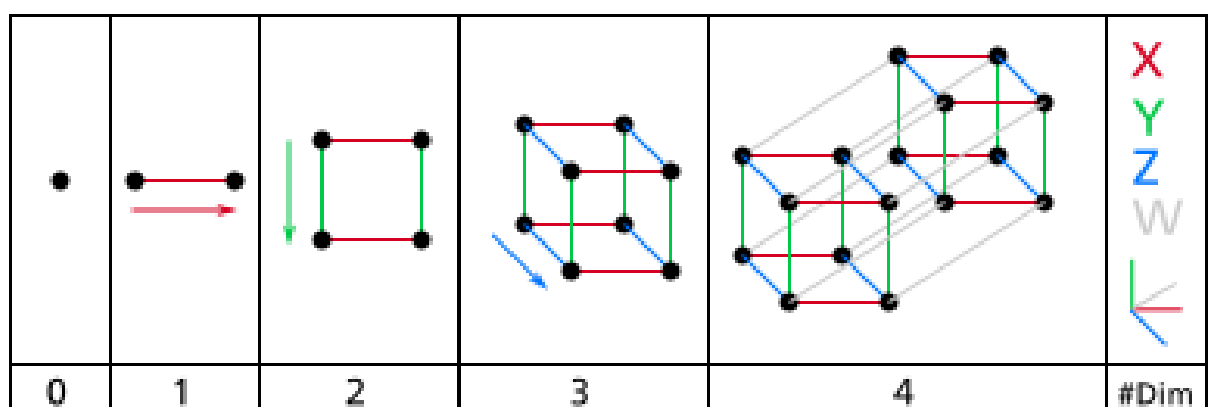


Figure 3: The first four spatial dimensions represented in a two-dimensional picture (Wikipedia entry on “Dimension”, 15/11/2018, https://upload.wikimedia.org/wikipedia/commons/4/45/Dimension_levels.svg)

In physics and mathematics, dimensions are degrees of freedom. As visualised in figure 3, the absence of dimensionality implies not being free to move anywhere (0D), whereas a tightrope walker, for example, is free to move back and forth on their unidimensional space (1D). A map helps with navigation along the two dimensions of North-South and East-West (2D). Note that in this geometric account, each dimension is perpendicular to the previous one and

adds another degree of freedom to move. A three-dimensional cube is often referred to as “space” which, in turn, is conventionally regarded as the container of reality (3D). Thus, a ‘slice through time’ becomes ‘the dominant thought’ (Massey 1992: 81) although, or maybe precisely *because*, this view cannot account for (social) relations in their dynamism; if anything, it shows ‘only an arrangement of objects from which relations might be inferred’ (Powell 2013: 194). That we experience temporality is undeniable. The difficult question is how to define time as a dimension (i.e. the evolution of spacetime; 4D). In fact, a tesseract, a four-dimensional object as seen in figure 3, is not just an alignment of separable cubes, it is made of cubes *enfolded* in one another. Thus, even in four-dimensional spacetime, the degree of freedom added to ordinary three-dimensional “space” should allow *free*, not linear, movement through spacetime. Subjectively, however, our lives can appear as a linear movement through spacetime. When insisting on the four-dimensionality of space(time), Massey (1992: 80) also mentions that things are in fact ‘n-dimensional’ (i.e. 4D+ or nD). Gibson-Graham (2006) take this a step further:

‘For becoming to be supported and nurtured, some form and substance is required, some way of inhabiting three dimensions in space, extension through time, and a fifth dimension of intersubjectivity.’ (Gibson-Graham 2006: xxxvi)

Whether relationality, agency, and the reworking of sedimented structures take place in the fourth or in higher dimensions is not my focus here. After all, dividing the relational manifold into x number of dimensions is modelling from limitless complexity. What matters is that (re)modelling our world view is itself a material-discursive practice. If we enact an agential cut that excludes indeterminacy from being significant so that the entire trajectory of spacetime appears already determined, we cannot actively change the direction in which spacetime is heading—that is, we are moving in space(time) but there is no change of direction in possibility space. By conceiving *possibility* as a spatial degree of freedom, I suggest that this space is not metaphorical but a “legitimate” dimension of the nature of being.

Furthermore, spacetimepossibility is a political dimension. In Edwin A. Abbott’s (1884) novel *Flatland: A Romance of Many Dimensions*, the protagonist, a two-dimensional square, amazed by new insights from being taken to three-dimensional Spaceland by a sphere, considers the possibility of a fourth and even higher dimensions. Rejecting there could be anything beyond Spaceland, the sphere, who had intended to show the superiority of his dimension, angrily throws the square back to Flatland where the square’s enlarged outlook is equally regarded as heretic. Reminding inhabitants to ‘attend to your configuration’ (ibid.: 44), the strongly limiting society of Flatland mirrors Victorian society with its

‘preoccupations with class consciousness, social Darwinism, resistance to the rights of women or minorities or misfits, and a growing two-cultures mentality separating the

rational from the intuitive and the theoretical from the practical order' (Banchoff 1990: 369).

One lesson from Flatland is that the degrees of freedom we are collectively able or not to perceive in our society/environment/habitat determine the agencies of individuals within it. In line with Barad and Massey, I assume that the future of spacetime is undetermined on an ontological level. But which spatial degree of freedom, which (cosmo)political imaginaries does a particular society allow? It is also an epistemological and ethical matter of historically specific material-discursive practices *how* open the future really is, and how vast the *situational* possibility space from within which subjects emerge and use, not free will, but what Gibson-Graham (2006: xxvi) call their 'freedom to act'. In other words, the freedom to act politically towards different worlds. This is the basis for the 'political imaginary' that Gibson-Graham call a 'politics of possibility' which allows for

'ethical practices of self-cultivation' and acknowledges 'the uneven spatiality and negotiability of power, which is always available to be skirted, marshalled, or redirected through ethical practices of freedom; and the everyday temporality of change' (ibid.: xxvii)

In my reading, the conditions for existence of a politics of possibility also depend on the degree to which material-discursive practices from which subjects and objects emerge endow the subject with what Musil (1978: 16), in his novel *The Man Without Qualities*, calls a 'sense of possibility':

'If there is a sense of reality, there must also be a sense of possibility. [...] Whoever has it does not say, for instance: Here this or that has happened, will happen, must happen; but [s]he invents: Here this or that might, could, or ought to happen. If [s]he is told that something is the way it is, [s]he will think: Well, it could probably just as well be otherwise. So the sense of possibility could be defined outright as the ability to conceive of everything there might be just as well, and to attach no more importance to what is than to what is not.'

At the heart of my agential realist reading of possibility as a spatial degree of freedom is that, ontologically, every body moves through spacetimepossibility but epistemological and ethical questions matter for the directions in which they move. Some material-discursive practices are *literally in line* with current power relations, that is, they work to maintain the linearity of the direction towards which the evolution of spacetime is heading, and they draw the boundaries that depoliticise socio-spatial change. Possibility practices, in contrast, (re)politicise the possibilities of spatial change through the deconstruction, crossing, and reworking of boundaries. Powell's (2013) definition of agency as a movement from the present into the future can either be a straight/reactionary movement within possibility space or a "queer"/reactive one that shatters established ways of thinking and doing—as hinted in Barad's (2012) 'nature's queer performativity'—making new things (im)possible, and

navigating perceptible reality materially towards other parts of the manifold. Changing the direction in which we are moving within possibility space does equally exclude alternative world's from coming into being as following established trajectories does, but in contrast to maintaining the overall direction by following routinised practices, it allows for proactive responsibility, i.e. the more-than-human and more-than-individual subject's ability to respond with ethical practices to undesired spacetime directions:

‘We are responsible for the cuts that we help enact not because we do the choosing (neither do we escape responsibility because “we” are “chosen” by them), but because we are an agential part of the material becoming of the universe. Cuts are agentially enacted not by willful individuals but by the larger material arrangement of which “we” are a “part”. The cuts that we participate in enacting matter.’ (Barad 2007: 178)

What matters in view of climate change and mass extinction is particularly the ‘political ecologies of the possible’ (Peet et al. 2011: xiii; see 2.1.3) that we do or do not participate in enacting. In the anthropocene, marked by fossil-fuelled capitalist economic practices and carnist food practices, we, *humans*, are the centre of everything (and a few of us even more so) and we are, thereby, the evolutionary inconstant that threatens us, *all* animals. Reactionary voices keep saying that there is no alternative to these practices, but the continuity of this condition is not determined on an ontological level. Conceiving the world in terms of a possibility space is a political-evolutionary tool of adaptation and mitigation. A vegan politics of possibility means to *move*—by way of material-discursive practices—into the spatial direction of a world in which animal-sourced foods do not matter, at least not in the same way as they do in this part of the manifold. In this thesis, I trace boundary-drawing practices around veganism and carnism as they occur in different foodscapes in order to (re)politicise the trajectories of both vegan and carnist food practices within possibility space.

3. Objectives and Methods: A Material-Discursive Ethnography of Vegan and Carnist Foodscapes

This chapter outlines the objectives that emerged from the research problem as well as the discourse-analytic and ethnographic methods used to conduct a material-discursive analysis. After the research objectives and questions are pointed out (3.1), the methodology section highlights that this thesis focuses on agential *difference patterns*, rather than explaining why *particular* agents act as they do (3.2). Another section explains how the empirical data was collected; this includes preserving websites, conducting interviews as well as observing and participating in foodscapes (3.3). A final section illustrates how that data was analysed and identifies limitations of this thesis (3.4).

3.1 Research Objectives and Questions

The main objective of this thesis is to examine the phenomenon of veganism as a food practice which, rather than being confined to consumers' eating habits, involves the materialities of foodscapes of *production* and the spatio-temporal possibilities within them. As elaborated in the literature review (see 2.2.3), it is common to look at veganism mainly as a phenomenon of ethical consumers, their preferences, and their demand for specific foods. However, it is insufficient to address *Livestock's Long Shadow* (FAO 2006; see 1.1) with a focus on consumption in the sense of purchase and eating only. Rather, food practices on the production side are just as much an ethical issue.

With consumption being materially dependent on production but not vice versa, it is ultimately production, not consumption, which requires reconfiguration in order for practices to become socially and ecologically sustainable. This suggests material-discursive analyses in food-enabling "landscapes", i.e. foodscapes such as farms, retailers (their branches and websites), and food advocacy networks as well as depictions of veganism in the mass media. Examining the production of matter and meaning in the context of a variety of foodscapes, which diverge in their practices (including their approach to veganism), is supposed to disclose differential patterns of how the boundaries of veganism and carnism are drawn as practices of food consumption *and* production, particularly in response to animal agriculture as a sustainability challenge.

In this thesis, I understand food practices as a domain in which "good" and "bad" agricultural and culinary practices are negotiated and materialised through boundary-drawing practices. This includes debates and (intra-)actions in the context of sustainability. What

passes as sustainable or unsustainable production and consumption practices is also negotiated and materialised through boundary work. Thus, whether or not animal-sourced foods are produced and consumed, and what that means for sustainability, depends on enabling or disabling material-discursive practices. Observing how differential boundaries are drawn around veganism and carnism will help to understand how sustainability efforts towards a reduction of animal agriculture can be achieved. Both this outlook on food practices and this research objective are expressed in three main research questions (and a few subordinated questions):

- Through which differential patterns of boundary-drawing practices do vegan and carnist agricultural and culinary practices get *normalised* and depoliticised or, on the contrary, *problematised* and challenged?
- Considering their material-discursive practices, how do farmers, retailers, and advocacy networks position themselves towards the possibility of achieving sustainable development through *absolute reductions* of animal agriculture?
- What role do animal agriculture, on the one hand, and veganism, on the other, play in producer discourses on *sustainable* food production and consumption? How, and through which boundary-drawing practices...
 - are current power relations and inequalities between human and nonhuman animals as well as vegan and carnist food practices maintained or disrupted?
 - does animal agriculture pass as “sustainable” or not?
 - are specific reasons for adopting vegan production or consumption practices framed and put into practice?
 - are concepts and figures such as “the ethical”, “animals”, “the environment”, “food”, and “the consumer” defined and connected?
 - do wider spatio-temporal relations, materiality, production, and social-ecological sustainability problems become politicised or depoliticised?

Guided by these questions, I examine the ways in which retailers, farms, and vegan and carnist advocacy networks determine the boundaries of veganism and carnism and, thereby, materialise vegan and carnist food practices. By conducting material-discursive analyses, this thesis looks at food practices in general and veganism in particular from the viewpoint of production—that is, the production of matter and meaning in the contexts of farming, provisioning, and lobbying. Understanding how vegan and carnist food and sustainability practices come into being through material-discursive boundary work may inform critical

interventions towards absolute reductions (as opposed to relative improvements) of animal agriculture. This matters against the background of partly food-related sustainability problems such as climate change and mass extinction.

3.2 Methodology: Reading for Difference

Drawing on Barad's (2007) *Agential Realism*, this research project requires an approach that goes beyond an understanding of discourse as language. Barad builds upon Foucault's notion of discourse, as well as Butler's performativity to create a notion of material-discursive practices that is opposed to representational accounts of discourse as written or spoken words (subsection 2.3.2 elaborates this in more detail). For her, discourse is not that which is said, it is that which constrains and enables what can be said. Therefore, it implies material-discursive practices which are not necessarily performed by humans. This perspective suggests the use of a mix of methods ranging from qualitative discourse analysis based on interviews to methods that better allow for making visible materiality and nonhuman agencies, for example, ethnographic observation and participation, aided by photography.

Although quantitative insights about the social and ecological effects of different diets on climate change and mass extinction have been important to frame the research problem (see ch. 1), this thesis employs qualitative methods. Rather than producing representative data, the focus on difference patterns in this thesis requires a methodology that is sensitive to *qualitative differences* within material-discursive practices. In *A Postcapitalist Politics*, Gibson-Graham (2006) explore possibilities for transforming capitalist economic practices by emphasising a 'reading for difference rather than dominance' (ibid.: xxxi).

More specifically, Gibson-Graham find that capitalism—nowadays equalised with “the economy” in its entirety—is artificially inflated and naturalised. Therefore, they stress important qualitative differences between ‘wage labour produce for a market in a capitalist firm’ (ibid.: 70), on the one hand, and non-capitalist economic practices such as cooperatives, self-employment, care-work within families, volunteering, and many other alternative types of economic practices, on the other. Due to ‘hegemonic capitalocentric dynamics’ (ibid.: 71), they claim, the latter practices are usually not regarded as a (serious) part of the economy, whereas capitalism appears all-encompassing.

Thus, whenever researchers look at dominance only, the marginalisation of alternatives is at risk of being further increased (Harris 2009 illustrates this by example of alternative food networks, see also 2.1.2). Wherever power geometries are at play and change is at stake, reading for difference is what makes sure that all practices, even the emerging and

Table 1: Karen Barad's diffractive methodology in contrast to reflection/reflexivity (adopted from Barad 2007: 89).

Diffraction	Reflection
diffraction pattern marking differences from within and as part of an entangled state	mirror image reflection of objects held at a distance
differences, relationalities objectivity is about taking account of marks on bodies, that is, the differences materialised, the differences that matter	sameness, mimesis objectivity is about reflections, copies that are homologous to originals, authentic, free of distortion
diffractive methodology	reflexivity
performativity subject and object do not preexist as such, but emerge through intra-actions	representationalism preexisting determinate boundary between subject and object
entangled ontology material-discursive phenomena	separate entities words and things
onto-epistem-ology knowing is a material practice of engagement as part of the world in its differential becoming	ontology epistemology binary knowledge is true beliefs concerning reflections from a distance knower known binary seeing/observing/knowing from afar
intra-acting within and as part of	interacting of separate entities
differences emerge within phenomena agential separability real material differences but without absolute separation	inside/outside absolute separation no difference interior/exterior
diffraction/difference pattern intra-acting entangled states of nature cultures	words mirror things social natural binary nature culture binary
about making a difference in the world about taking responsibility for the fact that our practices matter; the world is materialised differently through different practices (contingent ontology)	about representations about finding accurate representations about the gaze from afar
phenomena are objective referents accountability to marks on bodies accountability and responsibility taking account of differences that matter	things are objective referents accountability entails finding an authentic mirror representation of separate things
ethico-onto-epistem-ology ethics, ontology, epistemology not separable	ethics ontology epistemology separate fields of study
reading through (the diffraction grating) transdisciplinary engagement attend to the fact that boundary production between disciplines is itself a material-discursive practice; how do these practices matter? subject, object contingent, not fixed respectful engagement that attends to detailed patterns of thinking of each; fine-grained details matter	reading against (some fixed target/mirror) privilege one discipline read other(s) against it subject object fixed reify, simplify, make the other into a separate object less attentive to and able to resolve important details, dynamic, how boundaries are made
Summary accounting for how practices matter	reflecting on representations

quantitatively insignificant one's, are granted possibility space (what this means for vegan and organic agricultural practices is addressed in section 8.3).

Qualitative data collection (or rather: *production*) and analysis is, to use Barad's (2007) words, a 'diffractive' process. In physics, the phenomenon of diffraction is about the effects or patterns that can be observed from waves which overlap and are combined to a composite form that is called superposition (see 2.3.3). Diffraction patterns, in this thesis simplified to *difference patterns*, are, just as ripples in a pond, the observable effects of at least two (but usually a multiplicity of) waves interfering with each other.

Used as a methodological metaphor in social scientific research, diffraction patterns can be seen as the perceptible effects of superpositions of matter and meaning. They emerge from collapsing "waves" composed of the researcher's input—his or her intellectual, theoretical, and practical means and intentions—intra-acting with the agencies of the field. That is, the combined force of written, visual, and audible impressions raised by interviewees, other beings, objects, and ideas. In short, both data and knowledge arising therefrom are created intra-actively.

Barad contrasts diffractive methodology with a reflexive one (see Tab. 1). Reflexivity mirrors the geometrical optics of the notion of reflection in physics. Methodologically speaking, a reflection is a representational mirror image that holds objects at a distance and assumes objects (and subjects) to have preexisting determinate boundaries. Barad's critique of reflexivity resonates with Gibson-Graham's (2006) attention for difference. In Barad's (2007: 72) view, reflexive methodology

'remains caught up in geometries of sameness; by contrast, diffractions are attuned to differences—differences that our knowledge-making practices make and the effects they have on the world'.

The methodological difference Barad makes between diffractive and reflexive approaches corresponds to the theoretical one between relational and representational approaches (empirically, this will become relevant when I illustrate patterns of how the boundaries of food practices are drawn representationally; see 9.2.1, Tab. 4). Both diffractive methodology and relational theory pay attention to the differences that matter, i.e. in the sense of both substance (matter) and significance (meaning). Therefore, research that works with Barad's theory and methodology needs to operationalise the analysis of material-discursive practices and difference patterns they create.

Despite their additional corrective focus on materiality, material-discursive analyses may draw upon more established forms of discourse analysis. Within the framework of qualitative coding methods for discourse analyses, the corpus of data (i.e. its extent) is, in principle,

open—its extension, however, is a practical question. Reasonably limiting the data, which is obviously a necessity, can be achieved by ‘theoretical sampling’. This method, inspired by *Grounded Theory* (Glaser & Strauss 2010; see also Clarke 2005), requires the successive extension of the corpus up to a point of saturation. The advantage of this approach is that data collection and thus the insights are more grounded in actors’ and agencies’ accounts and perspectives (see Evans 2011). This is meant to reduce the influence of the researcher’s presumptions about the field. Clarke’s *Situational Analysis* (2005, 2010; see also Clarke et al. 2015) is based on *Grounded Theory* and provides tools for qualitative discourse analyses. The way Clarke uses the term ‘situational’ resonates and is compatible with relational ontology and epistemology:

‘Everything is situated, and situational analyses map and elucidate this facet of postmodern understanding. They make the invisible and inchoate social features of a situation more visible: key elements and their interrelations, social worlds and arenas in which the phenomenon is embedded, and discursive positions taken and not taken on key issues.’ (Clarke 2010: 8).

By making suggestions for mapping those ‘situations’, *Situational Analysis* can be used not only to code discursive elements but also (inextricably entwined) *material* elements of practices.

Generally, discourse analyses largely draw upon poststructuralist thinkers and theorists such as Foucault and Butler (see 2.3.2). According to Clarke et al. (2015: 32), poststructuralist approaches aim at ‘rupturing taken-for-granted assumptions’. Going beyond the representational focus on written and spoken language, a conception of discourse informed by ‘new materialisms’ (Barad 2007, Bennett 2010) thus implies to not only rupture assumptions, but also practices, including the material-discursive configurations they are situated in. By analysing how practices are materially and discursively situated and connected within and across foodscapes, this thesis aims to rupture the taken-for-granted practices by which the boundaries of veganism and carnism are drawn (and, thereby, their possibilities for change).

Utilising methods of material-discursive analysis allows to avoid prefixed notions of veganism as a dietary ideology. Instead, through the examination of boundary-drawing practices, I will investigate *empirically* how carnism and veganism, through the entanglement of matter and meaning, continuously come into being as social phenomena and sediment into more or less stable apparatuses. The objective is to deconstruct (and, where applicable, reconfigure) material-discursive practices (see sections 9.1 to 9.3). This additional, *material* dimension to discourse analysis suggests the use of a more than usual variety of research material because it requires more than just textual, linguistic data. In this thesis, material-discursive practices are approached in three connecting ways.

Firstly, the production of data implies the systematic act of coding text passages and images (Diaz-Bone & Schneider 2010, Glasze et al. 2009, Rose 2007) in order to produce patterns of both dominant and marginalised material-discursive practices by which the boundaries of veganism and carnism are drawn. For example, by applying qualitative methods of discourse analysis to documents and images of producers, retailers, and advocacy organisations (e.g. websites and sustainability reports).

Secondly, ethnographically-oriented interviews are supposed to provide insights into practices. Interviews may be based on spoken and written language which, by default, entails anthropocentric inclinations. However, due to their focus on depth, semi-structured narrative interviews enable a more thorough “mapping” of the material aspects of a “situation” than more structured interviews and quantitative surveys. In order to allow valid generalisations of social scientific value, the case studies are supposed to be profound and complete rather than high in numbers and representative, as required for quantitative research (Lamnek 2010, Helfferich 2011). The idea behind this is based on the assumption that implicit norms and routines within food practices may not be simply captured by a questionnaire. Rather, they come to the fore when agents are enabled to deliberate about their practices explicitly and extensively.

Thirdly, participant observation, aided by photography, can provide additional insights into materiality. Ethnographic methods aim at understanding the lived, everyday world “out there” (Crang & Cook 2007). Particularly photography provides information beyond language and can give impulses to thoughts or memories that would not have been evoked by textual data alone (for an account of visual methodologies see Rose 2007). Dirksmeier (2013) emphasises the performativity of qualitative visual methods such as (auto-)photography. Images visualise the ways in which relations are performed and encourage intra-active meaning-making by researchers as well as study subjects. Not only do they bring to the fore that matter evokes meaning, and vice versa, but also how both are inextricably entwined within relations.

Material-discursive analyses thus depend on methods that capture the entanglement of matter and meaning better than linguistic ones alone. This is still relatively new terrain. Since new materialist and posthumanist approaches have so far predominantly and understandably been focused on laying *theoretical* foundations (e.g. Barad 2007, Bennett 2010), subsequent *empirical* application to societal problems of collective relevance is all the more necessary.

3.3 Data Collection

Putting Barad's (2007) notion of the entanglement of matter and meaning into research practice, here, means to regard material-discursive practices as productive processes that drive crop growing and animal husbandry and materialise vegan or animal-sourced foods and related consumer identities and practices. Therefore, foodscapes of production in a relatively broad sense—farmers, retailers, and advocacy networks—are a crucial source of data. In the following, I will outline how I acquired the data to address my research questions by collecting both linguistic and non-linguistic material. With the former being potentially human-centred, the latter is suspected to be more suitable for analyses with posthumanist ambitions.

The collection of qualitative data applied in this thesis involved

- interpretive analyses (3.3.1) of
 - retailers' sustainability websites (text and images)
 - retailers' corporate social responsibility documents
 - magazines, fliers, and newsletters of retailers and advocacy networks
 - video material (television reports and journalistic online contributions about my interviewees or their companies, advertisement clips by retailers and farms)
- in-depth interviews (3.3.2) with different types of “producers” (in the wider sense that embraces agriculture, provisioning, and food politics):
 - staff of a big dairy company (which involves dairy farming as well as cheese and biogas production)
 - farmers of a former beef and dairy farm (that turned towards crop cultivation and also became a sanctuary for a small number of cattle)
 - staff of two supermarkets (one interview with a sustainability manager of a big retailer, two interviews with staff of a grocery with an ‘animal-free’ offer)
 - the founder of a vegan advocacy network
- ethnographic participation, observation, and documentation (3.3.3) in form of
 - becoming an everyday customer in the retailing foodscapes and being on-site frequently
 - taking photos of products, signs, and advertisements in the shops

- writing memos or field notes based on daily encounters at the retailers as well as in the particular foodscapes of in-depth interviews
- on-site observations at vegetable growers and participating in cultivation through schemes such as the *Land Army*
- on-site observations at farms including, for example, a tour through the premises of a cheese dairy, its biogas plant, visitor centre, pastures and arable land; furthermore, a tangible encounter with the reprieved cattle of a former beef and dairy farm.
- participating in events of a vegan advocacy network (e.g. helping out on their stall at an eco-festival or driving around children in a rickshaw at a vegan fair in a primary school)

As explained in the previous section (3.2), the data collection was an inductive process of successive extension oriented towards *Grounded Theory* (Glaser & Strauss 2010) and *Situational Analysis* (Clarke 2005, 2010, Clarke et al. 2015). Chronologically, the process of data production started with obtaining the two retailer's websites and documents on sustainability and corporate social responsibility, whereas ethnographic observations were made continuously until the process ended when the last interviews were conducted. Starting with two different retailing foodscapes was a precondition for the sampling process based on an “organically” growing and evolving data set. That is, the first impressions from the websites and initial ethnographic observations in local South Manchester foodscapes led my focus to branch off towards further but *related* foodscapes elsewhere. For example, my interview at a large dairy farm and cheese dairy in South West England was initiated by the big retailer I interviewed vesting their supplier with an award for their sustainability achievements and presenting them as a best-practice dairy farm in a brochure on climate resilience. Similarly, starting with *Unicorn Grocery*, I came across the *Vegan Organic Network (VON)*, which is based in Chorlton-cum-Hardy too, and I learnt about the opportunity to participate in the *Kindling Trust's Land Army*, an education programme for vegetable growers. My communication with *VON*, in turn, enabled me to get in touch with the farmers of *Bradley Nook Farm* whose transition from carnist to vegan food practices was obviously quite an extraordinary case to look at. All this entailed explorations of various fliers, newsletters, and other materials. For example, and particularly important, the *BBC Countryfile* report on *Bradley Nook Farm* which I came across through my interview with the farmers. Thus, the process of sampling itself incorporates a web of intra-acting agencies performed within the initial foodscapes' larger entanglements.

The following subsections describe in more detail how the data for interpretive analyses of websites, in-depth interviews, and participant observation was collected.

3.3.1 Preserving Websites

The first set of data was collected with the intention to get an overview of the two retailers' self-representation in the context of sustainability. The focus was confined to the language and practices used when referring to questions of the sustainability of animal-sourced and vegan products (or diets/lifestyles etc.). Although not in the centre of attention, this included references to vegetarianism. Next to the analysis of the retailers' sustainability websites and linked corporate social responsibility documents, which was an initial step, more material was successively appropriated and fed into the interpretive analysis of the existent data.

As evident from Appendix B.1, the websites and documents were saved and analysed in *Zotero*, a tool to collect, organise, and cite research. Previously, I had used *Zotero* only as a database for collecting, organising, and citing academic literature. In the course of this dissertation project, however, I began using it as an archive for both literature and empirical data. The software functioned as a “hub” to concentrate and merge rather different types of textual, visual, and audible data. The software enables websites to be saved in an offline file. This allowed to circumvent the fugitive nature of websites and preserve them for analysis. It should not go without saying that the offline versions saved in *Zotero* in some cases showed minor deviations from the online version as seen in the browser. For my analysis, however, these deviations had no significance. Other material such as PDF-documents can be saved without any losses of conversion.

Once assembled in the database, the different kinds of material were easily accessible for analysis. An advantage for coding is that all material is automatically indexed in *Zotero*. This function allows to use *Zotero's* internal search engine to search within *all* textual content. Whilst only textual (and transcribed audible) material can be explored by help of *Zotero's* search engine, visual material can be analysed by tagging the data (see Appendix B.2). Thus, very different kinds of data—textual or visual—can be assembled under the same tag.

3.3.2 Conducting In-depth Interviews

The second tranche of data, six in-depth interviews with retailers, farmers, and vegan advocates, was collected between July and December 2017 (see Tab. 2). By talking to people who are involved in productive processes of very different foodscapes about the role of

Table 2: Overview of the in-depth interviews conducted between Jul and Dec 2017

Ref. Code***	Name	Foodscape	Position	Length
RET1.1	Amanda*	Retailer (workers' cooperative)	member/director/staff	3h 15m
RET1.2	George*	Retailer (workers' cooperative)	member/director/staff	2h 15m
RET2	John*	Retailer (supermarket chain)	sustainability director	43m
FAR1	Nancy* and Matt*	Farm and cheese dairy	sales and marketing coordinator/staff	1h 25m (incl. tour around biogas plant, farm, and cheese dairy)
FAR2	Jay and Katja	Beef and dairy farm (future veg growers)	farmers/owners	1h 27m (interview**), 1h 15m (tour to see cattle)
VON1	David	Non-profit vegan advocacy network	founder/member	2h 52m
*actual names were changed to pseudonyms; in the rest of the cases, participants have given their consent				
**half of the recording was lost due to technical problems				
***the reference code is used for citations in the empirical chapters (4 to 8)				

animal-sourced and vegan products for sustainable food practices, this thesis seeks to identify different patterns of material-discursive practices. The interviewees were contacted by email or via the contact forms of their institution. All interviews were conducted face-to-face, usually at their workplace. Three interviews took place in Manchester and one each in a big city in the North West, South West England, and Derbyshire.

Beforehand, I conducted a 1h 14m trial interview with staff of a vegan hot dog stall situated in front of the workers' cooperative *Unicorn Grocery*. The interview was not (or at least not consciously) incorporated into the main analysis but it enabled me to get familiar with the interview situations and work on the questions guiding the semi-structured interview part.

The interviews can be depicted as both narrative and semi-structured because the nature of the questions was meant to change over the course of the interview. The approach was to begin with very open questions that allow for rather free narration. For example, the interviewees were asked what, for them, is “good” or “bad” food. Towards the end, the interview was more structured and guided by more specific questions I wanted to have answered. This procedure was meant to be a compromise between a weaker and stronger exertion of influence by the researcher. The intention behind this was to prevent foreclosing

results by structuring the interview, on the one hand, and slipping off into arbitrary narration far off the research objectives and questions, on the other.

Data collection required approval by the University Research Ethics Committee (UREC) accorded by the Social Sciences School Panel. This involved approval of a participant information sheet and a consent form. Both documents were handed to the participants prior to the interview. None of the participants refused to be interviewed after being presented with the documents. The documents guaranteed anonymity to all interviewees. However, being contacted by email after the interview, some of the interviewees gave their consent to their actual names being used. Jay and Katja Wilde of *Bradley Nook Farm*, for example, did not mind to be identified as their case had already been made public by *BBC* reports and other media attention. The names of the other participants have been changed to pseudonyms (see Tab. 2). Partly, these pseudonyms were suggested by the interviewees themselves in order to make sure that the names did not coincide with other people working in their company which could have happened accidentally if chosen by me. In the case of Nancy and Matt (FAR1), no consent form was obtained. In order to assert my interviewee's anonymity, I do not use the actual name of the farm. Instead, I invented "*Manor Farm*", blurred parts of the pictures that were able to reveal its true identity, and in a few cases I had to miss out references to direct citations taken from videos by or newspaper articles on the farm.

The recordings were transcribed with the DSS Player Standard Transcription Module, version 2.0. The software was deployed in combination with a foot pedal which facilitates and accelerates transcription by allowing to rewind flexibly.

3.3.3 Ethnographic Observation and Participation

The third set of data collection was a continuous and diverse mix of observing and participating in daily activities at the foodscapes. The intention behind applying these methods was twofold. Firstly, I assume that being on-site frequently and behaving (intra)actively for a longer period of time provides insights into the materiality and regular practices of the foodscapes—visual, tangible, and perhaps tacit and visceral (see Hayes-Conroy & Hayes-Conroy 2010) insights that interviews or text-based analyses cannot convey. Secondly, a profound knowledge of the different foodscapes was, if not a precondition, at least a welcome preparation for the depth of the interviews conducted later on (i.e. the quality of my own understanding of what interviewees were talking about during and after the interviews).

In total, more than 500 photos were taken in order to document the foodscapes:

- *Asda* (N=216)
- *Unicorn Grocery* (N=197)
- *Bradley Nook Farm* (N=66)
- *Manor Farm* (N=40)
- *Vegan Organic Network*, *Kindling Trust (Farmstart)*, and *Tolhurst Organic* (N=50)

Furthermore, observations involved writing field notes or memos based on daily encounters at the retailers as well as at the particular foodscapes where in-depth interviews were conducted. Quite simply, taking notes and drawing sketches of the sites helped to remember and process impressions of the sites I might otherwise have forgotten. Analytically, ‘memoing serves to assist the researcher in making conceptual leaps from raw data to those abstractions that explain research phenomena’ (Birks et al. 2008: 68).

In the case of the retailers, this involved becoming a customer for daily grocery shopping. Beginning in early 2016, the (conscious) data collection went on until the end of 2017 when I declared my data collection to be over. However, I continued to be a customer of both shops and might, in one way or another, have included more recent impressions into the analysis. On-site, these observations mainly meant taking photos of products, signs, and advertisements. Observations were nonetheless not confined to the visual. Being attentive to sounds and smells, for example, the busy wrapping of vegetables and fruit into paper bags or meat getting cut, meant to understand the foodscapes as material rather than just symbolical sites. It also meant paying attention to the spatial embeddedness of the foodscapes which changed over time. For example, on the site of retailer *Asda*, a branch of *Kentucky Fried Chicken* was built, next to the already existing *McDonald’s*. Knowledge of these changes helped to put the sites’ food landscapes and the retailers’ sustainability practices, as presented on their websites, in relation.

In contrast to my regular investigations at the retailers (as a researching customer), I did not visit any farms on a daily basis. At the farms I visited, my on site-observations included, for example, a guided tour through *Manor Farm’s* biogas plant, visitors’ centre, cheese dairy as well as the pastures and the arable land of the farm. Observations also included encounters with people living in a nearby village who became unexpected informants. A particularly tangible encounter was meeting the reprieved cattle of *Bradley Nook Farm*, a former beef and dairy farm. It involved being licked by a cow’s rough tongue while the farmers explained the ecosystemic relations of cattle and wildlife on their organic farm.

My exchanges with the *Vegan Organic Network (VON)* involved a variety of activities. First, I participated in their working group meeting. After getting to know them, I helped out on vegan fairs they organised in different locations in Manchester. At a vegan fair in a primary school in Chorlton-cum-hardy, I drove around children in a rickshaw while a *VON*-member led a playful conversation with the children who had learnt about veganism in a specific project week. On another occasion in Debdale Park, Manchester, I sold tickets to visitors at the entrance of the fair. Moreover, I helped out at *VON*'s stall at an ecological music festival, the *Northern Green Gathering* in August 2017. This festival took place on the land of *Bradley Nook Farm* so that I could use the opportunity to visit the farm itself and conduct an interview. It also exemplifies that the foodscapes I explored are closely linked. Tracing the overlapping foodscapes was a crucial part of my approach.

Even though this material was, unlike online data and interviews, analysed less systematically (i.e. due to the multiplicity of types of data including hardly tangible impressions), making observations and participating in the daily life helped with the more tacit understanding of the foodscapes and their materiality, and thus provided a useful ground for conducting a material-discursive analysis.

3.4 Data Analysis

This section explains the procedures of analysing retailer's sustainability websites (3.4.1), weaving together interview data and other material into empirical chapters (3.4.2), and reflects on the limitations of this thesis and its methods (3.4.3).

3.4.1 Interpretive Analyses of Sustainability Websites in Retail

Acquiring online data is more straightforward than choosing and contacting interviewees. Analysing sustainability-related websites and documents was thus a step that preceded the interviews. After an initial phase in which I tried out different data sources and analytical tools, a decision was made to use *Zotero* for both data collection and analysis. Rather than separate steps, data collection and analysis went hand in hand as the collection itself involved the first analytical step: skimming *Asda's* and *Unicorn Grocery's* websites for references that involved sustainability or ethics and animal-sourced or vegan foods. The websites were numbered in the order they were saved to *Zotero* as an offline file. Appendix B.1 contains the online links of both websites and PDF-documents taken into account. It also marks when they have been accessed. While most of the *Asda*-related links still work about two years after

the first access, the volatile character of online data is showcased by *Unicorn's* website which was remade after I had finished the website analysis so that most of the links now only lead to their current website. Through my *Zotero* account, however, I can still access the offline content as it looked back then.

The second step of analysis involved coding by using *Zotero's* tag function. Appendix B.2 shows the list of tags corresponding to the websites/documents in B.1. The process of tagging was inspired by Clarke's (2005) situational maps which encourage the researcher to be attentive to a diverse range of aspects. Largely, the tags consisted of different agencies emerging from the websites. In Clarke's (2005: 90) terms, this involved

- individual human elements/actors
- nonhuman elements/actants
- collective human elements/actors
- implicated/silent actors/actants
- discursive constructions of individual and/or collective human actors
- discursive construction of nonhuman actants
- political/economic elements
- sociocultural/symbolic elements
- temporal elements
- spatial elements
- major issues/debates (usually contested)
- related discourses (historical, narrative, and/or visual)
- other kinds of elements

The resulting tags, guided by the above categories, were not meant to essentialise the actors/agents in the sense of assuming they have a nonrelational existence within each category. Instead, these tags were subsequently used to think about the relations within the given 'situation' or configuration. Appendix B.3 is an example of a 'messy map' (see Clarke 2005) which can be used as a 'technique of relational analysis [that] is meant to reflect on the quality of relationships between the single elements' (Mathar 2008: 20). Sketching messy maps, in other words, was meant to acknowledge the openness of the field while getting an overview of and elaborating what matters to the specific research objectives and questions or not. The crude result of the abstractions made in this process resulted in the isolation of a number of main sustainability themes *Asda* and *Unicorn* were addressing on their websites (Appendix A.1, Tab. 5). The overview of *what* was addressed was then used for the more

interpretive part of the analysis on *how* these themes are addressed and put in practice (Appendix A.2).

Retrospectively, the interpretive analysis of sustainability-related websites and documents was a step that contributed to a more profound understanding of the two retailing foodscapes in the more conventional sense of a discourse analysis based on the analysis of human-centred data. After all, it was just the starting point from which my research focus branched off beyond retailers towards farms and advocacy with a more thorough outlook on *material-discursive* aspects. Later on, it turned out that the results of the interpretive analysis resonated largely with issues that emerged from the interviews. Therefore, in the course of the research project, a decision was made to keep the more conventional discourse analysis in the background by putting it into Appendix A. This granted more space for the ethnographically-oriented analysis—interviews and observations—while still allowing that insights from all methods applied were fed into the main empirical part (chapters 4 to 8).

3.4.2 Analysing Interviews and Other Data

The interviews were analysed similarly by making abstractions to identify main themes relevant to the research objectives and questions. Data analysis of the interviews started not after but *while* transcribing the interviews. The possibility of externalising the seemingly tedious work of transcription was discarded early-on because listening to the material word by word and repeating phrases over and over again turned out to be really helpful to become familiar with the data. Thus, it served as a first step of discerning what mattered for the research goals.

After transcribing the interviews, the next step was to print them and make abstractions by underlining important sections that contained boundary-drawing practices. By help of text markers, negative value judgements (e.g. about “bad” food or unsustainable products and practices) were marked in orange, positive ones in green, and other important passages were marked in yellow. Moreover, notes on the side of the transcripts presented first abstractions.

In a further step, these were condensed into main themes that emerged from each interview. The main themes were accompanied by exemplifying quotes that could be used in the process of writing first impressions and finally the main empirical chapters.

Although the interviews are at the core of the empirical chapters (4 to 8), *all* types of data have found their way into the empirical chapters. With the aim of showing difference patterns that do not represent the actions of individual entities, it did not make sense to handle and showcase data obtained with different methods separately. Selected photographs and insights

from website and video analyses are woven into the empirical chapters alongside observations from participating in the foodscapes.

3.4.3 Limitations

Just as any temporally and conceptually confined academic work, these procedures of data collection and analysis have their limitations. In contrast to some discourse analyses inspired by Foucault or other scholars, this thesis does not adopt a genealogical approach. That is, neither could the foodscapes be observed over a longer period of time nor were insights about their current status analysed against the background of older data providing a historical context. The conception of material-discursive change is thus not a change over time. However, it lies in the observed *potential* for change within difference patterns of food practices. By making them visible and denaturalising orthodox “truths” and habits, identifying subtle differences in practices is itself an opportunity for enacting change.

Other limitations lie within the small number of just a few case studies due to the focus on in-depth interviews. Thus, my abstractions do not allow to draw conclusions representative of most retailers or farmers in the UK. Quite the contrary, cases like *Bradley Nook Farm* were chosen precisely for their peculiarity, i.e. the *difference* they make to the average which would have been lost in any calculative approach focusing on *typical* cases. Initially, I had envisaged to include governmental policy institutions such as *Defra* and self-identified vegan Members of Parliament into the analysis. Beyond non-profit advocacy groups and (for-profit) lobbyists, agricultural policy is crucial to how food practices are put in relation to sustainability problems. Future research on veganism might thus focus more on the production of knowledge and the production of legislation in the context of governmental food policy (see, for example, Arcari 2017a for an account of *carnism*).

Finally, the data is limited in the sense that the data which was analysed systematically was largely confined to human-produced texts and interviews. Ethnographic observation and participation were supposed to give insights about *more-than-human agencies*, but whilst gaining knowledge in this area is surely feasible, this knowledge is difficult to reproduce and document in a way that is accessible for the reader who did not have the opportunity to be on-site. This exemplifies that anthropocentrism is a structural phenomenon and part and parcel even of the social scientific research that wishes to avoid it.

Part II: Analysis

4. Posthumanist and Humanist Politics of Possibility in Agri-Culture

Meat and dairy production are closely connected to a humanist agrarian culture. Humanism, rather than only an emancipatory politics that treats all humans as equals in their dignity and rights, for instance, to food, is simultaneously a form of domination. Beyond the boundaries of our species, a human/animal dichotomy asserts that “animals”—the animalised of any species—can be subordinated. In order for human agrarian culture to thrive, they are enslaved or eradicated from what unbecomes a natural habitat. This chapter looks at tensions between the material-discursive practices of a humanist biopolitics that buttresses animal agriculture, on the one hand, and ethical producers whose practices challenge that culture through what I regard as a posthumanist politics, on the other.

First, the case study of *Bradley Nook Farm* shows how an alternative politics of possibility that revolves around material-discursive practices of care for domesticated, wild, and human animals is de-politicised: *BBC Countryfile* frames the farmers’ decision to give up animal husbandry in favour of vegan organic vegetable growing as a strictly personal affair (4.1). Subsequently, an examination of the websites of *Asda* and *Ladies in Beef* illustrates how a corporate politics, that pretends to empower female farmers under a humanist flag, actually works to stabilise a material-discursive apparatus of carnist food practices. This is discussed by help of theoretical debates around humanism, representationalism, and individualism (4.2). By taking a relational, materialist, and posthumanist stance, the concluding section suggests a conceptual expansion of the notion of “vegan”, which is conventionally confined to depict *individual* persons or products, towards a set of vegan practices that include the performative *process* of production (4.3). This can be seen as a pre-condition for tackling the ongoing normalisation of human violence, not only against domesticated, but also wild and other human animals, and indeed all life on Earth.

4.1 A ‘Personal’ Decision: The Case of Bradley Nook Farm

Farming is a business that is always changing. New technologies and environmental pressure means things are changing as fast as ever but the reasons for the change on this farm in Derbyshire are strictly personal.’ (Adam Henson; Countryfile 2017: 36m 36s)

This is how *Countryfile* host Adam Henson introduces his report on *Bradley Nook Farm*. *Countryfile* is a BBC format about countryside life and farming practices. In approximately ten minutes, the report provides the broader public with an idea of the ongoing changes at *Bradley*

Nook Farm which are referred to as a ‘strictly personal’ affair. In a review of this case—the collected material comprising interviews, videos and websites—I will explore my research data with particular attention to the binary distinction between the personal and the collective, the private and the public. On which ontological, epistemological and ethical foundation is this case depicted as ‘personal’, and what makes it a case worth reporting on in the first place?

Jay and Katja Wilde have been running *Bradley Nook Farm* together since 2011 when Jay inherited his father’s organic dairy farm. With Jay growing up on the farm, the couple took it over when his father died, then transformed it from a beef into a dairy farm before deciding to give up animal agriculture altogether. This inevitably evoked the question of what to do with the around 100 cattle—cows, calves, and bullocks—of the farm. I first heard of *Bradley Nook Farm* through David Graham (see 6.2 and 8.1) who introduced the case at the *Vegan Organic Network’s* (VON) working group meeting he had invited me to on 4th February 2017. Together with the *Vegan Society* and vegan organic farmer Iain Tolhurst (see 6.2, 6.3, and 8.2.2), the members of VON were dedicated to help the farmers with their transition. For Jay and Katja, sending the cattle to slaughter was not an option, neither was selling them to another farm which, eventually, would have resulted in the same. At the time, finding a new home for the cattle appeared to be an extremely difficult task, and I remember David Graham laughing and joking that things would have been easier if they would have sent them to slaughter one last time, but as it turned out, the latter was not going to happen. With *Hillside* in Norfolk a 2,000 acre animal sanctuary was found which agreed to host as many animals as Jay and Katja were willing to release there (*Bradley Nook Farm*, in comparison, has 170 acres). In an email (subject: ‘v good news’) from 5th April 2017, David mentioned that this ‘relieves us of a major headache. We can now concentrate on bringing the land into production – an enormous but critical and exciting challenge’ (personal communication).

I first met Jay and Katja in August 2017 using the *Northern Green Gathering*, an ‘eco-festival’ which took place on the land of *Bradley Nook Farm*, as an occasion to do an interview with them (see Tab. 2, FAR2). At the time of the interview, I had already seen a 2m 25s clip on *Bradley Nook Farm* (BBC Stories 2017) which, for me, was an interesting account of the production of knowledge and ethical standpoints on this unusual case. How would the media react to this? It felt an unusual case, not only because of the step from animal agriculture to vegetable growing but also the plan to grow vegetables by the *vegan organic standard* (see ch. 8). How would the media depict the specific reasons for these changes? Which footage would the broader public be fed? Having in mind the possibility of comparing the media reception with Jay and Katja’s own accounts from the ethnographic material to be collected, my first

aim of the interview was to simply ask them for the reasons behind their decision (4.1.1). The second one was to find out about how they felt depicted by various media (4.1.2 and 4.1.3).

4.1.1 Social-Ecological Reasons for Quitting Animal Agriculture

When he inherited his father's farm, Jay had already been vegetarian for 25 years. People may have different reasons for not eating meat, but for Jay being vegetarian is clearly connected to the avoidance of suffering and killing: 'With being organic we often took the cows to the abattoir ourselves, so you're very well aware of what their fate was' (FAR2). While there may be no difference in the mortal 'fate' of the cattle between organic and conventional farming, Jay draws a clear boundary between the two ways of production when it comes to the visibility and his own awareness of them being slaughtered. Bringing them to the abattoir in person which, as Jay implies, is more common on organic farms, for him is clearly in contradiction with his self-identification as a farmer who 'looked after them as well as you could' (ibid.). Killing them after caring for them, he goes on, 'you felt as if you're betraying them [...] because it must have been terrifying. I'm sure they could tell something really bad was happening as you unloaded them at the other end' (ibid.). By saying 'you' rather than 'I' when speaking about his life as a farmer, Jay distances himself from what he did. The impersonal, generalising 'you' is not about denying the past, it rather suggests that he doesn't want to be this person anymore. By putting himself into the cattle's skin when deliberating on what they must have felt, he expresses an emotional commitment and care that renders the normal way of production as a 'betrayal' because it involves killing.

The ethical dilemma Jay found himself in can be better understood with the tensions between advocating either for animal welfare or animal rights. From an animal welfare lens, one could argue that livestock holders, and particularly those with an organic farming standard, only have to make sure that the cattle at no point become aware that 'something really bad' will happen or that they will be slaughtered. An animal rights perspective, however, excludes killing and any form of exploitation. Considering that organic farming is often regarded as best practice in terms of animal welfare, Jay's statement is a challenge to this view as it clearly shows that the cattle, and even the organically farmed animals, face suffering before and when they get killed. In a Western context, identifying as 'vegetarian' usually involves eating eggs and dairy products. Jay's personal dietary practice is therefore not clearly opposed to the ("humane") exploitation of animals for food production. His future business practice, however, is quite in line with an animal rights perspective: Neither involving killing nor exploiting domesticated animals, vegan organic vegetable growing can be seen as a clear deviation from the bare ethical minimum that promotes welfare under conditions of

exploitation and slaughter (see 8.2.1 for the tension between moral vegetarianism and slaughter in dairy farming).

Importantly, next to the rights of domesticated animals, Jay identified a number of other reasons for giving up animal husbandry which fall under the categories of social and ecological sustainability. Along with climate change, his concerns were about human food security as he ‘felt we were not producing much food, actual food on the farm’ (FAR2). For him, vegan organic horticulture is ‘an interesting alternative’ which entails significant changes while ‘keep[ing] the farm going which seemed important because of the wildlife on the farm’ (FAR2).

‘We’re hoping to produce more actual food, more calories, more protein, feed more people and produce [food] which is healthier, more sustainable, a lower carbon footprint because of the amount of water that successive generations of cattle consume, the amount of methane they burp and the ammonia that comes from the manure, all sort of bad greenhouse gases and pollutants.’ (FAR2)

For Jay, it was important to show ‘that you don’t have to follow the established pattern of agriculture to provide people’s nutritional requirement’ (FAR2). Breaking the established pattern of dairy and beef farming, vegan organic growing promises to be more productive (see also 6.2) and healthy, less pollutant and cruel. Rather than proving or falsifying these claims, for me the point here is to take into account whom the material changes are, ethically speaking, addressed to. In sum, the change on *Bradley Nook Farm* is not reducible to granting *domesticated* animals a right not to be killed because the broader concerns are also more or less directly about

- human rights (in particular the one to food)
- the local wildlife on the farm itself
- current and future terrestrial life’s ecological conditions of existence—global (wild)life.

With this in mind, the opening quotation from *Countryfile* appears in a new light. In the very first sentence of his report (see beginning of 4.1), Adam Henson states that farming ‘is a business that is always changing’. Starting off this way makes sense indeed because the case of *Bradley Nook Farm* is without a doubt about change. He goes on to name two drivers of change: new technologies and environmental pressure. The surprising bit starts where Henson is enacting a clear cut: ‘New technologies and environmental pressure means things are changing as fast as ever *but* the reasons for the change on this farm [...]’ (Countryfile 2017: 36m 36s; italics mine), in his view, are neither related to new technologies nor environmental pressure as he indicates with the conjunction ‘but’. Generally speaking, new technologies and environmental pressures are collective issues; they are socially caused and of social concern, and they can indeed give rise to practical changes in farming. Henson,

Table 3: Material-discursive exclusions of the media's humanist reception of the case of Bradley Nook Farm (*Reading instruction*: 'No. 1—Public concerns are *agentially* detached from the choice of food practices which is reduced to a personal affair; this "agential cut" [Barad 2007] is an expression of the consumer choice paradigm')

No	Excluded/marginalised/detached	Realm/Reference...	...confined/reduced to	Rationale/ mindset
1	Public/collective concerns	Choice of food practices (incl. both food production and consumption)	Personal/private	Care of the self, consumer choice paradigm, sovereignty of the 'invisible hand' (demand)
2	Rational deliberation	Veganism/food choices/the reconfigurings on Bradley Nook Farm	Personal emotions, taste, preferences etc.	Consumer choice paradigm, individualised food practices
3	Katja Wilde	Sources of competent information	Jay Wilde (Katja = 'just' the farmer's wife)	Chauvinist individualism
4	Sanity ('vegan farmer eats egg')	Jay Wilde/vegans	Hypocrisy/weak will/an individual consumer	Carnist self-defense, 'vegaphobia' (Cole & Morgan 2011), individualism
5	<i>tenor</i> of one's principles, i.e. specific ethical imperatives	(Ethical) Principles	<i>Sticking-to-one's-principles</i> as a value in itself (arbitrary ethical imperatives)	metaphysical individualism; care of the self (privatism = 'entrepreneur of the self');
6	Ethical producers	Ethical agents (those who adopt codes of conduct for being decent and sustainable members of society)	Ethical consumers	Consumer choice paradigm, individualised food practices, sovereignty of the 'invisible hand' (demand)
7	The productive process (agricultural practices)	The (use and definition of the) term 'vegan'	Individual persons or products ('a vegan'; carrot = 'vegan')	Individualism (superficial treatment of how phenomena come into being)
8	Vegan organic production standards	Agricultural production practices	Conventional and organic (as established production standards)	Animal husbandry is normal, natural, and necessary in agrarian culture
9	Animal rights	Ethical production	animal welfare not rights	Humanism, carnism (using and killing animals is ethically sound under 'humane' conditions)
10	Cattle (in this case), domesticated animals (in general)	The social (those who are full members of society and whose well-being is of public concern)	Humans	Human exceptionalism; only humans are attributed cultural and social behaviour
11	(ecologically and socially) harmful effects	Animal husbandry (carnist production practices)	Normality/continuity	Passive and unchanging nature; Meat and dairy = normal, natural, necessary (carnism)
12	'the environmental', i.e. concerns about <i>wild</i> animals, anthropogenic eco(suicide)	The ethical (what we have to consider to be decent members of society)	Concerns about <i>domesticated</i> animals	Passive and unchanging nature; humanist modern hubris (not connecting ecocide to suicide)

however, excludes the reasons for the changes on *Bradley Nook Farm* from the realm of the social and collective because, as he suggests, they should be regarded not merely as a ‘personal issue’ but as a ‘*strictly* personal’ one.

Table 3 visualises the boundary-drawing practices observed in this case study. They consist of agential cuts (see 2.3.2) that exclude certain phenomena from mattering. Exclusions No. 1 and 2 relate to the (changes of) the food production practices at *Bradley Nook Farm* which, functioning here as both a place and a debate, are the material-discursive *realm* to which the observed boundary work refers.

- By constituting Jay and Katja Wilde’s choices as strictly personal, the realm/reference is fully filled and limited by it being a personal or private matter; enacting that cut, in turn, keeps any public or collective concerns out of the mattering realm; the exclusion can be interpreted against the background of a range of power-related theoretical debates around the individualisation of responsibilities such as governmentality and a care of the entrepreneurial self (Foucault 1993, 2005, see 2.3.1 and 2.3.2) as well as economistic rationales that tie the desirability of changes to consumer demand alone—both are mindsets and sets of practices that individualise the choices around food practices and impedes a well-informed collective handling of the challenges and chances around food production and consumption (see Tab. 3, No. 1).
- Likewise, Jay and Katja Wilde’s decision, and in a broader sense veganism and food-related choices in general, are all confined to (seemingly individual and irrational) emotions which works to marginalise the possibility that rational deliberation plays a major role in the choice of a vegan diet or to replace beef farming with growing crops (see Tab. 3, No. 2).

4.1.2 Media Echo No. 1: BBC Countryfile—‘whatever your views on veganism, you have to admire him’

In the following, I will enquire further the context in which abandoning animal husbandry gets attributed an entirely personal cause. This implies summarising the outcomes of my second aim of the interview which was about how Jay and Katja felt depicted by the various media as well as complementing their perception with details from the *Countryfile* (2017) report.

On a note about authority in the context of gender and professionalism, it should be mentioned that at the beginning of the interview, Katja humbled herself by saying: ‘As you’ve just noticed, Jay said something and I’m learning because I have no farming background.’

(FAR2). Prior to this, I had asked them to fill out the consent forms which she was sort of surprised about. When I assured her that ‘I would like you to be part of the interview as well, of course’, she said ‘That’s fine, that’s nice. Most people say we only talk to Jay [they both laugh].’ (FAR2). In the first 15 to 20 minutes of the interview, Katja was nonetheless rather hesitant to rise to speak or, when she spoke, she would afterwards ask Jay: ‘Is that about right? Am I talking right?’ (FAR2). As soon as we turned to the topic of media reception and the BBC, however, Katja seemed to drop her reticence and contributed a valuable twist to the interview that we might have missed out had it been Jay alone. This makes sense in light of what I learnt a few months later in my interview with David Graham (VON1) who told me how surprised he was to hear that Katja holds a PhD⁷ in linguistics which he found out through their common interest in Noam Chomsky’s work: ‘I had never seen her, in a way, through that lens, you know. When we were discussing, I saw her and Jay as sort of a farmer and a farmer’s wife [...] and all of a sudden [laughs], we’re talking [about] extended and restricted codes in language. I thought, Christ! Wake up! You know, don’t remotely put people into a bracket. Very dangerous!’ (VON1). In conclusion, Katja’s initial expectation of not being wanted for the interview is to be understood in the context of her experience of being put—not only and not necessarily by David—in a gendered box to label her as ‘just’ the farmer’s wife (see Tab. 3, exclusion No. 3). Not actually having a farming background must only have added to her reservation which eventually vanished when it became clear that the interview can be not only about farming practices, but also about a field close to her actual profession: the media reception of their case.

At the time of the interview, I had only seen a short news clip (BBC Stories 2017) on them, not the longer Countryfile (2017) report. Asked about the short clip, Jay said one could ‘see how absolutely stressed we were’ and concluded: ‘I think she [the director] did a good job, yeah.’ As Jay responded rather briefly, it felt necessary to delve deeper into the topic by revealing my own observation about this clip. Seeing the clip, it struck me that it was quite focused on profitability, for example, the 50,000 pounds they could have got sending the cattle to slaughter one last time as well as the question whether vegetable growing will be as profitable. After mentioning this impression and asking what that tells about the BBC, Jay responded that in

‘the Countryfile programme, they were more questioning the validity of it [the decision to give up livestock farming]. The presenter [Adam Henson] is sort of very traditional and when they visit his farm on the programme, they are always stressing the importance of livestock and continuity, tradition, traditional breeds [...] and that farmers, umm, if it wasn’t for the farmer, the country would be in an overgrown

⁷ Katja told me later that she actually holds a Master’s degree not a PhD.

wilderness [...] and then they'll say "oh, thanks to the efforts of the local farmers, the hills are kept in the beautiful state we all love so much". And there could be alternative uses for the hills, as you know, growing timber and all the things – anyway.' (FAR2).

After Jay had given his account, Katja, referring to both the short BBC clip I had seen and the *Countryfile* one I had not yet seen, added a different angle to Jay's focus on agricultural practices:

'Could I say something about the BBC? [Jay: Yeah] [SH: Sure] What I think is that in both films they very much emphasised the emotional side of it [Jay: Mmm, they did] and the cost. So, there is this warm-hearted gentleman [Jay] who was forfeiting his fortune to save his cows, and nobody asked what other reason he had apart from the animal welfare; like all the things he said before, you know, the impact of agriculture or especially cattle farming on the environment and all these things and climate change – that was completely excluded in both.' (FAR2)

While she could understand that environmental issues may not be addressed in the short clip, Katja implied that concision was no excuse in the case of the longer *Countryfile* report when she suggested that 'other BBC stories go very much into detail on any topic, analysing facts behind rather than just pulling at the heart strings' (FAR2; see Tab. 3, exclusions No. 2 and 12). This brought Jay to go into detail about the values represented by the *Countryfile* programme:

'From *Countryfile*'s point of view, with Adam Henson representing traditional farming, it doesn't understand, basically, what we're doing, why we're doing it. It's not farming as he knows etc. [...] I've only seen [chuckles] the end of the [Countryfile] programme. I noticed that they had a [different] report [in the same episode] from a farm doing school visits where the children visit a pig farm and they see the happy pigs in the field and they pet the baby pigs and name the babies, and then they go back some time later and have a sort of barbecue and they eat the pig they've named. So it's sort of as if they have to include that pay-off to the programme to show that everything is alright with the world and normality is being sort of re-established after that bit of weirdness [laughs] in the bit of the programme.' (FAR2)

After Katja mentioned that the contrast between the clip about the pig farm (see Tab. 3, exclusions No. 9 and 10) and their own case was mentioned several times in the feedback they got from people, Jay added a more explicit analysis of how he felt depicted:

'It was almost as if they had to finish the programme on a note of normality and sanity after the sort of slightly crazy [Katja laughs] off-his-head hippie in the middle giving his cows away because the stupid idiot couldn't cope with sending them to the abattoir. "Idiot!", you know [chuckles].' (FAR2)

While the above quote revealed clearly that Jay was emotionally affected, if not insulted, by how he was depicted (see Tab. 3, exclusions No. 2 and 4), Katja went on to elaborate how their case contrasts irreconcilably with Adam Henson who, on *Countryfile*, is usually presented as 'sort of the jolly country boy', whereas 'when he was here, he was not quite that jolly' (FAR2). She then further explained that

‘He [Adam Henson] actually ends with that comment, he says, you know, “Jay is giving away roughly 50,000 pounds with nothing to replace it” and he says “I don’t know if I would have done that” and you can tell that he would not have done that, and I think that’s the best part [...] that he acknowledges that he can’t really relate to what we’re doing [...] because he usually does these heart-warming stories about these lovely animals in the country, and afterwards “mmmm, aren’t they yummiie?”, so he is always, you know, “oh, everything’s lovely, everything’s nice and the animals are lovely and the animals taste lovely and everything’s fine” [we all chuckle]. Can you sort of grasp what I’m trying to say?’ (FAR2)

When I answered that I had analysed similar romantic depictions of agriculture in my degree dissertation on the dairy industry’s advertisement landscapes, Jay put it in a nutshell by adding that the *Countryfile* report was basically ‘regularising, normalising, familiarising’ (FAR2) carnist food practices (see Tab. 3, exclusion No. 11). This formulation of quite sociological character highlights the social forces applying when something or somebody deviates from a social norm and thereby problematises it. Looking at the passage from the *Countryfile* report Katja was paraphrasing above, one can comprehend the moral conflict Adam Henson must have found himself in when he said that

‘I’m not sure I’d have made the same call as Jay. The 50,000 pounds he could have achieved by selling his cattle would have come in handy, especially given the scale of the changes he is making. But you could say that makes his decision to switch from farming beef to veg even more courageous. Jay has recognised the opportunity the land and buildings on this farm offer him as an alternative to cattle farming. And whatever your views on veganism, you have to admire him for sticking to his principles and maintaining his connection to the land and farming heritage.’ (Countryfile 2017: 44m 24s)

In this statement which ends the report on *Bradley Nook Farm*, Henson is in a tension between appreciation, on the one hand, for example when calling Jay ‘courageous’ and admiring him ‘for sticking to his principles’, and incomprehension, on the other hand, which particularly shines through in the suggestive formulation ‘whatever your views on veganism’. Precisely because the latter is followed by ‘you have to admire him’, it suggests that veganism might not be such an admirable practice from the perspective of the viewer (see Tab. 3, exclusion No. 4). I do not object to the suggestion that most of the viewers, and the general public, probably do consider veganism as something abnormal or at least unusual. My point about this particular formulation is rather that Henson would not have felt obliged to *represent* the broader public if he shared the same values as Jay and Katja. In other words, the fact that Henson does take the opportunity to frame veganism as something possibly deviant in the eye of the viewer, rather than simply not mentioning that possibility, suggests that Jay and Katja are right in their impression he does not share the same values. After all, Henson does not suggest the viewer to admire Jay *for* his principles but to ‘admire him for *sticking* to his principles’, as if sticking to principles would be a good thing whatever the principles (see Tab. 3, exclusion No. 5).

4.1.3 Media Echo No. 2: The Daily Express—‘viewers in melt-down as vegan farmer eats an egg’

During the interview, Katja had taken her laptop for both passing me the *Countryfile* (2017) report and checking the (social) media feedback they got. Just after Jay had concluded that what *Countryfile* was doing in favour of animal husbandry is ‘regularising, normalising, and familiarising’, Katja startled while watching the screen of her laptop:

Katja: ‘Huuuh!’ *Jay*: ‘Oh, what?’ *Katja*: ‘I’ve just seen a headline: “Countryfile: [...] viewers in melt-down as vegan farmer eats an egg on camera”.’ *Jay*: ‘At no point did I claim to be vegan. I know, is that-, is that the Express?’ *Katja*: ‘“Countryfile hits back”!’ *Jay*: ‘Oh, we’ve not seen this, it’s exciting.’ (FAR2)

The online article in the *Daily Express* by Hughes (2017) is based on social media reactions of *Countryfile* viewers who ‘were left confused after believing they witnessed a “vegan” farmer eat an egg for breakfast on tonight’s episode of the BBC show’ (ibid.). The article itself does not claim that Jay self-identifies as a vegan but an embedded video which shows an extract of the *Countryfile* report is titled: ‘Countryfile: Vegan farmer eats a vegetarian breakfast with eggs’ (ibid.). Semantically, the formulation ‘vegan farmer’ is potentially confusing as—theoretically speaking—it is not clear whether the attribute ‘vegan’ relates to Jay’s personal eating practices or to his farming practices. On the one hand, his business plan is to become a vegetable grower complying with vegan organic standards (see ch. 8). In a way, this makes him a vegan farmer.⁸ On the other hand, the given context of breakfast and eggs hardly allows any other interpretation than his personal diet being at stake. Even the camera in the video strongly focuses on the egg in the pan and on the plates, swinging back and forth and zooming in and out, to the extent that the camera focuses on Adam Henson eating fried egg whilst Jay Wilde explains the centre-piece of the ongoing changes, his vision for the farm: ‘They [the *Vegan Society*] came to visit, told us about vegan organic farming which involves growing vegetable crops, arable crops without any animal input whatsoever’ (Countryfile 2017: 38m 10s). Whilst the egg-focused camera work was certainly not helpful for Jay Wilde to explain the basics of vegan organic farming, he at least deems possible that misleading the audience was intended by *Countryfile* as his following statement suggests:

‘Well, they did a set-up and they insisted on coming into the kitchen, having breakfast with Adam Henson on the day of the [cattle] transport [to the sanctuary] and so they

⁸ In my interview with David Graham (VON), he explains that the notion ‘farmer’ is actually avoided in the context of cultivating vegetables and grains as ‘in fact, although that’s not to discount mixed farming, but [...] Jenny and most of our [vegan organic] farmers would call themselves “growers” rather than “farmers” to distinguish between “growing” and “farming” because farming is generally held, I think, to mixed farming’ (VON1).

wanted vegan sausages and eggs and fried bread. They told us what they wanted to have, so it's their fault.' (FAR2)

Whether intentional or not, the result of the *Countryfile* footage, then diffused by the newspaper, seems to have contributed to disinforming the public. After skimming through the article, Jay identifies 'the Daily Express [as] being extremely reactionary' (FAR2) and explains his view on tabloid newspapers:

'[T]hey print complete rubbish. They get hold of a story they don't understand, so they mangle it, and half of the British public reading it say "Oh, look at this! Look what they've done now! The world's coming to an end [laughing] vegan farmer is eating an egg! Bastards! I knew those lefties were all "no God"!'", you know.' (FAR2)

As a consequence of being preoccupied with Jay's personal diet, neither *Countryfile* nor the *Daily Express* actually inform the audience about vegan organic growing as a particular stockfree agricultural practice (see Tab. 3, exclusion No. 8). Moreover, looking at contemporary public debates on veganism, it is barely imaginable that anything other than people or dishes are signified as "vegan". The idea of calling the agricultural process "vegan" when no animal manure or bone meal is used to fertilise fields (see ch. 8) is simply absent from the broader public debate. This is exemplified by the ways in which the *Countryfile* social media correspondents, quoted by the author of the *Daily Express*, refer to veganism:

'As fans of the show continued to share their bewilderment, the official [Twitter] account for Countryfile stepped in to clarify the mess.

"He's vegetarian. He's turning the farm over to farm organic vegetables to sell on the vegan market," the BBC programme tweeted, before continuing to retweet another viewer with: "The commentary was 'over a vegetarian breakfast'."

The 59-year-old farmer decided to give away his cows - worth £50,000 - to an animal sanctuary in Norfolk after an enlightening visit from a member of the Vegan Society.' (Hughes 2017)

Rather than speaking about *vegan organic* as an agricultural standard, the *Countryfile* citation separates the cultivation ('to farm organic vegetables') from the distribution ('to sell on the vegan market'). While the cultivation of vegetables is marked with the attribute 'organic', it is not marked as "vegan". This indicates that, conventionally, vegetables and growing vegetables are per se conceived of as "vegan" (see 8.3 for a challenge of this view). Instead, what is actually marked as 'vegan' is the market which implies that the future vegetables from *Bradley Nook Farm* will be grown specifically *for* vegans, or at least sold on 'the vegan market' (whatever that is), as if vegetarians and carnists were either not welcome to consume these vegetables or not expected to be interested in eating them. It is hard to believe that Jay, after all that was outlined here about him, in particular his *vegetarian* dietary practices, would produce for 'the vegan market' alone but the fact that it is formulated in this way suggests that "vegan" has not yet arrived in public and media awareness as a word that can characterise

the *process* of vegan cultivation, rather than just a vegan person, a vegan product or a vegan market (see Tab. 3, exclusion No. 7).

Against this background, I suggest an analytic, conceptual, and linguistic distinction between, for example, “a vegan” and “vegan food practices”. A vegan person is not the same as a person performing vegan food practices. Whilst calling somebody or something “vegan” is first and foremost a representational label, a process-oriented focus on “vegan food practices” grounds the definition of “vegan” in a relational account of how products or people *materialise* as “vegan”. Therefore, I generally intend to differentiate representational labels for (vegan/vegetarian/carnist) people and (vegan/vegetarian/carnist) products from the respective material-discursive practices, i.e. performing (vegan/vegetarian/carnist) *food practices* which comprises both practices of production and consumption. Analytically, as well as politically, this is relevant because one does not necessarily have to self-identify as a vegan to engage in vegan food practices. Jay Wilde may adequately (but superficially) be labelled a vegetarian but what also *matters* is that he is going to engage in *vegan production practices*—and whenever he enjoys a meal without animal-sourced ingredients, say a jacket potato and baked beans, he does engage in *vegan consumption practices*.

The distinction between vegan production and consumption practices allows for an adequate differentiation between Jay Wilde’s role as an ethical consumer, in which he engages in vegetarian food practices, and an ethical producer who decided to disentangle the material-discursive practices on his farm from the carnist apparatus in order to perform vegan production practices (see Tab. 3, exclusion No. 6). An awareness of these material-discursive differences may avoid tendencies to attribute ethical agency entirely to consumers, who then carry the burden to save the world via their food choices, whereas producers and their entanglements are—intentionally or not—overlooked in their potential and effective role as locations of ethical agency.

In the particular case of *Bradley Nook Farm*, this might have prevented Jay and Katja Wilde’s deliberate decision as ethical producers, replacing animal husbandry with vegan organic farming, from being de-politicised and reduced to a ‘strictly personal’ affair. The posthumanist politics of possibility of the farmers couple towards more vegan production and consumption practices involved material-discursive intra-actions that united nonhuman (*domesticated*) animals and human animals under the umbrella of ‘the social’ in which killing each other is immoral and therefore a public not a private concern. The social-ecological reasons they gave for giving up carnist food practices were no less of public concern. Preserving sound ecological conditions of existence for both *wild* animals and *human* animals should undoubtedly be a public concern. In the (mediated) public, however, an agential cut is

rampant which reduces the realm of “the ethical”, particularly in the context of veganism and vegetarianism, to concerns about the suffering of *domesticated* animals, rather than *all* life on Earth. This is a depoliticising departure from a factual engagement with the multiplicity of existing rational arguments for performing vegan food practices more often and for disengaging from carnist food practices.

4.2 Humanist ‘Sustainability’ and the Carnist Apparatus

The former section illustrated how the media reception of the changes on *Bradley Nook Farm* personalised, emotionalised, and de-politicised Jay and Katja Wilde’s deliberate decision to grow vegan organic vegetables. Although the farmers couple had elaborate social and ecological reasons for pursuing what I will call their *posthumanist politics of possibility* (see 2.3.3), specific mediated material-discursive exclusions worked to complicate the viewers’ and readers’ factual engagement with the collectively oriented concerns of the ethical producers about social-ecological (un)sustainability. Techniques of individualisation as a result of the boundary-drawing practices of the media shaped up as a *carnist-humanist politics of (im)possibility*. In Jay Wilde’s own words, the media echo of the case can therefore be read as ‘normalising, regularising, [and] familiarising’ (FAR2) the apparatus that brings carnist food practices into being. This section deploys Karen Barad’s (2007) notion of ‘apparatuses’ and material-discursive practices (see 2.3.2) in order to elaborate on the relation between humanism and carnist food practices. The websites of *Asda* and *Ladies in Beef* are examined to further illustrate how the apparatus of carnist food practices is materialised and stabilised by humanist material-discursive practices. This is exemplified by the misleading enactment of gendered social sustainability discourses which use purported concerns for the well-being of women working in agriculture in order to foster carnist production.

On their sustainability homepage, *Asda* have a section on ‘Women in agriculture’ in which they express their ‘commitment to helping farming communities’ and the need to ‘focus on women’s contributions and livelihoods and how we can specifically tailor our support’ (App. B.1.1: AS042_00). By addressing this, *Asda* make a progressive claim in line with global reports on agriculture such as the *International Assessment of Agricultural Knowledge, Science and Technology for Development* problematising that ‘rural women in particular tend to be “invisible” to policy makers and service providers, and are without voice or representation in political decision-making’ (IAASTD 2009: 45). As their website suggests, *Asda*’s commitment in practice means that ‘a discussion group [...] made up of women farmers from across all

sectors (beef, lamb, pork and poultry)’ holds meetings ‘three times a year’, for example, ‘at an Asda Superstore’ and ‘at our beef processing site’ which is supposed to be ‘a platform to share experience, ideas and to hear the latest thinking from industry experts’ (App. B.1.1: AS042_00). Furthermore, *Asda* emphasise their ‘long running partnership with Ladies in Beef’ (ibid.). Considering that *Asda* promised a focus on women who work in agriculture, it is surprising that the actual descriptions of *Ladies in Beef*’s mission are completely silent about farming women’s contributions and livelihoods:

Asda website: Ladies in Beef ‘was set up to drive awareness of the quality and versatility of British beef [...] the group promotes Red Tractor farm assured beef, a food assurance scheme that covers production standards on safety, hygiene, animal welfare and the environment’ (App. B.1.1: AS042_00)

Ladies in Beef website: ‘Our mission [is] to increase consumer support for the British beef industry through all outlets’ (App. B.1.1: AS042_01).

Moreover, *Asda*’s ‘women in agriculture’ website contains a picture of a conference scenery with a mainly female audience, a female speaker, and a picture projected to the wall which shows eight women from behind, arm in arm, wearing camouflage trousers under pink hot pants with one character on each of them; together they form the words ‘long reach’ (App. B.1.1: AS042_00). The mixture of sexualising pink hot pants and militant camouflage ultimately encourages women to use their bodies to fight for spreading “their” message; but the limited context provided by the website does not really allow any conclusions other than that the ‘long reach’ yearned for is in favour of beef farming and the *Red Tractor* logo. Not only is this focus detached from the actual issue of women in agriculture, the picture used on *Asda*’s website even suggests that, rather than women having a platform to address problems such as gender inequalities in agriculture, women themselves are made a platform to help the meat industry.

This impression is further solidified by the main picture on *Ladies in Beef*’s website. At the centre of the image is *BBC Countryfile* host Adam Henson (see 4.1) holding a chunk of raw beef while being flanked by two women each holding a Union Jack flag (see Fig. 4). Whilst Adam Henson is designated a ‘patron’, the actual “ladies in beef” remain unnamed which reduces them to a mere side-kick to the male TV star. A quote by Henson similarly suggests that in the centre of *Ladies in Beef*’s activity is the British beef industry (not the women who work in beef farming):

“I wholeheartedly applaud the work Ladies in Beef are doing to raise public awareness of the true meaning of the Red Tractor logo. They have a real passion for the British beef industry, one that I share, and I’m sure they will be very successful in creating and promoting the positive image the industry quite rightly deserves.” Adam Henson. Patron, livestock farmer and TV presenter’ (App. B.1.1: AS042_01)



Figure 4: An extract of Ladies in Beef's homepage (source: Appendix B.1.1: AS042_01)

Whether the practical and discursive work of *Ladies in Beef* is to be called activism, advertisement, lobbyism, or propaganda, *Asda*, by putting it on their sustainability homepage, frame their content as an issue of social and ecological sustainability. Suggestive of women's empowerment, *Asda's* sustainability website, apart from providing a discussion platform for female farmers, actually nowhere elaborates what was misleadingly suggested (and what the IAASTD had been rightfully calling for)—that problems around farming women's livelihoods would be addressed. How blatantly nationalism, patriarchy, and humanism are instead deployed to promote carnist production practices is actually surprising.

In the following, I will draw upon theoretical debates around humanism to elaborate how material-discursive exclusions drive an apparatus of carnist food practices. At the heart of research inspired by Barad's Agential Realism is the 'examination of the *constitutive* effect of exclusions' (Barad 2007: 59; *italics original*). The aim is to address the social-ecological problem of unsustainable meat and dairy in a way that does not fall back to a simple binary of production and consumption. Meat and dairy are not simply commodities of agriculture. Similarly, taste preferences and eating routines are not simply rooted in 'individual' consumers. Taking the existence of an *agrarian culture* as well as *culinary culture* seriously, and in a way that regards culture as performative practices, rather than a quasi-natural unchangeable essence, means that the ongoing prevalence of carnist culture is intra-actively enacted by material-discursive practices that constitute the agrarian-culinary apparatus of carnist food practices.

Although humanism, understood as an ethical stance to promote a “humane” social and economical order, has traditionally been connoted positively, critical social scientists have questioned its underlying anthropocentrism (Barad 2003, 2007, Iovino 2013, Lester 2012, Nimmo 2010, Twine 2010). Dividing the world into ‘nature’ and ‘culture’ and thereby defining ‘cultural’ or ‘social’ practices as an exclusively human affair, humanist thinking and acting is seen as a

‘systematic othering of the nonhuman [...] the hubris of an anthropocentric modernity [that] could enable us to entertain the god-like notion that we more resemble our own technological creations than closely related animal species’ (Nimmo 2010: 154-155).

Barad (2007: 134) describes humanism as a mindset that is connected to both human and masculine hubris in which

‘man is the centre around which the world turns [...] Man is an individual apart from all the rest [...] Representationalism, metaphysical individualism, and humanism work hand in hand, holding this worldview in place’.

In a context of humanist science, “Man” has to be “at a distance” from “his” research object to produce objective knowledge. Representationalism, that is ‘reflecting on the world from outside’, for Barad (ibid.: 88), is metaphysical in the sense that it is assumed that entities (=“individuals”) have an isolated existence and fixed properties which can be represented independently from the relational environment the entity is part of, i.e. its material and discursive embeddedness (see 2.3). The humanist hubris, in other words, consists in assuming that humanity’s perceived superiority preexists as a determinate boundary, a fixed property of the human species, rather than being the result of a historical, evolutionary, natural/cultural process that involved material-discursive relations of domination. From a humanist point of view, “Man’s” domination over others is a “natural” result of “his” superior individual properties. Killing and exploiting other nonhuman animals, who are not perceived as having a social/cultural life on their own, is thus nothing more than the natural order of things.

A posthumanist relationism, in contrast, does not understand subjects (for example a carni-
farmer) and objects (an animal raised, exploited for dairy, then slaughtered and consumed) as preexisting as such, but as emerging through performative intra-actions (Barad 2007). Understanding practices as a result of material-discursive performativity implies that whatever materialises, i.e. becomes a *determinate* and agentially perceivable reality, is in principle the result of an *indeterminate* process—a historically specific process that could have been performed otherwise in the past and can be performed differently in any present or future situation. That does not mean that anything is possible at any time (or from any position in possibility space; see 2.3.3). Rather, that which is (im)possible is constituted in material-

discursive practices, i.e. agential intra-actions that exclude and include phenomena from coming into being. Relatively stable patterns of similar practices can be regarded as ‘apparatuses’ which Barad defines as ‘*the material conditions of possibility and impossibility of mattering*; they enact what matters and what is excluded from mattering. [...] *Hence apparatuses are boundary-making practices.*’ (2007: 148; italics original).

The production and consumption of animal-sourced foods persist as agrarian and culinary forms of human culture, and largely regardless of scientists who have pointed toward meat and dairy’s major role in the sixth mass extinction in the history of the planet (see 1.1 and 9.3.3). This extinction potentially includes all or at least many humans and is therefore problematic even from an anthropocentric view. Thus, researchers need to examine how humanist hubris supports that apparatus of carnist food practices through a range of particular boundary-drawing practices. The ongoing reproduction of a carnist apparatus involves what Nimmo (2010: 155) calls ‘a process of systematic effacement of the ontological labour of purification’ which is the condition of possibility of “culture”. Carnism, as Joy (2010) claims, is a largely *invisible* system of beliefs. From a more materialist outlook, I would rather call it a set of practices that shape up to a relatively stable apparatus of matter and meaning. Its invisibility, however, rather than being an intrinsic property, requires active and thus ‘deeply political’ (Nimmo 2010: 155) material-discursive work:

‘our encounters and relations with nonhuman animal others, unless meticulously policed by networks of humanist discourse-practices, have the potential to induce destabilizing and transformative reflections upon our own “nature” as humans’ (ibid.: 6)

On a critical note, the term apparatus actually works in an essentialising way as it evokes “thingness”, i.e. an existence as a stable system with clear boundaries. However, from a perspective of a posthumanist performative Agential Realism which breaks up the apparatus into performative practices (see 2.3.2), that apparent “stability” is of *relative* nature as critical research practices may contribute to make its ‘ontological politics open to view and therefore contestable’ (Nimmo 2010: 155).

This section has delineated the outlines of a carnist apparatus driven by agential intra-actions of humans, nonhuman beings and things, concepts, and institutions. In an alphabetical (dis)order, the emergent and entangled agents/agencies of the phenomenon at stake involve Adam Henson, agriculture, *Asda*, the *BBC*, the British beef industry, cattle, camouflage trousers, a chunk of beef/flesh, female *bodies*(!), gender, *Ladies in Beef*, a male *person*(!), nationalism, patriarchy, pink hot pants, *Red Tractor*, speciesism, sustainability, women as a social sustainability discourse; and surely numerous agencies that remain invisible in this mere sketch of (sedimented parts of) an apparatus. The picture drawn shows pseudo-feminist

discourse practices around women in agriculture that appeal to our “humaneness” by pretending a concern for farming women’s livelihoods. In this humanist disguise, farming women’s actual needs (we never learnt what these might be) were effectively silenced in favour of British beef and *Red Tractor* which was framed as covering high (= superior/pure/humane) production standards on safety, hygiene, animal welfare, and the environment (although, again, we never learnt what these might be). A set of boundary-drawing practices that comes in disguise of sustainability (as the “humane” way to act) forms a politics of the (im)possible that works to materialise, normalise, and stabilise the apparatus of carnist food practices and effectively excludes alternatives from coming into being.

However, as much purification as a politics may involve, in a world of multiplicity resistance is not far. Since this chapter as a whole focused predominantly on the predominance of carnist discourse practices, a more complete account of a posthumanist politics of the possible and the material-discursive practices it entails will be given in the part on vegan organic production practices (see ch. 8).

4.3 Conclusion: Veganism as a Representational Eating Practice

Humanism is meant to make sure that no human being is animalised and exploited or enslaved but, through establishing a human/animal dichotomy, it is the very basis for the kind of subordination intrinsic to animal agriculture. This chapter disclosed (agri)cultural relations of humanism and animal-sourced foods. Both previous sections exhibited a range of boundary-drawing practices and exclusions that work to maintain the carnist apparatus.

The first one (4.1) showed the tensions that arose within foodscapes mediated by television and tabloid news as a result of *Bradley Nook Farm* being reconfigured into both an animal sanctuary and a place for vegan organic vegetable production. Framing the withdrawal from animal agriculture as a ‘strictly personal’ decision reduces veganism to a sentimentality for *farm* animals. First of all, this keeps any objections against exploiting and killing animals out of the public/political domain and excludes the animals themselves from the social domain. Secondly, the *BBC* programme failed to give an account of further objections to animal agriculture the farmers couple had: They expressed care, not only for domesticated, but also for human and wild animals against the background of social-ecological sustainability problems (e.g. the human right to food, global biodiversity, water use, pollution through animal manure, and climate change). Thirdly, the audience was not informed what *vegan organic* farming—the envisaged alternative—actually means and which material practices it entails

(ch. 8 makes up for this). Furthermore, the sensationalised confusion about the camera set-up in which Jay Wilde eats an egg showcased that the term ‘vegan farmer’, as deployed in the media, conventionally denotes an eating practice with separate semantic entities—a farmer who just happens to choose a vegan diet—rather than considering that crop growing itself can be conceived as vegan or non-vegan depending on a farmer’s production practices. In combination with the humanist belief in an individual’s “own” choice, the origin and locus of “the ethical” becomes the consumer. This results in regarding veganism as a personal decision of ethical consumers. Reduced to ethical consumers, the farmers’ reasons for making a change as *ethical producers* are ignored.

The second section (4.2) disclosed how a “humane” and seemingly feminist cause, such as improving the livelihoods of female farmers, served to actually instrumentalise women for the objectives of the meat industry. Contrary to what was purported in *Asda’s* co-operation with *Ladies in Beef*, actual means to empower female farmers and improve their livelihoods were excluded. Under the humanist guise of a good cause, the stakeholders turned out to just use the symbolic power of social sustainability and women’s bodies to purify and maintain carnist food practices. In their representational form, sustainability and gender equality become mere means to sell products, rather than struggles and processes towards the goal of more just material-discursive practices.

In the mind-set of humanism, including the anthropocentric focus of its ethical practices, the boundaries of both veganism and sustainability are drawn representationally. Ethical food relations are equated with individual consumers making “good” eating choices. Focusing on human strengths such as language and symbols, yet hollowed out of materiality, the relationalities of productive processes appear to matter as little as the social-ecological problems they nonetheless effect. In its conventional conception, veganism is intra-actively tamed—i.e. continuously dematerialised and depoliticised (‘strictly personal’)—in favour of the established order that puts “Man” first without questioning carnist agricultural and culinary practices.

5. Entangled with Carnism: Vegan Advocacy's Fuzzy Boundaries

Rather than taking the divide between “vegan” and “normal”/“carnist” supermarkets for granted, the research lens of this chapter is calibrated to illustrate the material-discursive entanglement of carnist and vegan food practices. *Unicorn Grocery*, a worker's co-operative in South Manchester, does not sell meat, dairy, eggs, fish, or any other products derived from domesticated or wild animals—one might easily be inclined to call it a “vegan” supermarket. By food regulations, the entire offer is “vegan” (see also 8.3). However, perhaps surprisingly, neither do the workers tend to call it “vegan” nor does the following analysis allow a clear binary cut that renders *Unicorn* as an entirely vegan entity detached from the carnist apparatus of which other supermarkets, such as *Asda* (see Appendix A), are straightforwardly a part.

Keeping veganism as an ethical practice and identity inconspicuous may be suspected to have de-politicising effects that might not be beneficial to vegan advocacy, but this chapter illustrates that *Unicorn* and its staff—both my interviewees self-identified as vegan—are neither apolitical nor are they insensible to the question of reducing animal husbandry and increasing vegan food practices. Although veganism is deliberately not highlighted in the shop, *Unicorn* does nonetheless pursue a politics of possibility towards more vegan food practices. Different strategies they deploy to challenge both carnist and capitalist food practices are explored.

On first sight, undermining the carnist and capitalist apparatuses might seem to require isolation. *Unicorn* might be expected to distance themselves and their material-discursive practices as much as possible from these apparatuses, but they actually do co-operate with carnist food practices and capitalist economic practices in various material-discursive ways, and they do so precisely in order to *change* these practices. The following section develops comprehension for the choice to keep veganism inconspicuous made not only by the grocery in particular, but also the reducitarian camp within veganism in general (5.1). Another section, that is an antithetic one, grapples more critically with the depoliticising effects of that choice. Tendencies within the vegan movement are illustrated which constitute veganism predominantly as both a phenomenon of *consumption* and an ethical commitment to the well-being of *domesticated* animals. In turn, social-ecological reasons such as concerns for wildlife and the environment are excluded from the realm of the ethical and the meaning and materiality of production is disregarded (5.2). The chapter concludes by acknowledging that conspicuous ethics and clashes of identities may, in some situations, be detrimental to the broader vegan cause, particularly when consumers' daily lives and their visceral inclinations are involved. However, in other situations—e.g. academia or policy—the vegan movement

has to be careful not to exclude care for the environment, wildlife, and production as reasons for performing vegan food practices (5.3). This is a vital remedy against dematerialised debates that depoliticise the potential of vegan food practices, and may help to instead establish mutual aid and mutual existence in a posthumanist sense.

5.1 Co-operating with Carnism?

'If politics is a process of transformation instituted by taking decisions in an undecidable terrain, ethics is the continual exercising, in the face of the need to decide, of a choice to be/act/think a certain way.' (Gibson-Graham 2006: xxviii)

By speaking of an 'ontology of a politics of possibility', Gibson-Graham (ibid.: xxvii) closely connect politics, decision making, and ethics. Social-material change towards alternative worlds requires an ethical practice that consists of 'continual work of making and remaking a space for it' (ibid.; see also 2.3.3). *It*, in the context of this chapter, is veganism as both an ethical food practice and a politics of possibility.

Although *Unicorn Grocery* does not sell meat, dairy, eggs, or fish, the company abstains or refrains from identifying itself as a 'vegan' supermarket. Whilst being vegan would still be a distinctive feature in this society, *Unicorn* instead emphasises being a worker's co-operative. My interviews with *Unicorn* staff illustrate what 'co-operating' means to them and how this leads back to explaining the reservations against an overtly vegan business identity. While *Unicorn* members might quite simply be suspected to be apolitical for keeping their vegan ethics inconspicuous, the section explores how this may also be read as an integral part of their vegan politics of possibility. I conducted two separate interviews, one for 3h 15m with Amanda on 7th July 2017 and one for 2h 15m with George on 21st July 2017 (see Tab. 2, RET1.1 and RET1.2).

More specifically, it will be demonstrated how *Unicorn*, through their entanglement with their carnist and vegetarian customer-base and their organically certified suppliers, *have to* meet carnist capitalism halfway—not merely in order to function as an economic apparatus and survive as a business in a predominantly carnist food system, but also to materialise subversive social change towards a reduced consumption of animal-sourced foods (5.1.1). Considering that carnist food practices and their inherent inequalities are embedded and embodied in daily routines and social norms, *Unicorn's* policy to avoid strong labelling and identification with ethical veganism can be seen as beneficial to vegan advocacy—at least inasmuch as it avoids counter-productive confrontations of non-vegan customers with the ethical shortcomings of their own food practices (5.1.2).

5.1.1 'Co-operate or die'

With co-operation anyway being a very salient issue at *Unicorn*, the phrase 'Co-operate or die' had gained my attention due to its dramatic character. As I had found it both printed on a female worker's T-shirt shown in the photo gallery of the company's website and as a catchy phrase to promote a social event, the 'co-operatives fortnight' (App. B.1.2: UN009), I asked both my interviewees what they connect with these words. George responded that his understanding was that 'nobody on planet Earth can live on their own' (RET1.2). Similarly, Amanda described it as a 'tongue in cheek reference to all human societies being based on this notion of co-operating. If we don't co-operate together, we don't survive, we die' (RET1.1). On first thought, it might not be apparent why this grim subject is supposed to be 'tongue in cheek' but she then elucidated that 'it's quite funny' because 'people do double take on it sometimes the first time they read it' (ibid.). Indeed, when I first read it, it struck me that, taken outside of the context of a worker's co-operative, this phrase could very well be voiced by a villain in an action movie who offers somebody the 'choice' to 'co-operate or die' by means of a loaded gun; a life-threatening command in a concentration camp or a slave-labour plantation is another, certainly more serious example for it.

That people work together to survive, can be seen as a natural necessity. The ambiguous meaning of 'co-operate or die' not only indicates that the very conditions under which people work together do matter, but also that there is a fine line between subversion and submission. As George put it:

'If you work for someone and they are the boss, you just do as you are told. In a way [...] you still work together. I wouldn't necessarily call it co-operation but [...] you need that person and that person needs you' (RET1.2).

In an unequal power geometry, the powerless conventionally seem to depend on the powerful who, in turn, *appear* to be independent. However, even in that setting, the inevitable relationality of being is present. Acknowledging a very basic mutual dependency, resonates with Russian anarchist geographer Pyotr Kropotkin's (2009 [1902]) work *Mutual Aid: A Factor of Evolution* in which he seeks to rectify a common misinterpretation of Darwin's concept of the 'struggle for existence'. Social Darwinists overemphasise the significance of competition and aggressive or violent behaviour as strategies for survival. Observing behaviour among human and nonhuman animals, Kropotkin shows that, in the 'struggle for existence' in a harsh environment, mutual aid is equally common (sometimes even across species). Co-operating, in other words, is simply disregarded by Social Darwinists as an important evolutionary means of surviving.

The difference between competition and co-operation marks a boundary between individualist and collectivist conceptions of thriving. In the current economic climate and its vocabulary, in which competition between individuals encompasses both negative and positive connotations, co-operating as a collective of equals is, if not vilified, at least not given much consideration as a contribution to the common good (see Massey 2013). In the context of a ‘co-operative business’ (RET1.1), the notion of co-operating goes further than acknowledging that working together is necessary for survival. At *Unicorn*, as Amanda explained, it is about ‘co-operating for a fairer more equal society’ (ibid.). This requires a consideration of the *conditions* under which one works together, in this case a ‘flat’, ‘non-hierarchical structure’ among the ‘around 70 members’ of the co-operative (ibid.). Although ‘there is probably like little bits of hierarchy here and there that is just around age and experience, [...] we don’t have any heads of department or managers [...] we have resisted that urge [for] a more conventional business hierarchical structure’ (ibid.).

In practice, this flat and fluent hierarchy means, as George pointed out, that ‘we can have an insight into any little detail’ which ‘doesn’t necessarily mean that we know about every single detail all the time’ but it is ‘more about transparency. We have regular team meetings and the minutes of the meeting go out to the whole membership [...] everything is documented somewhere and we all have access to anything’ (RET1.2). While they are organised in teams, with every team having ‘a certain level of autonomy in terms of decision making’ (RET1.2), important decisions are made together, for example ‘if we’re spending [...] maybe a thousand or two thousand pounds?—then the whole membership has to agree’ but ‘we don’t “vote”. We make a decision. So, it’s a consensus decision’ (ibid.). On my question why this is not to be called voting, George clarified that ‘voting means the majority makes the decision’ (RET1.2) and if, for instance, a suggestion is accepted with sixty per cent, the other

‘forty per cent—it’s quite high—are not happy, and that’s not what we want [...] whereas consensus decision works with the people [...] There’s discussions and the aim is, ultimately, that everyone actively agrees with the proposal [...] everyone is able to say that “yes, my voice was heard, my ideas were taken into consideration”. It doesn’t mean that whatever you say will go but you can put your ideas forward [...] I think the key is that it’s a process and it aims to make everyone happy with the decision’ (ibid.).

From this perspective, in the case of a conventional vote, there is an always already pre-defined set of possibilities. Ultimately, voting is about the instantaneous execution of the power to choose in a binary way, either yes or no, whereas a consensus is a process of defining choices together and *making* decisions relationally. A vote can be done by snapping one’s finger, while creating consensus requires work. Co-operation is thus a relational attitude that takes other ways of being, any political counterpart, seriously by devoting them time and

work. Since, in a world of multiplicity, there will never be total unity, taking other beings seriously requires a process that embraces both critical subversion, if a proposition is truly unbearable, and humble submission to the needs of others, and it appears only a flat hierarchy enables a balance of both. This is why, for *Unicorn*, co-operating is a matter of egalitarian practices of production and consumption.

In specific, *Unicorn's* egalitarianism as a co-operative involves non-capitalist economic practices (see Gibson-Graham 2006, see also 3.2) as well as humanist and posthumanist practices. Non-capitalist practices, for example, are about questions such as how to distribute profits and assets. As an 'asset-locked business [...] we wouldn't be able to sell the premises and all walk away with a few hundred thousand pounds in our back pocket. In the event of dissolution, the profits from sale of assets revert to UK co-operatives' (RET1.1). A humanist aspect is the

'five per cent of the wage bill' which is put 'aside to support other projects and groups, sort of working as well towards co-operation and a fair and equal society. So the one per cent fund is UK-based and the four per cent is Global South which recognises the great inequality within the world' (RET1.1).

Regardless of the egalitarian practices described above, *Unicorn* also engages in practices that can be regarded as capitalist and neoliberal, grounded in the value of competition. For example, *Unicorn* and *Asda* alike compete with others over prices and prizes. *Asda* claimed to be awarded 'Quality Food Retailer of the Year 2016' (App. C.1: a). *Unicorn*, quite similarly, stressed that they won 'Best Food Retailer' at the food and farming awards of *BBC Radio 4* (see App. C.1: b). In terms of prices, *Unicorn*, on the one hand, criticises big chains such as *Asda* for their price politics: 'As multiples drive prices down, consumers lose understanding of how much a product costs to be produced' (App. B.1.2: UN003). On the other hand, they also 'aim to compete with the supermarkets on price' as they state on a blackboard in the store (see Fig. 5). *Unicorn's* participation in capitalist competition despite of their egalitarian values has to be seen against the background of the dynamics in an interconnected market:

'We are in a changing landscape now in which the multiples are massively increasing their organic offer but more than that the animal free plant-based offer. A few years ago you would not have walked into an average *Tesco*, *Asda*, *Sainsbury's* and found almond milk [...] Our points of difference are in some ways contracting because our offer is being replicated in the multiples. So, we need to reassure our customers that our pricing is competitive and our offer is still something to come and seek out' (RET1.1)

Despite of their diverging values, co-operative and capitalist economic practices, rather than clearly separated, are found to be entangled within and across the foodscapes observed. For *Unicorn*, as the above quote suggests, being entangled with capitalist practices is a matter of

Price Check

✦ We aim to Compete with the Supermarkets on Price, so We regularly carry out price Comparison.
 ➔ here's our latest! 22 march 17 ➔

product	UNICORN	MORRISON'S	TESCO	ASDA	Sainsbury's	Waitrose
Porridge per kg	£1.35 ORGANIC	£2.00 NOT ORGANIC	£1.99 NOT ORGANIC	£1.98 NOT ORGANIC	£1.60 ORGANIC	£2.25 ORGANIC
Pumpkin Seeds per 100g	80p ORGANIC	89p NOT ORGANIC	85p NOT ORGANIC	85p NOT ORGANIC	90p NOT ORGANIC	99p NOT ORGANIC
Red Lentils per kg	£2.70 ORGANIC	£3.80 ORGANIC	£2.30 NOT ORG.	£2.40 NOT ORG.	£4.00 ORGANIC	£2.70 ORGANIC
Brown Basmati Rice per kg	£2.70 ORGANIC	£4.51 NOT ORG.	£4.95 NOT ORG.	£4.39 NOT ORG.	£4.50 NOT ORG.	£3.29 ORGANIC
Quinoa per kg	£5.00 ORGANIC	£7.84 NOT ORG.	£7.83 NOT ORG.	£5.00 NOT ORG.	£7.67 NOT ORG.	£7.50 NOT ORG.
Raisins per kg	£4.80 ORGANIC	£5.25 ORGANIC	£3.10 NOT ORG.	£3.18 NOT ORG.	£5.00 ORGANIC	£5.31 ORGANIC
Turmeric per 100g	49p ORGANIC	64p NOT ORG.	£1.10 NOT ORG.	60p NOT ORG.	80p NOT ORG.	£3.38 ORGANIC
Cashews per 100g	£1.52 ORGANIC	£1.53 NOT ORG.	£1.38 ORGANIC	£1.00 NOT ORG.	£2.00 ORGANIC	£2.50 ORGANIC
Bicarb Soda per 100g	20p NOT ORG.	71p NOT ORG.	67p NOT ORG.	67p NOT ORG.	67p NOT ORG.	49p NOT ORG.

* prices checked @ mysupermarket.com
 against standard prices, not including special offers.

Figure 5: A blackboard at Unicorn Grocery comparing different supermarket's food prices and differentiating between organic and conventional quality (source: SH)

and a necessity for surviving within a business environment in which practices of inequality such as making profit by externalising the costs of production onto human or nonhuman others are still, and so paradoxically, romanticised as a contribution to the common good. The entanglement of co-operative and capitalist material-discursive practices manifests in the ambiguous semantics of ‘co-operate or die’. Whether, or in which ways, *co-operating* materialises in egalitarian or exploitative practices is contingent on the particular material-discursive configurations of a foodscape, and it is by ‘taking decisions’ within this ‘undecidable terrain’ that ethical producers pursue their very own ‘politics of possibility’ (see Gibson-Graham 2006).

5.1.2 A Vegan Politics of Possibility

In the following, I will focus on my interviewees’ positions towards veganism as an egalitarian practice with a posthuman focus. Although the members of *Unicorn* keep their ethical veganism rather inconspicuous when it comes to their website and the displays in the shop, there are examples of products acquirable in the shop which certainly politicise food practices and encourage social-material change such as the vegan cookbook *Another Dinner is Possible* (see Fig. 6). So, there is no doubt that *Unicorn* and its members would in principle endorse if society was overall vegan. However, as carnist practices do prevail over agriculture and culinary culture, advocates of veganism face the question of *how* to deal with carnism and *how* to pursue in the most effective way the egalitarian project that veganism promises to be.

Both Amanda and George mentioned that peoples’ attitudes towards veganism have changed significantly in the last decades. Amanda claimed that, in the UK, ‘20 years ago you were a sort of slight freak of nature to announce yourself as vegan’ (RET1.1). George, who is Hungarian, said that even nowadays

‘in Hungary [...] I feel like I shouldn’t make a fuss and I shouldn’t really sort of advertise that I’m a vegan. So whenever I went, if I wasn’t in a comfortable environment where I knew people, [...] I would definitely not use the word vegan’ (RET1.2).

While eating vegan food was and may still be met with disapproval, things have nonetheless changed:

‘increase in acceptance of veganism [...] very positive societal shift’ (RET1.1)

‘The shop was opened 20 years ago, and at the time only really hardcore people were vegan because the food choices were so limited. Now we’ve got tofu, everything.’ (RET1.2)

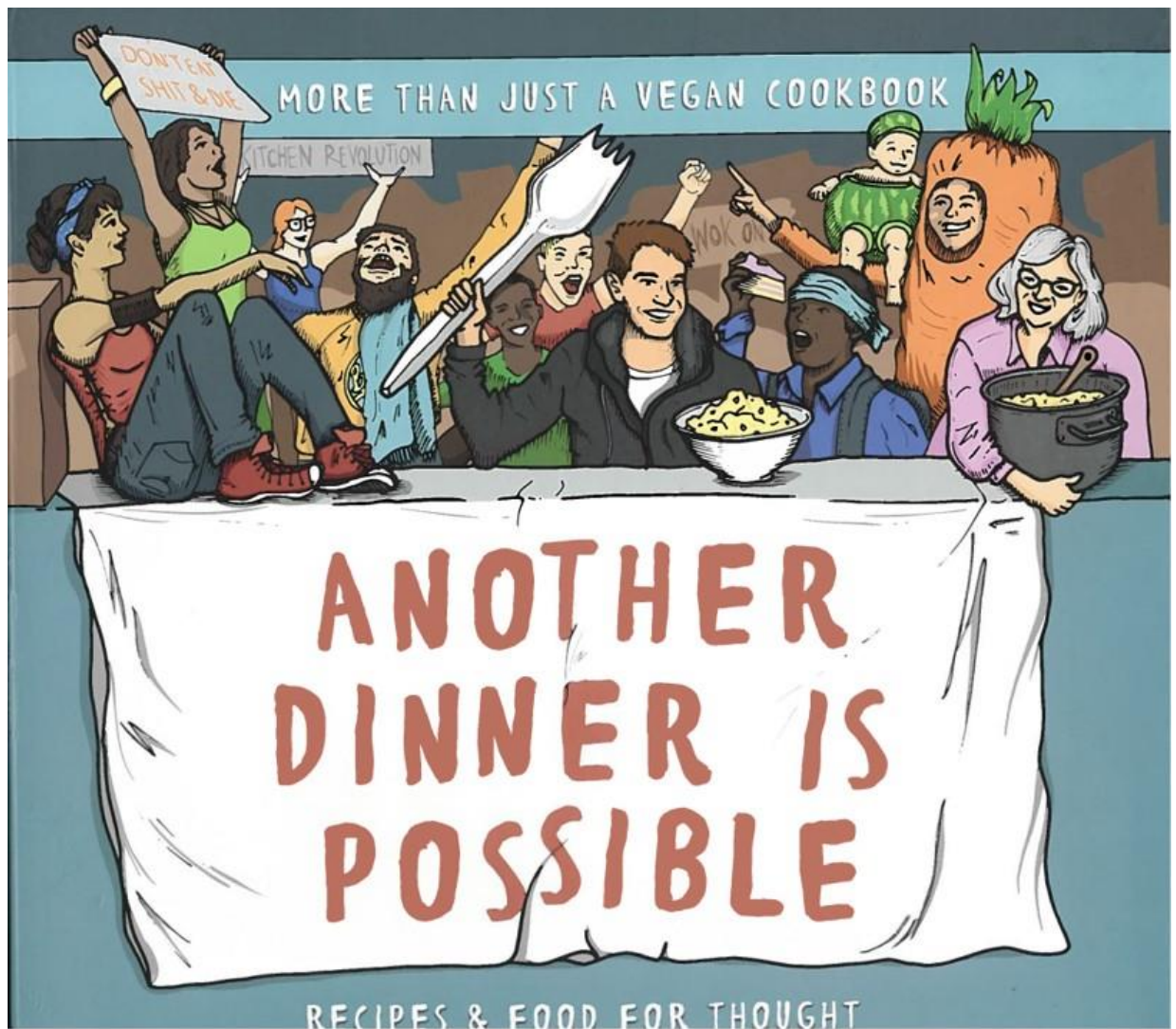


Figure 6: Cover of a cookbook found at Unicorn Grocery (source: SH)

My interviewees' comments clearly mark the tensions between normal(ised) carnist food practices and deviating vegan food practices. Intentionally or not, the latter, by their very nature of abjuring from animal-sourced foods, tend to shed light on the ethical shortcomings of carnist food practices which essentially rely on using and killing domesticated animals for food. On the one hand, vegans face great difficulty in being socially accepted when the dominant norm is put in a bad light by how they eat; on the other, social change is undeniably happening. Relevant in the context of this thesis concerned with absolute reductions of meat and dairy consumption and production, vegan advocacy is not surprisingly driven by questions of how to address and challenge carnist food practices in the most effective way. Unicorn worker Amanda had come across the notion of carnism when participating in a CEVA-workshop (*Center for Effective Vegan Advocacy*) which was run, among others, by social psychologist Melanie Joy (2010) who promulgated carnism as a term in her book *Why We Love Dogs, Eat Pigs, and Wear Cows: An Introduction to Carnism* (see 2.2.3). As both Joy's research

focus and the name of the workshop suggest, *CEVA* is concerned with undermining carnist food practices and its

‘main purpose was to help inform people who do vegan advocacy [...] that [an] open welcoming approach is much more successful than a closed, more narrow vegan club of exclusion’ (RET1.1).

Being inclusive in this case means not to condemn non-vegans in acknowledgement of ‘the absolute counter-productive nature of creating feelings of shame in anyone’ (RET1.1). ‘Shock factor doesn’t work. It desensitises people’ (RET1.1), Amanda claimed, for example, when referring to the film *Earthlings* (Monson 2005) which on imdb.com⁹ is listed as both a ‘documentary’ and ‘horror’ for showing the cruelties of human dominance over other species very explicitly.

However, as the ultimate goal of ethical veganism is nonetheless overcoming carnism, the tricky question is to which degree to tolerate and to co-operate with it. Meatless Mondays, for example, are a classic marker for controversies within the vegan movement. While some vegan (and vegetarian) advocates do welcome people abstaining from meat at least once a week, others regard it as slightly crazy to convey implicitly that eating meat six days a week is fine. This divergence resonates with what Amanda describes as the ‘unfortunate division in sort of main abolitionist camps versus reducitarianism camps in veganism’ (RET1.1). The *CEVA*-workshop Amanda participated in adopted a reducitarianist approach as it was

‘trying to create a movement that’s positive and open and welcoming to everybody, and I do still struggle with that because I feel like there should be an ethical underpinning to people’s choices but we’re creating, we’re seeing a critical mass being created of people coming to animal free eatings through all sorts of different reasons and none of it being less valid than the other while still hoping for and wanting and pushing towards this critical mass that tips the system towards eventual abolition’ (RET1.1).

Whilst even the reducitarianist camp longs for eventual abolition, it has a different strategy in terms of how to get there, one that is inclusive towards vegetarians, flexitarians, and any unintentional form of reducing animal-sourced foods. By appreciating every little step that non-vegan people take towards a reduction, it is acknowledged that food practices are embedded in very different material-discursive environments which define people’s knowledge about and access to different foods, shape their tastes, habits, routines, and comfort-zones, and therefore influence the magnitude and the nature of change they are willing to accept at a given moment. *Unicorn’s* case indicates that a vegan politics of possibility is reliant on taking into account how deeply engrained carnist food practices are in people’s

⁹ https://www.imdb.com/title/tt0358456/?ref_=fn_al_tt_2 (accessed 14 March 2019)

everyday lives. In order to maximise the effectiveness of the social change to be achieved, the reducitarian camp of vegan advocates stresses the importance of ‘getting people to gradually reduce their intake of meat and dairy and it not really mattering how and why that happens’ (RET1.1). This resonates with Amanda’s reflections on *Unicorn*’s non-vegan customers:

‘we have a lot of customers that don’t really click that it’s an animal free offer so they won’t even really notice, they’ll just be getting things they like buying and, you know, we so frequently get on the shop floor questions like ‘Oh, where is the eggs’ [...] So [we are] giving this amazing offer to people [...] without explicitly saying that the aim is to get people to reduce their meat and dairy’ (RET1.1).

Theories of practice suggest that the routinised nature of eating needs to be taken into account (Warde 2016). As Bellotti and Panzone (2016: 199) hypothesise,

‘shifting expenditures to organic, free range and healthier versions of a product is more effective because it does not require any change in habits and routines, while reducing whole food categories [such as meat and dairy] or the overall amount of expenditures has an impact on diets and eating habits and therefore requires a better understanding of how those habits are daily organized’.

The quote resonates insofar with my own findings as *Unicorn* follows the same pattern by foregrounding their organic range (which does not openly challenge people’s habits and routines) while keeping inconspicuous the fact that by food regulations their offer is vegan:

‘We don’t use the word vegan anywhere [...] I’m sure the vast majority of our customer-base is made of non-vegans. It’s certainly the people who just appreciate the great quality of organic fruits and vegetables that we sell and all the lovely wholegrain pulses [...] So, we have been very careful, I think, over the years not to limit the business artificially by putting labels on it that might turn people off.’ (RET1.1)

Labelling products or people as ‘vegan’ or talking openly about its ethical underpinnings is suspected to ignite social conflicts over the identities of mutually exclusive food practices. *Unicorn* members fear isolation if they were to represent themselves more pro-actively as a vegan business. George was convinced that ‘if you say you’re a vegan shop, people will judge you straight away [...] many of our shoppers don’t realise that we are a vegan shop – which is good’ (RET1.2).

Similarly, the *Vegan Organic Network* (VON) situationally changes the term for its production standard from ‘vegan organic’, which is used internally and within the vegan movement, to ‘stockfree organic’:

‘In order to discuss methodology with farmers VON agreed that “stockfree organic” was more conducive to objective communication than “vegan organic”, as this term appeared to imply that being vegan, although desirable, was a prior condition.’ (Graham 2014a: 9 in Growing Green International, No. 33)

While both *VON*’s and *Unicorn*’s choice of language can be read as a sneaky form of vegan advocacy, other comments suggest that not highlighting veganism might also be seen as

necessary for the viability of the enterprise. If they, as Amanda claims, ‘had “*Unicorn Vegan Store*” or “*Unicorn Sugar Free Vegan Store*” on the sign, I don’t think we’d have grown this successful business that we’ve got today’ (RET1.1). In conclusion, *Unicorn* is embedded in an environment of overall carnist food practices and capitalist economic practices. An ethically driven pursuit of vegan food practices and co-operative economic practices does not lead to total isolation or separation from carnist and capitalist practices—quite the opposite. It is the relational nature of being which, at least to a degree, requires ‘co-operating’ or intra-acting with carnist or capitalist bodies—human or corporate—if the aim is, as in any politics of possibility, to make a difference.

5.2 Excluded from Ethical Veganism: Environment, Wildlife, and Production

Unicorn’s strategy to keep veganism inconspicuous resonates with reducitarian approaches to vegan advocacy (see 5.1), and while seeming functional in terms of avoiding putting their vegetarian and carnist customers off, this strategy is nonetheless controversial inasmuch as it de-politicises important ethical reasons for performing vegan food practices. This section firstly draws on comments in which *Unicorn* staff express unease with the vegan movement’s tendency to confine the realm of ethics to concerns about the well-being of domesticated animals and to separate ethics from concerns for the environment and wildlife (5.2.1). Secondly, the section questions that mainstream vegan advocacy largely acts upon consumers and ignores ethical matters of production, particularly vegan organic production (5.2.2).

A self-identified vegan and worker at *Unicorn*, Amanda does give credit to the ‘open and welcoming’ reducitarian approach for its role in ‘pushing towards this critical mass that tips the [carnist] system towards eventual abolition’ (RET1.1; see also 5.1). In the same paragraph, however, she also mentions that ‘I do still struggle with that because I feel like there should be an ethical underpinning to people’s choices’ (ibid.). One of her comments resonates with the literature that opposes ‘individualistic vegans’ and ‘health vegans’ to those vegans with political and/or ethical motives (Greenebaum 2012, Larsson et al. 2003):

‘Sometimes I found myself slightly deprecating the very health-based raw-food-movement vegan type of people in the sense of, for me, it has always been about the food politics and about animal rights and having that real ethical basis for making this choice’ (RET1.1).

The shortcomings and risks of a lack of ethical underpinning, for Amanda, lie within what she calls ‘recidivism’—‘vegans who go back to eating meat and dairy’ (RET1.1)—which is more likely, as she claims, for people who ‘have been shocked into a behaviour change’, for

example, through explicit films such as *Earthlings* (ibid.; see also 5.1.2). Instead, she assumes, ‘you stick to it’, if you have ‘the animal rights and the food politics understanding’ as an ethical basis and thus a ‘logical position that you’ve worked out for yourself about how you want to live your life’ (RET1.1). On grounds of Amanda’s unease with the strategy to keep ethical reasons for veganism inconspicuous, the following paragraphs explore the boundaries drawn around ethics and the exclusions that come along with both the reducitarian approach and *Unicorn*’s material-discursive practices.

5.2.1 Drawing the Boundaries of Ethics: ‘the ethical-moral position was just about animal rights’

When recalling the vegan advocacy workshop (CEVA; see 5.1.2) she participated in, Amanda claims that the majority of the people there

‘were talking about [...] environmental reasons for veganism as a sort of side-line and [having] nothing to do with ethics and morals and [being] just like a little separate bubble. And then the ethical-moral position was actually just about animal rights, and I really struggled with that because I didn’t see the separation and I still don’t. I think that there is an ethical and moral imperative behind environmentalism as well and everything is interconnected, and if you’re campaigning on environmental issues, and if you are really strongly concerned about preventing habitat-loss, that obviously involves creatures from other species’ (RET1.1).

Amanda’s comment questions the boundary work within the vegan movement in three related ways. First of all, the separation of ethics, on the one hand, and the environment, on the other. Her critical observation shows that the workshop participants’ positions resonate with social scientific surveys that assess motives for being vegan by making a clear distinction between ethical and environmental reasons for veganism (Dyett et al. 2013, Timko et al. 2012, Waldmann et al. 2003; see Janssen et al. 2016 for an overview). Drawing this dichotomy implies that the environment is of no ethical concern. Amanda’s critique of that is in line with theoretical approaches that take relations rather than individuals as the elementary unit of analysis (see 2.3.1), for example, when she objects to putting environmental reasons for veganism into a ‘little separate bubble’ instead of acknowledging that ‘everything is interconnected’. Secondly, and following from Amanda’s impressions, the workshop participants confine the realm of the ethical to *animal* rights, although next to the environment even human rights could be of concern here. Thirdly, as Amanda implies, they confine the realm of animal rights to the rights of *domesticated* animals only—cattle, pigs, chickens, and other animals suffering on farms and in abattoirs. By addressing habitat-loss, Amanda clearly regards non-domesticated animals—wildlife—as a link between ethics and the environment. Her relationally-oriented critique suggests to include multiple aspects,

particularly concerns about the environment and wildlife, into what is considered as “ethical” reasons for performing vegan food practices.

In social scientific debates on this, however, Janssen et al. suggest to differentiate ‘between animal-related and environment-related motives for following a vegan diet instead of summarising the two into ethical motives’ (2016: 649) because, as their analysis shows, ‘differences exist between consumers driven by animal-related and environment-related motives compared to those driven by one motive but not the other’ (ibid.). While it is analytically important to differentiate between those motives, the term “animal-related” falls short inasmuch as it does not clearly distinguish between domesticated and wild animals (let alone human animals)—in fact, within this terminology, wild animals could be categorised as part of either “animals” or the “environment”, or they could just as well be given no credit at all, for example, when “animal-related” refers to the suffering of domesticated animals and “environment-related” refers to humans—and humans only—suffering from environmental crises such as catastrophic climate change. However, as Twine (2017: 194) critically notes,

‘given already occurring impacts on animal (human and nonhuman) life attributable to climate change [...] it is not ontologically or normatively accurate to falsely dichotomise an “environmental veganism” from a “veganism for the animals”, since the former is also the latter’.

In conclusion, both Amanda’s comment and the academic literature showcase that the ethics within veganism is still predominantly thought of as a matter of compassion with farm animals. This resonates with how the complex ethical decision to reconfigure *Bradley Nook Farm* from animal husbandry to vegan organic growing was reduced to a sentimentality for cattle (see 4.1), but whilst this de-politicisation of social-ecological reasons for veganism is less surprising in a programme as *Countryfile*, Amanda’s experience on the *CEVA*-workshop suggests that even within the vegan movement important ethical dimensions of vegan food practices are de-politicised. Moreover, it suggests grounding ethical veganism and any critique of carnism in a *material*-discursive account of their effects rather than seeing ethics as a representational and therefore immaterial affair of our minds—an ideational, atomistic view that denies the material, relational origin of sentiments and compassion (see 8.3 and 9.2).

5.2.2 Vegan Politics of Possibility—Addressing the Materiality of the Production Side

Generally, treating veganism as mainly a sentimentality for domesticated animals also comes along with a focus on the consumption side. Evoking compassion in consumers, in other words, is regarded as the main lever for change, and consumer choice is what most vegan

advocacy aims at and works on. Similarly, *Unicorn's* pragmatic approach that keeps veganism and its ethical dimensions inconspicuous is grounded in a focus on their customers. Here, the lever for a successful business and change towards more vegan food practices is not to repel non-vegan customers while selling them plant food. Whether it is vegan advocacy in general or *Unicorn's* very own strategy, in both cases consumption is at the centre of a vegan politics of possibility. One of Amanda's comments, however, challenges the standpoint that consumption really matters:

‘We can look at the increase in acceptance of veganism [...] in the UK and see this like very positive societal shift but then if you look at the absolute numbers of animals that are being killed and eaten, that's gone the other way.’ (RET1.1)

By bearing in mind production in absolute terms, Amanda takes a materialist stance. Although she seems to refer mostly to domesticated animals (‘killed and eaten’), her comment also resonates with the ethics of care towards the environment and wildlife she expressed in the previous subsection. An increase in veganism's public acceptance does not automatically entail a decrease in the consumption of animal foods, and a decrease in consumption does not necessarily affect production. However, for the social-ecological footprint of human(ist) food practices as a whole to get smaller, it is ultimately *production* not consumption which needs to decrease.

Whilst both normatively- and commercially-oriented calls for reducing meat *consumption* are nowadays relatively salient in public life, little consideration is given to the circumstance that a corresponding number of *producers* might also have to stop animal husbandry (or at least reduce their livestock) in order for domesticated, wild, and human animals—and the environment as a whole—to reap the various benefits that are promised. While, among the reasons for reducing meat and dairy, personal health improvements can be achieved with *reduced consumption* alone, collective benefits—avoiding cruelty towards domesticated, wild, and human animals as well as preserving current climate conditions and ecosystems—intrinsically depend on *reduced production* in order to apply. However, if production is out of the scope of ethical considerations altogether, those farmers who do not see an ethical need to abjure from animal husbandry or reduce it (unlike Jay and Katja Wilde of *Bradley Nook Farm*; see 4.1) are likely to just turn towards exports for the global market in the event of a national or regional decline of demand for their products.

In conclusion, the general tendency to regard veganism as a consumer phenomenon and a consumer practice leads to a neglect of production, its materiality, and its ethical dimensions. This means drawing the boundaries of veganism in such a way that the phenomenon mainly encompasses consumers and—at best—a few businesses that produce and distribute “vegan” products, for example, *Unicorn*. As a retailer, *Unicorn* cannot be blamed for being concerned

about having a reliable customer-base. And although they keep veganism inconspicuous, they do without a doubt pursue their very own vegan politics of possibility. Their pragmatic and reducitarian politics, which accounts for the routinised nature of practices by avoiding to remind non-vegan customers of the intrinsic violences of carnist and vegetarian food practices in order to not repel them, does make sense; but, as I suggest, only within a consumer-focused frame. Some tensions that exist between the *Vegan Organic Network* (VON) and *Unicorn* illustrate what would matter in a producer-focused frame or if production was at least not commonly located outside of veganism. From the perspective of VON, there is a problem of (too) few

‘vegans being aware – and that’s our educational challenge – [...] how the food is actually grown. So, vegans are – many I think unconsciously – making a compromise, and we – *I do!* – I make a compromise. Most of the food I eat will be “organic” but there is a very good chance it will be grown with animal manure. So, to me, being vegan is [eating] food that doesn’t contain any animal by-products whatsoever’ (VON1).

By food regulations, *Unicorn*’s offer is vegan but this does not preclude that most of their products based on vegetables, fruit, grains, or nuts will be produced by help of animal derivatives, mainly when farmers use animal manure or bone meal to fertilise the fields and provide nutrients on which their crops can grow. Section 8.3 will discuss this in more detail. Provided a perspective in which veganism is not only a phenomenon of consumption, but rather defined by the agricultural practices through which plant food comes into being, even a supermarket like *Unicorn* is entangled with carnist food practices.

While chapter four showcased how social-ecological reasons for veganism are depoliticised in the media (4.1) and by carnist advocacy groups of the meat industry (4.2), which is perhaps less surprising, the examples of the vegan movement in general, and *Unicorn* in particular, show that even among those who do pursue a vegan politics of possibility important ethical dimensions of vegan food practices are depoliticised. The boundaries of veganism are drawn differently. Conventionally, veganism tends to be conceived as a phenomenon of consumer sentimentality for domesticated animals. Rarely is it acknowledged that wild animals and the environment, that indeed all life on Earth is collectively affected by food practices and, last but not least, that the food practices which materialise the phenomenon called “veganism” do involve production.

The ontology behind the conventional conception seems to be an atomistic one—food practices are reduced to individual consumer choices. Through personally contingent expressions of compassion every domesticated animal is appreciated as an individual. By contrast, an alternative relational approach accounts for the complex entanglements that food

practices entail; its ethics includes those distant beings Barad (2012a) sympathetically calls ‘critters’ and Puig de la Bellacasa (2010: 161) an ‘earthy other’:

‘This commitment to care for an earthy other is not understandable with reference to utilitarian ethics – I take care for the earth and the worms, because I need them; because they are of “use” to me. Nonhuman others are not there to serve “us”. They are here to live with. And, clearly when we don’t listen to what they are saying, experiencing, needing, the responses are consequential – as mass extinctions and animal related epidemics testify.’

Conventional veganism, I suggest, contains humanist residues insofar as it draws relatively strict boundaries around veganism, boundaries so confined that the distant other (wild life, ecosystems) is excluded while close “friends” (domesticated creatures worthy of compassion) are at the centre of concerns defined by ‘the consumer’ (Ehgartner 2018) acting as an ethical sovereign. Posthumanist perspectives and practices, in turn, enforce an ethics based on material-discursive accounts of the ecological configurations we are part of. What then matters is not only whether and how “vegan” products are consumed, but also the productive processes by which meanings and materialities of “vegan” products and “vegan” consumers come into being.

5.3 Conclusion: Repoliticising Mutual Aid and Existence

Not only did the preceding chapter four showcase how mass media ignore and thus depoliticise social-ecological reasons for vegan food practices, it also gave a hint of the hegemony of humanist and carnist material-discursive practices in the general public. Drawing upon interviews with staff from *Unicorn Grocery* and the reflections on reducitarianism emerging therefrom, this chapter then turned towards the vegan movement and its strategies to sustain itself and grow within a predominantly carnist environment. It turns out that even within vegan advocacy social-ecological reasons for veganism are excluded from mattering.

Trying to explain why *Unicorn* keep their vegan offer inconspicuous, section 5.1 started with their involuntary, but hardly avoidable, entanglement with capitalist economic practices of big supermarket chains who replicate the workers-cooperative’s offer and force them to compete on prices. The ambiguous semantics of *Unicorn’s* call to ‘cooperate or die’, which emerges from the entanglement of co-operative and capitalist practices, illustrates that whether co-operation materialises as egalitarian or exploitative is dependent on the specific material-discursive configuration of a foodscape and its very own politics of possibility. In the light of

the strategic struggle of a business forced to sustain itself in a predominantly capitalist and carnist environment, *Unicorn* do not promote to their predominantly non-vegan customer-base that their offer is entirely “vegan” (at least by conventional definition; see 8.3) because a welcoming—i.e. reducitarian—approach is considered more likely to push towards the critical mass which may eventually tip the carnist apparatus towards abolition. Their pragmatic reducitarian approach takes into account how deeply engrained carnist food practices are in the everyday lives of the majority of their customers precisely in order to maximise the effectiveness of their subversive efforts towards material-discursive change.

Due to the unease *Unicorn* staff nonetheless expressed about a lack of ethical underpinning to people’s choices, section 5.2 then turned to the constitutive exclusions of reducitarian approaches to vegan advocacy. Whilst functional in terms of avoiding alienating carnist and vegetarian customers, these approaches tend to depoliticise important ethical reasons for performing vegan food practices. First, the environment is excluded from ethics. Second, the realm of the ethical is confined to animal rights. Third, the realm of animal rights is confined to the rights of domesticated animals. Through these exclusions, humanist and utilitarian residues within conventional vegan advocacy come to the fore as the boundaries around veganism are drawn so strictly that only close “friends”—domesticated large mammals worthy of compassion—are at the centre of the ethical concerns of a perceived consumer phenomenon, whereas the seemingly distant or abstract other—wild life, ecosystems, and production—do not seem to matter. However, regarding veganism as a consumer phenomenon and ignoring production falls short because even ending the suffering of domesticated animals alone ultimately requires *production*, not consumption, to fall. While personal human health issues can be addressed with reduced consumption alone, all *collective* benefits intrinsically depend on reduced production.

As both chapters four and five showed, veganism in its conventional conception—largely dematerialised and atomistic—is reduced to a consumer’s personal compassion for domesticated animals. More surprisingly than in public media, this happens to a degree even within vegan advocacy as this chapter showed. While I do acknowledge that conspicuous ethics are not necessarily effective in all situations, not all situations involve consumers’ daily lives and their particular visceral reactions to food. Adopting a relational and truly posthumanist, rather than representational, approach may help vegan advocacy to better assess when and where to take (ethical) production into account. This is a precondition for (re)politicising mutual aid (co-operation) and mutual existence (ecology) which both are so desperately needed to sustain present and future generations of *all* animals, including human ones and wildlife.

6. Sustainability within the Productivity Paradigm

Chapters four and five put conventional representational and consumer-focused conceptions of veganism into question for their neglect of social-ecological dimensions of vegan practices of production. Through the example of sustainable global food supply, this chapter explicitly addresses how the boundaries around vegan and carnist food practices are drawn from different perspectives of production.

A preliminary literature discussion critically reviews how, in the aftermath of the 2008 economic crisis, agricultural policy makers and academics have called for increasing intensification by means of biotechnology in order to feed a growing world population in a sustainable way (6.1).

Subsequently, the empirical sections turn towards the ethical accounts of producers. Two different scenarios are introduced, both relating to the question how to use agricultural land appropriately to feed the world.

The first one mainly draws on *Manor Farm*, a dairy company that describes itself as ‘100 per cent green’. The food security conversation that emerged from an interview revolves around the ‘natural’ suitability of the land. The interviewees discarded the possibility of reducing animal agriculture in the UK by referring to the large proportion of hillsides regarded as suitable for grazing only. However, their own rationale, which revolves around a ‘correct balance’ between feed and food crops, allows me to deduce a theoretical “consensus” which, if applied seriously, would require all arable land to be used for direct human consumption alone rather than for feed crops—and this would indeed result in reducing animal agriculture (6.2).

By contrast, the second scenario fully excludes carnist food practices. The focus, then, is on advocates of vegan organic production standards who debate food security from what I call a *vegan productivity* perspective (6.3).

The conclusion contrasts two kinds of approaches. The first type increases animal agriculture’s efficiency, while treating the current output of animal-sourced foods as a necessity. The second type takes into account that it is precisely absolute reductions of animal agriculture (i.e. considering the efficiency of *agriculture-as-a-whole* rather than *animal* agriculture’s efficiency alone) which allows for either producing more food or occupying less land, energy, and biomass—or a bit of both (6.4). The second approach matters because replacing feed crops on arable land with food crops for direct human consumption (see Smil 2014) is potentially an undogmatic, common ground of both carnist and vegan advocates. If enacted

this would mean a considerable step towards nourishing, healthy, and ecologically sound food practices.

6.1 Sustainable Intensification: A Productivist Oxymoron

Concerns within academia and agricultural policy about food insecurity in view of a rising world population often revolve around agricultural productivity. Particularly in the aftermath of the 2008 economic crisis which was accompanied by considerable increases in food prices and the FAO's (2009) announcement that the number of undernourished people rose above 1 billion people, calls for further increases in productivity arose.

Striking from a political ecology perspective (see 2.1.3) is that key players in these debates declared doubling agricultural productivity by 2050 an absolute necessity (Tomlinson 2013). The origins of this claim, however, go back to an FAO report which, rather than having a normative productivist agenda, explicitly says that its 'assumptions and projections reflect the most likely future but not necessarily the most desirable one' (Bruinsma 2003: 1). The report also says that 'agriculture will probably continue to expand into wetlands and rainforests, even though this is undoubtedly undesirable' (ibid.: 2). Neither, as Tomlinson points out critically, does the report 'state, explicitly or implicitly that we need to double global food [...] production by 2050', nor does it 'present an agenda for what we need to do to "feed the world", [and yet] it continues to be used in this way' (2013: 83). In the course of the food (price) crisis, food policy stakeholders discursively turned a likely, yet undesirable, scenario into a desirable one. Thus, the crisis and the anxieties that came with it have fuelled new productivist claims in agriculture. Moreover, for obvious reasons around land and energy use, the aim to provide ever higher quantities of food is in conflict with the relative ecological stability of our finite planet.

It is against this background of ecological vulnerabilities that productivist claims are now framed as 'sustainable intensification' (Godfray et al. 2010). Drawing upon 'a mix of approaches such as genetic modification, nanotechnology, genomics, droplet irrigation and computerisation' (Lang & Barling 2012: 314), its proponents promise further intensification to feed future populations but, unlike past approaches such as the Green Revolution, from now on without destroying soils, forests, and wetlands. In mistrust of its wondrous prospect of providing 'more (food) from less (land, resources, energy, water etc.)' (ibid.), sustainable intensification has been identified as an 'oxymoron' (Marsden 2010, Lang & Barling 2012) and a depoliticising attempt to 'bridge opposing paradigms' (Dibden et al. 2013: 68) such as

biotechnology and agro-ecology. The considered means to increase productivity *and* relieve the land are mainly based on improving efficiency, predominantly of the crop and livestock sectors (see Tomlinson 2013). As I further elaborate in chapter seven, it is an intrinsic part of the efficiency paradigm (Zachmann 2012) that sufficiency-related issues (see Appendix A.2.3) are disregarded, in particular, *what* types of foods are produced or not (see also 7.2.2 and 9.2.2 on how food waste is framed). The phenomenon of the ‘nutrition transition’, for example, takes for granted that increased incomes almost naturally mean that the ‘[d]emand for higher-value and quality foods such as meat, eggs and milk rises, compared with food of plant origin’ (Bruinsma 2003: 159).

Similar entanglements between productivism, the efficiency paradigm, and the carnist apparatus can even be found in academic literature. For example, in their text book on agricultural geography, Klohn and Voth (2010) do not merely pick up the call for raising global productivity by 70 per cent until 2050 (and by 100 per cent in so-called developing countries), they also assert that global meat production must be increased from 270 million tonnes in 2008 to 465 million tonnes in 2050 (ibid.: 100). Adjacent to their call for almost doubling meat production, Klohn and Voth, perhaps surprisingly, even remark that, due to the conversion losses of nutritional energy in animal husbandry, there are ‘occasional’ claims to ‘restrain’ animal husbandry in favour of ‘vegetarian diets’ (ibid.: 101). But they dismiss any claims to limit what, in German, they call ‘tierische Veredelung’ (ibid.) and which translates to ‘refinement’ or ‘enhancement’ through the process of turning plants (feed = inferior) into animal products (food = superior). They do so by saying that those commentators who want to limit animal agriculture forget that animal proteins contain high amounts of essential fatty acids important to human health. However, even if we did assume meat had a nutritional value that plant foods cannot provide, would that justify doubling meat production? Overall, the claim is quite contrary to the widespread recognition in nutritional sciences that most people in the Global North would be healthier if they ate (much) less animal-sourced foods (e.g. Willett et al. 2019). Even if the argument is about many people in the Global South not getting enough protein, this would at best justify *maintaining* rather than increasing current rates of meat production since meat could be redistributed from North to South. Next to this health-based argument against decreasing or even just maintaining current rates of meat production, Klohn and Voth (2010) also add that vast parts of the agricultural land can either preferably or exclusively be used for animal husbandry. Arguments about the natural suitability of agricultural land for either vegan or carnist food practices will be at the centre of the subsequent sections.

In retrospect, concerns about ecological sustainability may have altered how productivism itself is framed discursively, but they have not substantially changed deeply engrained predispositions of how to solve the social sustainability issue of food insecurity—quite the opposite: the lurking dystopia of an overpopulated planet with catastrophic climate has fuelled the political reflex to make more food available with productivist practices. For a long time, critical scholars have highlighted Amartya Sen’s (1981) classic argument that a productivist concern about the *volume* of food alone is not enough to alleviate hunger when so many people are simply too poor to buy food that is available in abundance on the market (see also Nally 2011). Better redistribution of available land, finances, foods, etc., is not only a valid but crucial point. That said, within the confines of this thesis, however, which is focused on the boundaries between vegan and carnist food practices, I will put redistribution aside and suggest to indulge for a while in productivist thinking. After all, a large pie is easier to redistribute than a small one.

For the sake of the argument, this thesis takes the desirability of a higher agricultural productivity for granted. However, the social-ecological concerns about productivism, as implied even by neo-productivist calls for ‘*sustainable intensification*’, remain a controversial issue. They revolve, I suggest, around the question whether meat and dairy production is treated as an efficiency or a sufficiency issue (see Appendix A.2.2 and A.2.3). An efficiency key to productivity *improves* animal agriculture but takes the practice itself for granted, whereas a sufficiency key allows to partially or fully *dispense* with carnist food practices (see ch. 7). This is significant for both the social-ecological questions of land, energy, and water use as well as the actual effectiveness of productivity improvements. As I argue in section 1.1 and Appendix A.2.3, within the *social* confines of the efficiency paradigm there are *physical* boundaries related to conversion losses that constrain productivity efforts to quite small gains. As keeping animals inevitably goes along with losses of nutritional energy when crops are converted into animal-derived foods, stockfree agriculture (see 6.3) holds the possibility of rising productivity while requiring neither more land nor further intensification. However, as the following sections confirms, producing less meat and dairy is still largely overlooked as an alternative to further intensification.

6.2 Producing Dairy on Arable Land: Feed vs Food Crops

Manor Farm in South West England is a dairy farm and a cheese dairy with about 1,000 cows, 1,500 acres of land, and about 250 employees (see Tab. 2, FAR1). They process their own

conventionally produced milk as well as milk from about 150 other suppliers who produce both conventionally and organically (FAR1). I first came across *Manor Farm* reading a brochure on climate resilience by the big British retailer I interviewed (see Tab. 2, RET2) who promotes the company as one of their best-practice suppliers working, as themselves, on ‘innovative strategies’ to ‘become more resilient to climate change’. Intrigued by *Manor Farm* being depicted as the vanguard of sustainable agriculture and being awarded a prize for it, I contacted them on their homepage to make an appointment for an on-site interview (FAR1). On 23rd August 2017 I was welcomed by Nancy, *Manor Farm*’s Sales and Marketing Coordinator, and Matt, an expert for the biogas facility. Starting with a 20-minute tour around the biogas plant, we then entered the close-by visitor centre for the actual interview which lasted 45 minutes. Afterwards they took me for another 20-minute car ride to see the lagoon that contains the digestive from the biogas plant, the grassland and arable land around the farm, and the dairy buildings where the cheese and other dairy products are made.

The interview covered various topics ranging from the more technical aspects of how biogas digestion works to questions of how to work the land (and particularly the soil) sustainably as well as animal ethics and the issue of slaughter. As *Manor Farm*’s sustainability practices will be discussed in 7.3 and their account of slaughter in 8.2.1, this section focuses on the part of the interview in which mostly Matt responded to my questions on global food security.

Interested in a dairy farm’s take on how helpful or harmful animal agriculture is to humanity’s food security, which unarguably is a contested issue, I asked them quite generally to tell me their view on dairy farming’s role in global food security. In response to this, Matt first of all outlined the importance of providing sufficient quantities of food because ‘as population increases, you’ve got to cope with that population increase by having enough food’ (FAR1). His next point was rather a qualitative one as it confined the pure focus on quantities to a local imperative as ‘a lot of people will say you need to grow things on that land that will directly feed that population and that you won’t be feeding something else first’ (FAR1). Inspired by the topic of living off the land, Matt then made a point about feed conversion he learnt when he was at university:

‘I remember reading a fact and I used it, I think, in course work, and it was like: To produce one kilogram of meat you need seven kilograms of food, basically. Saying that if you’re growing beef animals on the land, then you need a lot of land’ (FAR1).

In relation to food security, the point here is that beef requires a lot of land relative to growing crops for direct human consumption. It should not go without saying that Matt used beef farming as an example which, on the one hand, rhetorically creates a distancing stance considering that they are dairy rather than beef farmers. On the other hand, the principle of conversion losses (see 1.1) equally applies to dairy, and his subsequent point illustrates that he

does quite generally talk about—and to a degree problematises—any animal-derived products:

‘But with food security and [things] changing, I think you’ve got to have a variation there. If you said that everyone and everything was just going to eat basically like vegetarian food, and you won’t gonna eat meat and you won’t gonna eat any animal-derived products, I think the world would become a very different place. [...] there needs to be a correct balance between the amount of land that you use for growth for animals, for meat, and for growth for crops to feed humans straight away.’ (WYF: 31)

There is no doubt that without or with less animal agriculture the world would become, as Matt claims, a ‘very different place’. Unfortunately, he leaves open in which specific ways it would be different. In his response, he nonetheless positions himself by making a value judgement. In theory, by giving the beef example, he acknowledges that taking animal agriculture’s high land use and a rising world population into consideration would indeed allow for the logical conclusion to abandon or reduce animal husbandry, in particular by growing fewer *feed* crops for nonhuman animals and more *food* crops for direct human consumption. Matt nevertheless excludes that possibility. Starting the above quote with ‘but’, he marks a boundary that separates the problematic topic of conversion losses from the material-discursive practices they maintain as a dairy farm. The negative feed conversion ratio may suggest not to eat any animal-derived products *but*, he basically claims, without eating them the world would be ‘different’ or, as here implied, *out* of the ‘correct balance’. For him, this balance is based on natural topological differences which means ‘that different bits of land have different productivities’ (FAR1). For instance, if at *Manor Farm* there was ‘a corner of a field and you can’t grow crops on it because it might be waterlogged’, they would plant

‘trees on that bit of land to try and make a better productivity out of it. But you’ll find all around the world that there will be bits of land that will be suited to have animals on them and other parts of land that will be suited to have crops for humans to eat. Like on a mountain hillside in Scotland, I don’t think you are going to be growing a crop on it but you are going to have cows on there grazing that land that are going to keep the grass down but those cows will feed a human population. [...] I personally think it has to be balanced correctly.’ (FAR1)

Since Matt was speaking quite generally about the land being suited for either grazing or growing crops, I subsequently asked how they effectively implement this at *Manor Farm*. Matt responded that

‘The majority [of land] you see around here, and [you will see] when we go at the road in a minute, is owned by [Manor Farm] but we have a variation of land from being flat to being quite hilly. But we tend to grow the crops on the flatter land and try to have the cows grazing on the steeper land because you can’t grow crops out there. So, yeah, that’s how we kind of play it.’ (FAR1)

Both my experience on-site and the pictures I took on the occasion of the interview confirm that their land is steep in some places and flat elsewhere (see Fig. 7).



Figure 7: Pastures around *Manor Farm* with the cheese dairy on the right hand (source: SH)

An aerial view of the land around *Manor Farm* visualises the different ways of using the land. Green patches obviously indicate pasture, whereas yellow and brown tones suggest that crops are being cultivated on arable land (see Fig. 8). His examples of Scotland and *Manor Farm*'s own hilly parts of land suggest that Matt is making a point about the natural suitability of the land limiting certain areas to grazing only. Whether a specific patch of land is suitable for growing crops or not may be arguable but the differentiation between land which is flatter or steeper, and hence better or worse for growing crops, principally follows a convincing logic. However, what matters here—for food security and the vegan-carnist boundary in the context of production practices—is the fact that at *Manor Farm* even flat arable land is worked for producing animal feed, and this has implications for Matt's point about a 'correct balance' between feed and food crops. Before discussing this, I will outline passages from another interview which concern the natural suitability of the land.

In my interview with John, Sustainability Director at a big retailer (see Tab. 2; see also 7.1 and 7.2), he too raises concerns about a change in land use away from animal agriculture. First of all, he argues that, even if feasible, reductions might still not be desirable for reasons of biodiversity:

'Yes, you could stop consuming meat and dairy products but in the UK 70 per cent of agricultural land is grassland, and we have a natural capital register which talks about ground nesting birds being very important. If we don't have cattle and sheep grazing the land, there won't be any ground nesting birds. So which way around do you wanna play this?' (RET2)

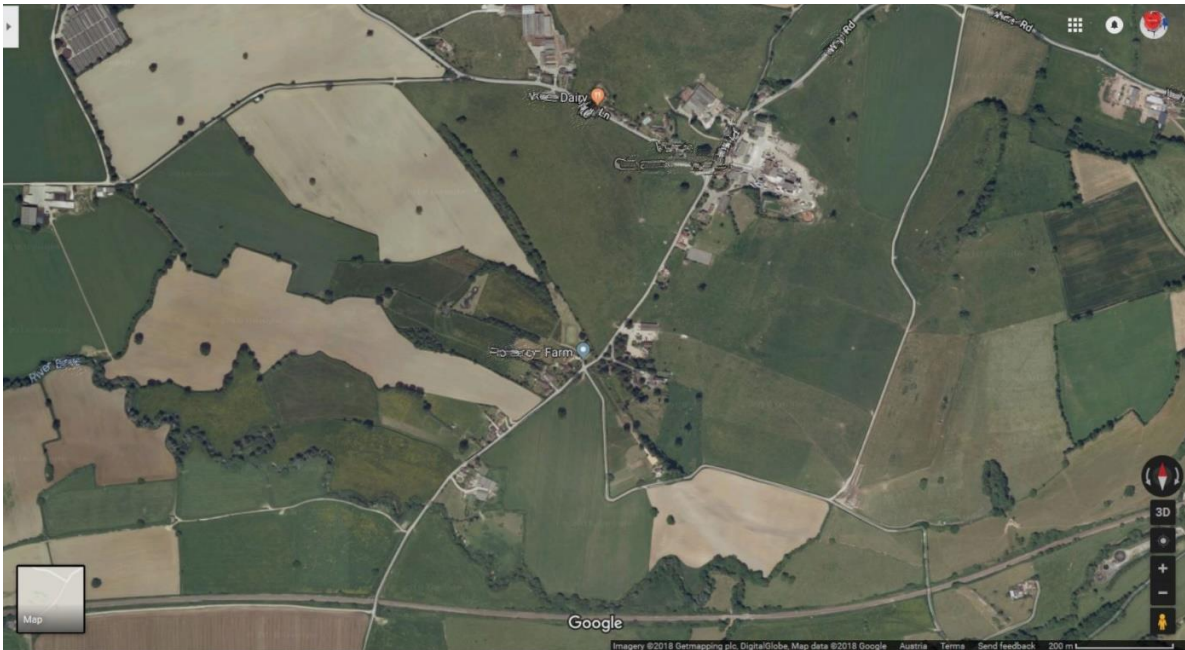


Figure 8: Aerial image of the land around *Manor Farm*, including dairy processing facility, biogas plant, and visitor centre—green patches suggest pastures and light brown ones arable land (source: Google Maps)

In this reading, grazing animals create a natural-cultural environment which, rather than confining the space for wildlife to strive, is seen as the pre-condition for protecting it. John suggests a sort of symbiotic relationship between humans, domesticated animals, and ground-nesting birds. So, next to the question of human food security, animal husbandry is presented as beneficial for the food and habitat security of specific nonhuman animal species. Although the well-being of wildlife is once in a while addressed, at the core of my interviewees' concerns is nonetheless the food security of people in the UK and globally. Geographically, John employed similar examples as Matt did:

'If you say "don't consume meat and dairy" – what are you going to do with the Pennines? What are you going to do with all this grassland we have in the UK? Are we going to then import all our food?' (RET2)

'What are the people in Northern Scotland going to eat? They will be completely dependent on someone foreign delivering them food. And where is that food going to grow? And what's the environmental consequence of that?' (RET2)

After John asked what to 'do' with hillside areas if not grazing, I mentioned that there are 'people who say that it should be reforested' (RET2). Underpinning his concern for national food security, John then deployed an argument from a global or international scale in order to explain his sceptic position towards reducing animal agriculture in the UK:

'You still have 70 million people [in the UK], so what are they gonna eat? [...] well, should we be pinching food from people that are starving in sub-Saharan Africa? – which is what we do at the moment. So there's a lot of horticulture [which] comes out of sub-Saharan Africa. I get why people say it [the benefits of reducing animal

agriculture and/or reforestation] or why that's a view that's held. I'm not sure that it stands up to full scrutiny' (RET2).

Thus, next to the care for nonhuman others such as ground nesting birds, he expresses concerns about distant human others whose current level of exploitation by the UK is suspected to increase in case of a shift away from carnist food practices in the UK. By this point at the latest, it became clear that, in John's mind, not producing and consuming meat and dairy meant having less quantities of food available. However, when I was asking about that, I had actually quite the opposite in mind:

Steffen: 'I'm also asking because there is the argument that we could actually feed more people with a plant-based diet because you don't have the feed conversion [*John*: 'That's true, yeah'] so you actually need less land' (RET2).

John: 'My counter to that is back to the 70 per cent of [grass]land [of the UK's agricultural land]. And we do know that when we try to use some of the UK's land which is grassland and try to grow crops on it, it doesn't work' (RET2).

While the former arguments were about negative consequences of a dietary shift in the UK for human and nonhuman others, this point questioned the physical or natural feasibility of converting grassland into arable land. It connects the legitimacy of animal agriculture to the natural suitability of the land, and it is concluded that producing less meat or dairy is not desirable because a high proportion of the UK's agricultural land is *naturally* unsuitable for anything other than grazing.

In the following, I am going to discuss my interviewees' comments to make an argument about food security that stays close to my interviewees' rationales but resolves some contradictions in their conclusion. Once resolved, these contradictions result in what I regard as a logically deduced minimal "consensus" about the most efficient use of agricultural land to feed the world, including an assessment of animal agriculture's share in it. Put differently, that consensus is not what my interviewees were arguing for, but it is, or so I hope, a more consistent application of their own rationales. A number of points will summarise what, in my view, marks a safe rhetorical ground for that consensus insofar as the suggestions for change that I draw from these points should be compatible with the ethical values even of rather conservative stakeholders. Thus, the nature of the reconfigurations will be "carnist-friendly" but, in comparison to the status quo, nonetheless a significant move towards more sustainable food practices (suggestions for more fundamental changes made by stakeholders who fully exclude animal agriculture will be discussed in section 6.3).

First of all, I regard my interviewees as 'ethical producers' insofar as they generally accept that food (in)security on different spatial scales—locally, regionally, nationally, and globally—matters as an issue of sustainability. From a humanist perspective, care was expressed not only for the state of food security in the UK but also for people in sub-Saharan Africa,

whereas care for ground nesting birds can be interpreted as a posthumanist argument about biodiversity. The minimal requirement for being an ‘ethical producer’ I apply here is not being indifferent to how food is produced and consumed—*what* is regarded as best practice for food security, however, is an entirely different question.

Second, my interviewees are well aware that animal agriculture plays a controversial role in the problem of food (in)security insofar as they acknowledge that animal products have a negative feed conversion ratio which raises questions about an efficient use of agricultural land. What matters for approaching that minimal consensus on how to use the land in order to feed the world efficiently is that conversion losses are a blunt reality—their existence is not even denied by the meat industry which is constantly and quite successfully concerned with improving the efficiency of feed conversion (see 7.1). If, for simplification, we assume food security depends on maximal productivity measured in nutritional energy, there is no doubt about vegan food practices being more productive than carnist ones.

Third, I would like to highlight my interviewees’ positionalities as stakeholders who are economically involved in carnist food practices—be it as farmers or retailers of animal products. They are even entangled with each other insofar as John’s employer (see RET2) sells *Manor Farm*’s cheddar and promotes them as a best practice farm. What matters for making an argument about a minimal consensus on how to use the land is that they can be regarded as relatively conservative agents within the food security debate. Due to their involvement in carnist food practices, they have an apparent economic interest in maintaining those practices which is potentially in conflict with their positions on food security as ethical producers.

Fourth, their acknowledgement of the controversial role of animal agriculture’s feed conversion is expressed in their calls for a ‘correct balance’ between carnist and vegan food practices. If food insecurity is the problem, finding a correct balance of how to use the land is the solution. Importantly, this is an abstract stance that must not be mistaken as an evaluation of current agricultural practices being either in or out of balance.

Fifth, for my interviewees, that balance is connected to both the natural suitability of the land and the boundary between vegan and carnist food practices as, again, ‘there needs to be a correct balance between the amount of land that you use for growth for animals [...] and for growth for crops to feed humans straight away’ (FAR1). Logically, that argument rejects both extremes—an entirely veganised society as much as an agriculture that is overly focused on animal husbandry. Since it is acknowledged that feed conversion losses do matter, the measure for that balance basically revolves around the binary question whether a patch of land is naturally suitable to be arable (= suitable for food crops) or not (= suitable for grazing



Figure 9: Tolhurst Organic near Reading using their arable land for growing crops by a vegan organic standard (see ch. 8); the hillsides used for grazing in the background belong to other farms (source: SH)

only). In accordance with this rationale, the ideal type of landscape exhibiting a balance between grazing and food crops can be exemplified by a picture I took when visiting the vegan organic growers of *Tolhurst Organic*. This model based on what is deemed as naturally suitable involves growing grains and vegetables for humans on the flat land, whereas grazing is confined to the hills (see Fig. 9).

Sixth, since in current agricultural practice even a significant proportion of arable land is used for feed crop production, as the example of *Manor Farm* itself shows, it would be a logical conclusion to regard this as a violation of that ‘correct balance’. However, my interviewees did not point out the issue that, in practice, arable land *is* being used for feed crops rather than food crops, although theoretically their rationale suggests to connect the ideal boundary around vegan and carnist food practices to the natural suitability of the land, in particular the question whether or not it is arable. Instead, they only focused on the argument that a big proportion of the UK’s agricultural land is deemed unsuitable for growing crops. This draws a protective boundary around carnist food practices. The possibility of reducing meat or dairy production is rejected by reference to what is deemed suitable by “nature”. In other words, carnist production practices are naturalised by the claim that grazing is the only option if any food at all is to be yielded from the many hillsides in the UK.

Seventh, although still arguable, I consider my interviewees’ point that some land is more suitable for grazing than for growing crops as fairly reasonable and comprehensible. It is also

believable that this proportion is quite high in the UK. However, the argument does not reasonably allow to dismiss *any* reductions of meat and dairy production as this involves a quite simple rhetorical exclusion of the 30 per cent or so of land that is actually arable. It is significant that the majority of arable land is actually used for growing feed crops. This fact was pointed out to me by David Graham (see 6.2 and 8.1) of the *Vegan Organic Network* who also referred to its social-ecological consequences. Of all the land, he said,

‘that is suitable to grow crops on, I think, 60 per cent is used to grow feed crops for animals, and [...] you don’t have to be a vegan to say “well, that’s ridiculous” [...] The drop in animal consumption is very real and the drop in milk consumption is really putting farmers out of business, and I think it’s a responsibility to discuss with animal farmers what the alternatives are for them but, of course, they are getting enormous subsidies. I mean hill farmers get enormous subsidies, and I think the whole farming thing is in real flux at the moment with this awareness of ecology, awareness of [...] climate change, and awareness that we are the prime contributors to the health of the world that we live in.’ (VON1).

According to the numbers my interviewees deploy, only twelve per cent of agricultural land is actually worked in a way that does not involve conversion losses of nutritional energy, whereas 88 per cent of the land does involve them—18 per cent in the form of feed crops and 70 per cent in the form of pasture. Even if one accepts the claim John made about those 70 per cent of grassland not being suitable to convert into land to grow crops on (i.e. that land really not being arable), there is no reasonable justification within the rationale of the ‘correct balance’ for the proportion of food crops grown for direct human consumption on arable land being only 12 per cent of the UK’s agricultural land (= 40 per cent of all arable land), although it could be 30 per cent (= 100 per cent of all arable land). Whenever conversion losses apply, on average 9 out of 10 units of nutritional energy are lost to the metabolism of the domesticated animal as the average ratio of feed conversion is 10:1 (input feed:output food; Reijnders & Soret 2003). It is significant that on 18 per cent of the agricultural land conversion losses apply although they could be avoided. On that land, about 90 per cent of nutritional energy is lost although “naturally” it would be perfectly suitable for growing food crops.

Whilst my interviewees’ numbers came off the top of their heads in the interview situation and thus have to be treated with caution, they are pretty much in line with scientific reports. For example, de Ruiter et al. (2017: 78) found that crops for direct human consumption comprised only 15 per cent of the UK’s total land footprint in 2010, whereas 22 per cent were used for growing feed crops and 63 per cent for grassland. Although, in total, animal agriculture accounts for 85 per cent of the land footprint, it contributes only 32 per cent to total calorie supply and 48 per cent to total protein supply (ibid.: 79)—an imbalance which can be fully grasped only by accounting for the effects of conversion losses.

Eighth, taking into consideration that my interviewees did actually show a basic understanding of conversion losses and that the need for a ‘correct balance’ between carnist and vegan production practices was acknowledged, I’m going to take the liberty of declaring that there is some sort of “consensus”, albeit an implicit and theoretically deduced one, that hillsides are good for grazing whereas arable land is good for food crops. Furthermore, nobody denies that, other than food crops, feed crops *do* involve conversion losses. Feed crops, however, imply *by definition* that they are cultivated on land that is arable and thus suitable for feed as much as for food crops. Ultimately, this leads to the logical conclusion that producing feed crops does not make sense at all—at least not in search for a ‘correct balance’ that feeds the world most effectively. That balance would require direct grazing on non-arable land and *food* crop production on arable land. As a matter of fact, though, arable land is used for animal agriculture. Ignoring this imbalance simply shows that the agricultural practices my interviewees perform or promote—producing and selling cheese made with the help of feed crops such as wheat—do not match the values related to their own rationale. That rationale connects the legitimacy of animal agriculture to the natural suitability of the land and argues for a ‘correct balance’ to feed the world reasonably and more sustainably by using the land efficiently. By applying my interviewees’ own rationale consistently, we can free this rationale from contradictions due to the lopsided focus of my interviewees on *non*-arable land. That rhetorical cut, helps them to ignore or obscure how the arable land is actually (mis)used for feed crops without natural necessity. Taking this logical inconsistency into account, it is possible to formulate a minimal “consensus” about an efficient land use. That “consensus” draws the boundary between vegan and carnist food practices by seeking a balance between stock-based and stockfree for maximising agricultural productivity. To reach this balance, conversion losses must be avoided wherever the nature of the particular land allows it.

It would be a considerable step towards more sustainable food practices if all land that is currently used for growing feed was used for food crops instead—actually a radical shift away from predominant discourses on global food security. My intention, here, is to show that such a step can be logically deduced even from what stakeholders with an economic interest in animal husbandry say, just by freeing their own rationales from a few inconsistencies. Whilst the “consensus” I postulated here deliberately builds on those who are not principally opposed to animal agriculture, the next section opens up to more fundamental changes and turns towards those of my interviewees (and others appearing in the examined foodscapes) who advocate for a strict exclusion of carnist food practices.

6.3 Feeding the (more-than-human) World with Vegan Productivity

Whilst linking carnist food practices' legitimacy to notions of the "natural" suitability of the land (see 6.2) implies that the practices themselves are taken for granted, there are alternative views on how to feed the world which are entirely based on vegan food practices. This section draws on

- my interview with David Graham (see 8.1), founder of the *Vegan Organic Network* (VON), whose wider entanglements drew my attention to
- VON's magazine *Growing Green International*,
- *Tolhurst Organic*, a farm cultivating crops by a vegan organic standard since the 1990s (see Fig. 9),
- Dave Darlington, whose (2010) book *Growing Sustainability* is published by VON,
- the report of the New Economics Foundation (2017) on the shift from meat to vegetable proteins which, as they claim, is a neglected issue on the production side.

The *Vegan Organic Network* 'was launched to fundamentally change how we live' (Graham 2014b: 28 in *Growing Green International*, No. 33) and challenges 'the fact that most of our land is used to grow food for animals' (ibid.). In his article 'Planting the seeds of social, economic and political change', David Graham contextualises VON's politics of possibility as follows:

'If climate change, and the means to combat this, is to be taken seriously then how we grow our food must be a priority. Only one vegan organic farm, Iain Tolhurst's [...], was known to VON in 1996. [...] We have used this as a practical model that would fulfil many of the measures required to avert the catastrophe of climate change cited in reports such as *Livestock's Long Shadow* [...] and others that continue to gather dust or are not acted upon. VON now lists about 100 stockfree organic farms in Britain and overseas. We do not consider this as an insignificant number because they act as catalysts for change; they challenge the embedded system on every humanitarian front' (Graham 2014b: 28 in *Growing Green International*, No. 33; italics original).

On *Tolhurst Organic's* website, acting on climate change is entwined with the energetic efficiency of their production and their mission to feed people in an ecologically sound way:

'Our farming system not only helps to minimise harmful effects on the environment but feeds you and your family as well. [...] Our whole farm produces the same amount of carbon as the average household and supplies 400 families, so we are probably one of the greenest box schemes available.' (App. B.1.4: TOL03)

'We produce and distribute around 120 tonnes of vegetables every year direct from the farm. Our system of production utilising stockfree methods, growing all of our own plants (over 140,000 per annum) ensures that we are operating as near as possible to a closed system. This means that we do not have to import fertility and

plants produced on other farms. This reduces energy inputs quite considerably. [...] The total carbon footprint for our business comes to around 8 tonnes, which is the same as an average house in the UK. We have a very low carbon footprint. Compared with supermarket conventional produce, we are 90% more efficient.*

**As verified by Prof. Tim Jackson, BBC Climate Change special programme March 2007.* (App. B.1.4: TOL01; italics original)

‘We see a big future in stockfree organic systems as they use considerably less land than livestock dependent systems, have a much lower carbon footprint and lower energy requirements. We are pleased to have been at the forefront of developing this important food growing system.’ (App. B.1.4: TOL02)

If a farm which excludes animal husbandry altogether requires less land, that also means that an agricultural system built on this principle is more productive. This, according to Dave Darlington (2010: 63), is a fact that ‘even those who are most dedicated to animal farming accept’. For example, in the journal *Animal Feed Science and Technology* Greenhalgh (1976: 1) reminds of animal agriculture’s ‘woefully poor energetic efficiency. While Britain’s domestic livestock consume three times as much metabolizable energy as Britain’s human population, they provide only one third of the energy intake’ (ibid.). Drawing on statistics by Spedding (1981, 1996), Darlington (2010) calculates how to feed an assumed 10 billion people in 2050 from the available *arable* land, pasture excluded. He concludes that ‘with a carnivorous diet there will be massive starvation, while with a vegan diet there will be ample food for everyone’ (ibid.: 73). With 1.3 billion hectares of land required, feeding everyone on a carnist diet turns out as impossible due to a global total of only 1.2 billion hectares being available (some of which is already occupied for the production of textile or fuel crops). A vegan diet, in contrast, would need 0.7 billion hectares but, instead of 1.2 billion hectares, would have to draw on only 0.9 billion hectares of land as ‘at any one time 25% of the available land would be used for green manure crops’ which are necessary for sustainably recovering soil fertility ‘and would therefore not be producing food’ (ibid.). As a result, on a vegan diet there would still be a surplus or buffer of 0.2 billion hectares of unneeded land—thus ‘ample food for everyone’.

It matters that this calculation only looks at the arable land. In principle, additional food could be provided from the agricultural land that is not arable. This could be in support of animal agriculture, drawing the boundary between carnist and vegan food practices along the line of arable land for crops and non-arable land for grazing (see 6.2). However, there are good reasons to question the naturalising claim that some land is simply not suitable for anything other than animal husbandry. As David Graham told me,

‘Dave Darlington in his book *Growing Sustainability* [2010] does look at that argument, and I think he says if you look at Scotland, for example, the mountains and the high

hills which have very poor soil on them, you can grow trees, fruit bearing trees, trees that are good enough to crop for energy, stuff like that. And I think it's a bit of a red herring because the farmers, I think, want to show that there's areas where the soil is only suitable for grass. [...] the argument about "some land is so poor that all you can do is graze cattle on it", it's a sort of argument that [...] I think it's worth looking at—I think all arguments should be looked at—but I don't think it's a very important one.' (VON1)

Thus, reforesting pastures does not necessarily mean that the land would no longer provide any food (as John presumes in 6.2). Similarly, comparing meat with potato production, Darlington paraphrases Spedding (1981) to show that

'a hill farm of, say, 1000 hectares would produce no more food (in the form of meat) than 2 ½ hectares of intensive potato production would (in plant form). To those who might argue that you cannot grow potatoes on a hill farm, I would answer that there must be very few large hill farms that could not find 2 ½ hectares of good arable soil, for example, in the valleys of becks crossing the farm. And in any case, if the native peoples of the Andes can grow potatoes several thousand metres up in the mountains, it must be possible on the average hill farm.' (Darlington 2010: 63)

In this reading, Darlington supposes that some of the land currently used for grazing is principally arable. Another comment by David Graham extends that argument to the possibility to *create* arable land rather than just finding it:

'I personally would question the idea that some soil is so poor that you cannot grow crops on it. I think that most soils are suitable for crops. And also the soil, if it can grow grass, and grass needs some rooting capacity, you can turn over the grass with clover and you will build up soil fertility.' (VON1)

Clover, as a nitrogen-fixing plant from the legume family (for details see 8.2.2), is endowed with the potential to build up soil fertility *if* one knows about its agency and *if* one is willing to intra-act with it.

Leafu, a curd high in protein made from any green leaves such as nettles, is a further example for a largely unactualised potential to produce food very efficiently in areas traditionally regarded as non-arable in geographical areas such as the UK:

'Leaves are the protein factories of plants and it is inherently more efficient to extract protein directly from leaves than to allow the plant to flower and produce seed – and of course far more efficient than getting animals to eat plants, and then eat the animals or their products [...] it is possible to use indigenous perennial "wild" plants [...] we mainly use nettles, but many other plants may be used such as ground elder, Jack by the hedge, cleavers and dandelion [...] Leafu is a leaf curd in the same way that tofu is a bean curd (hence the name leafu) [...] Grazing animals make use of easily grown herbage and areas of land that are difficult to cultivate. If we can produce good quality protein on a much smaller area of land, then all these areas may be reforested and rewilded. When meat eaters say "but we can't eat grass" – actually we can, by turning it into leafu.' (Cole 2017: 20 in Growing Green International, No. 38)

The precedent quotes are in line with the productivist paradigm insofar as they mostly revolve around the question how vegan food practices help to optimise agricultural land use and maximise the output. Highlighting this “vegan productivism” matters as it shows much more efficient alternatives to the conventional approach of using biotechnology and feed crops rich in protein to increase the efficiency of animal agriculture (see 6.1). As I have argued elsewhere (see 1.1 and Appendix A.2.3), efficiency gains *within* animal agriculture can never cope with efficiency gains *outside* of it because the conversion losses inherent to animal agriculture are a physical boundary linked to the energy use of bodies of animate beings, and the state of factory farmed animals suggests that animal bodies have already been driven rather close to their physical limits. Whether or not—and if yes to which degree—domesticated animals are part of food production is not a physical but a social boundary that can be crossed. This is true for at least most geographical regions, and particularly for the regions which contribute most to social-ecological problems.

A mere focus on (vegan) productivity, however, does not even consider that ‘[b]y requiring less land, a transition from animal to plant protein can also *free up* land for other purposes’ (New Economics Foundation 2017: 7; italics mine). A paradigm of maximal productivity implies that it is desirable to use all agricultural land in order to have a maximal amount of food available; but what if the efficiency gains from veganising food practices are so generous that not even all land that is freed from carnist food practices is needed? A paradigm based on agro-ecological sufficiency (see Appendix A.2.3) that provides just as much food as a population needs—and even better if that society aims at distributing food efficiently and justly—might allow to free up spaces no longer needed for food production. These spaces would then be available for building up new nonhuman ecosystems (see also Fig. 2c). Humanity’s domination over nonhuman nature, and the intrinsic violence of carnist agricultural practices, manifest not only in the abuse and death of domesticated animals, it is ingrained in the land humanity controls by performing agricultural practices. While vegan and non-vegan agricultural practices are both forms of domination over patches of land (and actual or potential nonhuman inhabitants), there are massive differences in terms of land and energy use. Moreover, as David Graham warns us, ‘we simply cannot feed two increasing populations, that of people and animals. We cannot feed, house, water and care for 70 billion farm animals worldwide’ (Graham 2016: 9 in Growing Green International, No. 37). Whatever our choices of production and consumption, our food practices need to respond to the fact that those billions of farm animals occupy the biomass and energy that former ecosystems had been made of, and they do so with ‘woefully poor energetic efficiency’ (Greenhalgh 1976: 1). Acknowledging that opens up a whole new array of possibilities for sustainable development.

6.4 Conclusion: Finding a ‘Correct Balance’ to Survive the Sixth Mass Extinction

Is global food security a question of just distribution or maximising food quantities available? This chapter put just distribution, as crucial as it is, aside. Not for making a case for productivism, but in order to explore the possibilities of raising productivity through addressing *Livestock’s Long Shadow* (FAO 2006). In the context of this thesis, this involved examining the boundary-drawing practices around livestock and stockfree agriculture by problematising the conversion losses of nutritional energy intrinsic to animal agriculture.

Largely, the chapter outlined four different ways to feed a rising world population by rising productivity. They differ in whether and how they address conversion losses.

- *Intensification*—the expansion of agricultural land and the intense use of fossil fuels (e.g. the Green Revolution)
- *Sustainable Intensification*—biotechnology trying to increase the efficiency of land use, e.g. mitigating the inefficiency of animal production (see 6.1)
- *Correct Balance*—between animal-sourced and plant foods by considering “natural” suitabilities to increase the efficiency of land use, e.g. confining animal agriculture to non-arable land (see 6.2)
- *Vegan Productivity*—maximising the efficiency of land use by excluding the metabolism of any domesticated animal, i.e. not performing carnist food practices (see 6.3).

While a lot of confidence and hope is put in biotechnology to generate more (food) out of less (resources), reducing carnist feed and food practices, as practically implied by the third and fourth point, is still largely overlooked as a nonetheless productivist alternative to further intensification. Coming from dairy farming and a big supermarket chain, my interviewees of section 6.2 can be regarded as relatively *conservative* agents insofar as they are economically involved in carnist food practices. However, well aware that animal agriculture and its conversion losses play a controversial role for food (in)security, they called for attentiveness to the “*natural*” *suitability* of the land and a “*correct*” *balance* between animal and stockfree agriculture. On the one hand, they clearly intended to naturalise carnist food practices and depoliticise change by declaring most of the UK’s agricultural land as *unsuitable* for anything other than grazing. On the other, their own rationale, freed from contradictions due to their sole focus on pasture, leads to the logical conclusion that growing feed crops on *arable* land, which would be suitable for food crops, is inefficient and thus out of balance. Consequently, I deduce a theoretical “consensus” that marks the balance by avoiding conversion losses

wherever the nature of the particular land allows it—no arable land would then be suitable for feed crops.

Advocates of vegan organic agriculture (6.3) claim that 10 billion people in 2050 cannot be fed on an average carnist diet. While conversion losses are a *physical* boundary linked to the inevitable energy use of bodies of animate beings (see 1.1), whether or not domesticated animals are part of food production is a *social* boundary that can be crossed. Therefore, increasing productivity *within* the confines of animal agriculture can never cope with the magnitude of gains *outside* of it (i.e. vegan productivity).

The potency of vegan productivity actually allows thinking beyond productivity as an imperative to actually produce more food. For example, if the gains from veganising food practices are so generous that not even all agricultural land is needed, spaces would become available for building new nonhuman ecosystems and mitigate the current mass extinction (see Fig. 2c). Whichever degree of animal agriculture one regards as balanced, feeding the human world sustainably must respond to a fact based on the first law of thermodynamics (within a system, energy can be transformed but its total energy remains constant; see 1.1): Those 70 billion farm animals bred into existence by humans did not magically appear out of nowhere. Physically, the biomass and energy they now occupy must be the same formerly existing ecosystems and their now eradicated inhabitants, both plants and animals, had once been made of.

7. Sustainability within the Efficiency Paradigm

'The anti-growth attitudes [emerging in the 1970s and 1980s], however, got increasingly marginalised by a new consensus on ready-to-implement technical means for garnering more energy and using it more efficiently. [...] The widespread consensus on the importance of a rise in energy efficiency put two very different groups of actors at the centre stage [...] One were engineers serving as efficiency experts whereas the other group were consumers who were supposed to make the right choices about energy-consuming goods and services. In any case, the efficiency paradigm began to shift attention from the hitherto prevalent emphasis on energy production to energy use.' (Zachmann 2012: 23)

Drawing on the examples of a big British retailer and their supplier of dairy products (see also 6.2 and 8.2.1), this chapter illustrates how material-discursive practices in the context of sustainability are based in and confined by the efficiency paradigm. I argue that it is inherent to increasing the efficiency of a particular practice, or, more mundanely, “improving” a practice, that agents take the very existence of that practice for granted. Against this background, the chapter addresses the role of efficiency in the maintenance of carnist food practices. Relative improvements of animal agriculture or carnist consumer behaviour in the name of sustainability might actually be a barrier to absolute reductions (see Fuchs et al. 2016) which would require promoting and performing vegan food practices instead. Sustainability within the efficiency paradigm allows producers to put sustainability’s conditions for existence in the invisible hands of consumer demand. Resonating with the shift in attention from production to consumption that Zachmann’s opening quote suggests, efficiency thinking makes any practice pass as “sustainable consumption” as soon as that practice undergoes even the slightest improvement *relative* to its unsustainable status quo. What remains unquestioned is whether the improved practice and the energetic materialities of its production are sufficiently sustainable in *absolute* terms.

Confining sustainability efforts to what ‘the market’ dictates via ‘consumer choice’, the big retailer avoids consumer and producer hardship which it is assumed would occur if consumers actually had to reduce or stop their routinised practices for the sake of sustainability (7.1). Increasing the efficiencies of those practices, rather than questioning their existence, is a way of providing a positive narrative of sustainable development without having to change the established basis for consumer convenience and producer profits (7.2). Another section showcases how *Manor Farm* present renewable energy and other efficiency gains in farming practices as an essential part of their business identity and an important selling tool, although, somewhat surprisingly and paradoxically, the sustainability efforts of their business are found not to be part of their on-site promotion—packaging and displays—to their customers in supermarkets (7.3). The chapter concludes with a warning that an efficiency key to sustainability normalises established practices by assuring that they will be

“improved”, which implies to ignore the *remaining* footprints of the practices sanitised by improvements towards sustainability (7.4). This matters as (big) producers, hiding behind the “invisible hand” of the market, depoliticise the possibility of sustainable development through carnist degrowth and vegan growth as they try to maintain consumer convenience and producer profits.

7.1 Sustainability on the Far Horizon: How Efficiency Gains License Practices in Absolute Terms

After I had read John’s introduction to his company’s brochure on climate change and resiliency, I decided to ask the company’s *Senior Director, Sustainable Business*, for an interview (see Tab. 2, RET2). Prior to the meeting on 21st September 2017, I had come across a paper in the journal *Sustainability* my interviewee had co-authored which asks and is titled: *What Do We Need to Know to Enhance the Environmental Sustainability of Agricultural Production? A Prioritisation of Knowledge Needs for the UK Food System* (Dicks et al. 2013). Many of the formulated knowledge gaps concern the sustainability of livestock systems, with developing ‘a sustainable animal feed strategy’ (ibid.: 3104) ranking as number one. Calling for relative improvements of animal feed equals reconfirming the firm establishment of carnist food practices in absolute terms.

Against this background, my interview with John was supposed to explore the retailer’s business model and their claim to ‘take a lead’ in view of a changing climate and how they position themselves not merely towards animal agriculture, but also the vegan and organic movements. In the following, I show a range of patterns that are in favour of already predominant carnist food practices inasmuch as they largely declare any *change* as a question of consumer demand—a rationale by which producers force themselves to offer whatever is demanded regardless of sustainability in absolute terms. These patterns involve tying change to the market and consumer choice (7.1.1), regarding vegan and organic products as a factor of consumer beliefs rather than a sustainability issue (7.1.2), and using sustainability’s complexity as a pretext against change (7.1.3).

7.1.1 Sustainability as Dictated by the Invisible Hand

A number of comments revolved around ‘the market’, the demand and expectations it creates on the side of consumers, particularly in relation to sustainability issues, and how the retailer

reacts to constant changes. When I asked John about their strategy for sustainability, he started off with a joke that nonetheless introduced the more sincere side of their approach:

‘Well, we could have done nothing [chuckles] which is not a sensible financial and commercial position, and so we try and relate to what our customers say. So what do our customers want us to work on? What do our customers expect of us?—which is fine to a point but as you know, Steffen, the market moves slightly faster than we do. So, I’m happy to keep up with customers’ expectations. So, if you had asked me ten years ago we would have probably had a conversation about food miles which we don’t have now. If you had asked me a couple of years ago, I probably wouldn’t have highlighted food waste, and now food waste is a massively important sustainability issue. So, I’ve got to find a careful balance between making sure that I’m reactive and making sure that the prevailing commercial realities are being reflected on in our strategies and our activities, and also some level of forward thinking and anticipation but my crystal ball is as cloudy as anybody else’s.’ (RET2)

Opening with a joke on not doing anything towards sustainability marks that way of behaviour as unreasonable and allows to dissociate oneself from it by formulating an alternative vision of ‘sensible’ behaviour. In the context of sustainability, one might presume that sensibility towards the issue is deemed necessary because the various social-ecological crises are a threat to the existence and well-being of both human and nonhuman life on this planet; in John’s words, however, the reason for doing something is about the company’s ‘financial and commercial position’. From this perspective, sustainability appears as an external issue that is mediated via customers and ‘the market’ which is depicted as always ahead. The retailer is put in a passive, powerless, and merely ‘reactive’ position towards the market, towards customers, and ultimately towards *discourses* on sustainability. Elsewhere, John depicted linking the supply unconditionally to the (perceived) demand as a natural part of a retailer’s existence:

‘I think, crudely, any retailer, if the customer says they want to buy product X, we’ll sell it to them. That’s what we exist to do.’ (RET2)

As a consequence of a predominantly financial and commercial lens on sustainability, any efforts towards it are undertaken only if backed up by market or consumer dynamics. For example, when asked about his opinion on the possibility of reducing meat and dairy consumption, John explained that, at their company, ‘[i]t’s a conversation. If people want to buy those options that’s fine and we’ll sell them to in a day. I don’t believe that science is properly thought through’ (RET2). The reason why ‘those options’, i.e. vegan products, are offered here is, again, a *commercial* rather than an *ethical* decision in face of sustainability issues. *Why* vegan products might be associated with solutions for sustainability problems at all is not merely secondary, but the accuracy of the scientific evidence for it is doubted (I will come back to this below).

7.1.2 'It's not a Sustainability Conversation': Vegan and Organic Products as Consumer Beliefs

Overlapping with the preceding aspects, John reveals his position towards the role both vegan and organic products play in the context of sustainability. Asked 'in which way vegan and vegetarian products are part of the sustainability' debate (RET2), he responded that

'they're on the shelves, they are not a sustainability discussion. [...] People who want to buy them, they can buy them. They are clearly labelled up [...] but I wouldn't be making a sustainability claim on them. If people who believe that they're more sustainable wish to buy them on that grounds then that's up to them. If they wish to believe that it's more animal ethical, fine, I'm not going to engage them in a debate and tell them not to buy it. They are on the shelves in a proportion which their sales justify.' (RET2)

Labelling up veggie products, here, may be interpreted as key to an informed consumer choice which is often regarded as a precondition for sustainable consumption in an allegedly free market system. This freedom implies that customers may 'wish to believe' whatever they want. The precise face of sustainable consumption, in this reading, is not negotiated between retailers, customers, let alone scientists. Rather, a debate is avoided in the first place and reduced to putting *all* kinds of products, whether deemed as sustainable or not, on the shelves so that the (informed) consumer is enabled (not urged) to hopefully buy supposedly sustainable options. In a conversation about vegan ale, the viewpoint that brings veganism at least semantically close to religious belief is consolidated:

'The problem with beer is that they use fish bladder [...] and vegans don't believe in that. They don't believe in honey either. [...] I've got lots of options if people want to buy them. So vegan products, there are lots of them. There always have been a vegan movement in the UK. It's not a sudden explosion of it. If there's a market [...] we'll sell it.' (RET2)

In continuity with the conversation about vegan products, John deploys the same terminology around belief for organic products:

'You need to separate out those [customers] who are true believers and those who will pick it up for a bit of trial and error and return to it or not. But we've always sold vegetarian food, we've always sold macaroni and cheese for decades. So, this isn't new. But do I put it as a [sustainability conversation]? I'm afraid it's a bit like the organic debate. It's not a sustainability conversation. [...] [SH: So, in your view 'organic' does not belong to the sustainability debate?] No. [SH: Why not?] Because it also has too narrow a focus and its belief-sets around its production standards are around a variety of things. There are sometimes people who buy organic on animal welfare grounds. Or they're buying it on the fact that they believe that the animals are grazing all. And all these types of issues. Maybe it's because they want to avoid GMOs. You know, it's a variety of things. But do I believe that it's totally a sustainability conversation? – then no.' (RET2)

It remains unspecified why John made a clear cut between sustainability conversations and organic. This separation is even more astonishing considering that all the reasons he gave for

why people might want to buy organic—animal welfare, grazing, avoiding GMOs (genetically modified organisms)—are in other contexts regarded as crucial to or at least valid aspects of sustainability (see 8.1). When I mentioned that I had not come across organic meat or dairy in the aisles of the particular branch that I used to visit, John explained that some of their branches do stock it but it is generally

‘not a massive seller because it’s very expensive. [SH: So why is it not a thing?] Well, we put our products into a store and then, if it sells it stays in, if it doesn’t sell it comes out and be replaced with something that people do want to buy. [...] [Our] computers go “it’s not working” or “we are wasting it” [...] [SH: Why do you think there is not such a high demand for it?] Because customers don’t buy organic. Not all customers buy organic. Some don’t want to buy organic. It’s not that big a part of the market. It’s not a huge part of the market.’ (RET2; see also 7.3)

The language of belief used for organic products suggests that this way of production is not regarded as backed up scientifically, and it results in John’s reluctance to regard ‘organic’ in any other way than from a pure market perspective.

Asked about the issue of a rising world population and claims to increase agricultural productivity, John argued that ‘we have to increase productivity. We need to do more with less. We need to be more efficient with the resources that we are responsible for’ (RET2; see also the matching food security debate in 6.1). Crucial to that, he highlighted, are ‘land use questions’ such as ‘making soils more robust, making soils resilient, not just to drought, but also to flood’ (RET2). On my question how to make soils more fertile he explained how important it is ‘having a living root in the soil at all times’ and being interested in ‘micro flora and fauna in the soil and maintaining worm populations’ (RET2).

However, as maintaining the life of the soil, in my understanding, is precisely what *organic* production is based on and known for (see 8.1), I was confused about his response and asked: ‘Isn’t that also what both organic and integrated agriculture aim at with reducing pesticides so that the life in the soil can be maintained?’ (RET2). He responded by giving another example:

‘If you plow it up [the soil], which the organic movement have to do a lot, [that] burns huge amounts of diesel which is high of carbon, obviously, into the atmosphere, and then all it does is expose all the earthworms for the sea gulls to eat. So, each time you put a plow through it, you’re burning carbon out of the soil, you’re burning carbon with all the diesel and you’re getting rid of all that micro flora and fauna – so maybe there are better ways to do it? [...] I think there’s other things that we ought to be looking at. [...] I’m not sure it’s reducing pesticides. Crop protection. I think, it’s about optimising crop protection. Making sure we are using crop protection in the right way.’ (RET2)

To my best knowledge, if anybody, it had usually been the *organic* movement who omitted from plowing, so I asked John whether I had understood him correctly ‘that the organic

agriculture is plowing more?’ (RET2). The language deployed in his response clearly suggests an awareness of ‘us’ and ‘them’:

‘Well, they do plow. They also burn off the weeds. So, they don’t use the crop protection chemical but they use propane and burn the weeds. You know, it’s a lot of carbon. There are things we can learn from organic. I’m sure organic can learn from the things that we do, or what conventional agriculture does.’ (RET2)

Both vegan and organic products are represented as something that a minority of consumers buy because they *believe* these products to be more sustainable, whilst the evidence for that is doubted. Paradoxically, the sustainability improvements presented as worthwhile for maintaining soil fertility, for example, keeping worms happy by having a living root in the soil, rather than plowing, are quite close to methods of (vegan) organic agriculture such as using green manure (see 8.2.2). What remains open is the question whether agro-ecological methods are increasingly adopted *in practice*, or whether it is only the *terminology* that is appropriated in order to largely maintain big business as usual—i.e. unsustainable but profitable methods that indeed justify the distinction between ‘us’ and ‘them’.

7.1.3 Sustainability’s Complexity and Change

The two tendencies illustrated above—making sustainability efforts dependent on consumer demand and excluding vegan and organic products from mattering in sustainability conversations—come along with a third one in which the concept of sustainability is rendered as a highly complex issue. Whilst John acknowledged that unsustainability is a problem that their company ‘as a good corporate citizen, needs to be helping’ with, he emphasised that ‘[t]here is no main means. If there was a silver bullet [...] we would use it. There is no easy answer to any of this.’ (RET2). While there is no doubt that transitioning towards sustainable production and consumption practices is a complex issue on the scale of a company, let alone a society, overemphasising this fact may result in devaluing scientific evidence to the extent that even a broad consensus is presented as uncertain (see, for example, the case of climate change sceptics; Oreskes & Conway 2010). In this case, John expressed doubts about the evidence suggesting to reduce meat and dairy for making food procurement sustainable:

‘If people want to buy those [vegan] options that’s fine and we’ll sell them to in a day. I don’t believe that science is properly thought through. I know that it’s written about in *The Guardian* and the *Daily Mail* but it ain’t true. [SH: What in particular?] Well, if you think about methane from cows, that’s degraded down back to carbon dioxide in twelve years. So, my view, might be slightly naïve, is that that’s then going around the carbon cycle. So, the cows are just breathing out methane which in twelve years time is back round into CO² which is going back into the plants. So, it’s circulating. Now there’s obviously the new carbon coming in [...] from the use of nitrogen fertilisers

but that's not the same. It's just assuming. Because under that logic we ought to get rid of all termites because they also produce methane. So, I'm not quite sure that I believe that rationale or that interpretation [...] again, it's that problem about having a single focus. So, yes, you could stop consuming meat and dairy products but in the UK 70 per cent of agricultural land is grassland, and we have a natural capital register which talks about ground nesting birds being very important. If we don't have cattle and sheep grazing the land, there won't be any ground nesting birds. So, which way around do you wanna play this? You know the *RSPB*, the bird charity, produces beef of its bird reserves because it has to have cattle to keep those habitats for the birds to be in. [...] it's too simplistic to have a single focus and to say it's all about carbon because that's where you end up. [...] if you say "don't consume meat and dairy", what are you gonna do with the Pennines? What are you gonna do with all this grassland we have in the UK? Are we gonna then import all our food?' (RET2)

The question about 'which way around do you wanna play this' may, on the one hand, correctly suggest that 'having a single focus' may be a problem and each specific sustainability approach might generate its winners and losers. On the other hand, the (mistrusted) prospect of reducing greenhouse gas emissions by reducing animal agriculture plays off the interests of ground nesting birds and farmers of the Pennines against the interests of those who want to see animal agriculture reduced or abolished in certain areas or in principle. Protecting both 'natural capital' and the capital of farmers is used to question calls for change. The alternative of 'importing all our food' is subsequently presented as an implausible, unethical option not merely because it implies food miles but also 'pinching food from people that are starving in sub-Saharan Africa' (RET2). If anything, the above sheds light on the thin line between an either constructive or destructive critique of the concept of sustainability. While other commentators on sustainability may claim that taking action is urgent or overdue, this reading rather suggests to withhold supposedly overhasty change.

7.2 Increasing Efficiency, Saving Practices

Following from the patterns in section 7.1, which exhibit aversions to change unless effected by consumer demand, this section further explores what this means for sustainability. It is argued that within the efficiency paradigm the possibility space for sustainability efforts is confined to efficiency improvements which maintain established practices, rather than reducing their output or banning them, even if they are unsustainable in absolute terms. By example of animal agriculture (7.2.1), food waste (7.2.2), meat and dairy substitutes (7.2.3), and bananas (7.2.4), the following subsections illustrate that at the heart of increased efficiency is saving established practices—rather than the world.

7.2.1 Saving Animal Agriculture

Next to consumer choice and the market, vegan and organic products, and the complexity of sustainability (see 7.1), there is a further category of comments which has to do with the efficiency of production and how the normality and necessity of certain practices is implicitly taken for granted by focusing only on *improving* a practice's efficiency rather than reducing it in absolute terms.

Asked in which way animal agriculture is a part of their sustainability strategy or their efforts, John says

'It's key, yes, we do a lot of work on dairy. We have four groups of dairy farmers working on efficiency targets. [...] I do try to make sustainability part of our supplier-based development. So, crudely, I want our suppliers to get better, so that they are more efficient or generating better new products for us but in an environmentally sensitive way, so that we do end up with sustainability as part of that conversation. But it's not the only part of that conversation.' (RET2)

Both the aim to improve animal husbandry's efficiency 'in an environmentally sensitive way' and the imperative to 'increase productivity', doing 'more with less' (RET2), resonate with claims from a paper John had co-authored (Dicks et al. 2013) in which the authors declare the need for an 'agriculture that makes efficient use of natural resources and does not degrade the environmental systems that underpin it, or deplete natural capital stocks' (ibid.: 3097). The paper published in the journal *Sustainability* is based on a group of practitioners from businesses or charitable organisations and environmental scientists who were supposed to define 'priority knowledge needs [...] they considered important for making agriculture more sustainable' (ibid.: 3101). These needs arise from

'emerging risks to food production from global environmental change, particularly climate change, risks to food security from increasing global population and changing dietary habits and the rising prominence of the sustainability agenda amongst consumers and in corporate governance' (ibid.: 3098).

While the question 'How can we develop a sustainable animal feed strategy?' (ibid.: 3104) ranks as the number one knowledge need, further knowledge needs—respectively ranking number 10, 18, and 23 out of a total 53—also concern livestock:

'Assuming a substantial increase in the demand for livestock products, what systems of production, and in which locations, have the least adverse effects?' (ibid.: 3105)

'How can we economically and efficiently provide sources of livestock feed protein?' (ibid.: 3106)

'What would increase the feed conversion efficiency/ratio of ruminants and monogastrics?' (ibid.)

All of these knowledge needs have in common that they concern the improvement of animal husbandry. In this specific context, *improving* animal agriculture not only inherently means that

the authors presuppose the sustained production of animal-sourced foods, but also that, in principle, they deem it compatible with doing agriculture in a *sustainable* way in spite of current or even increased levels of productivity. When I ask John in our interview why animal feed is seen as such an important knowledge gap, he says that it is

‘[b]ecause of the importing of soya. So, they import soya to feed dairy cows and chickens and pigs, to an extent beef. They don’t grow soya in Europe [sic], so they’re importing out of Brazil, and as you will know the land use change, the carbon costs of chopping out the Amazon is so high. So, there’s a [written?] piece there about other sources of vegetable protein to feed livestock, and it is a massive knowledge gap. Are there better ways to do it? Are there other things that we could do?’ (RET2)

As the search for better substitutes for feeding livestock indicates, saving the Amazon, whilst presented as desirable, is only considered as long as the output of the productive apparatuses around cattle, chickens and pigs is maintained. With deforestation being presented as an unsustainable practice, it is important to note that Dicks et al. (2013: 3109) expect the

‘[g]lobal demand for livestock products [...] to continue increasing for at least the next three decades. Both demand and production increases in livestock products are expected to derive largely from the developing world, where eating habits and wealth are changing rapidly’.

In this regard, demand is not only treated as an unswayable, natural dynamic of the market but the appeal to increase animal agriculture’s efficiency also reveals the authors’ underlying assumption that meeting a certain demand, rather than just an option, is an imperative—if livestock products are demanded, they will have to be supplied. Thus, within that rationale, the only leverage the supply-side has in terms of sustainable development is improving their *ways* of supplying for that demand rather than changing *what* is actually supplied. Treating the demand itself as an object of political intervention is excluded. This explains why the efficiency of animal agriculture ranks so high among all the knowledge needs.

7.2.2 Saving Chicken (Food Waste)

Seen from a more social rather than an economic angle, the ‘efficiency paradigm’ (Zachmann 2012) promises that living standards and social norms and practices can be maintained—no need to eat less meat and dairy, drive less cars, consume less electricity if all of this is substituted by its “improved” versions which allow for identical social practices with different technological means. Both the interview at a big retailer with John (RET2) and my participant observation at a branch of *Asda* in Manchester illustrate the ways in which actions towards sustainability are usually framed solely within the confines of maintaining consumer practices.

Foodscares created by marketing, for example, often promise easy solutions for more or less serious problems. In *Asda's* free magazine *Good Living* (Asda 2017c), obesity is not framed as an issue of sustainability and public health; rather, as one of a mother's appearance and well-being. The way in which *Asda* advocates for *Slimming World*, a dietary programme to which they offer matching ready meals, illustrates both the promise and expectation that significant material changes—here to human bodies—can be made without giving up one's routinised practices:

‘with just a few small changes, I could still enjoy fish and chips or chilli - and have a glass of wine’ (ibid.: 82).

Only small and barely perceptible changes to current behaviour, we are told, are necessary to achieve significant improvements. A similar example is how *Asda* frames food waste in an article about families who ‘fessed up about all their bad shopping habits – how much food they *really* binned every week’ (Asda 2017b: 29; italics original) and then realise that ‘[s]omething had to give – but how do you change the habits of a lifetime?’ (ibid.: 30). Adjacently, cooking tips on how to avoid food waste are provided by example of a roast chicken. *Asda's* ‘top tip’ is

‘Don’t bin the chicken carcass once you’ve picked off the meat. Slow and low simmering of the bones will give a flavourful stock [...] Add shredded leftover chicken and loads of veg for a hearty supper’ (Asda 2017a: 33).

In any food waste debate, wasting meat seems to be particularly delicate. It does not really matter here whether that is due to its origin from a living being or because even in times of factory farming meat is still relatively expensive (at least in comparison to basic grains). Rather, the point here is about the constitutive exclusion that is inherent to the attempt not to waste meat. Whether the need for action is seen on the production or consumption side or both, the main concern in food waste debates is usually about not wasting the food that somebody produces, retails, or purchases. The question *what kind of* food is produced, retailed, or purchased in the first place appears not to matter. Chicken, in the example of *Asda*, enters the stage of the food waste debate as something that is always already produced. Because the chicken's coming into being—its breeding into existence and its eventual slaughter—is taken for granted, the scope of possible improvements is confined to not wasting that chicken meat.

Social-ecological matters, however, such as the high land use or carbon footprints of animal products are not taken into account (see 1.1). For example, the feed conversion ratio—input (feed) divided by output (food)—reveals that chickens can only turn half of the feed into actual food (2 : 1) which is quite a loss, although in comparison to pork (3.6 : 1) or beef

(18.5 : 1) it is still relatively favourable (de Ruiter et al. 2017: 75). What remains invisible whenever vegan food is referred to as ‘plant-based’, is that, due to its feed conversion ratio, chicken is plant-based times two. In fact, all animal products are inherently plant-based—and, what really matters, *multiplicatively* so (see 9.2.2).

By ignoring these materialities of sourcing animal foods, debates about food waste confine the scope and definition of ‘waste’ to currently existing products and supply chains. Change is welcome but only within the confines of the status quo of food practices which remain unquestioned in their very being. In the efficiency paradigm practices are socially fixed, so the room for sustainable development lies within improving carnist food practices rather than letting them go.

7.2.3 Saving Culinary Culture (Meat and Dairy Substitutes)

The incapacity or reluctance to interfere with consumers’ shopping experiences and their actual food practices, is not merely reflected in the focus on an improved animal agriculture. The power of practices also resides in substitutionism. As John says, reducing meat and dairy is ‘a conversation’ at their company, and ‘[i]f people want to buy those options that’s fine and we’ll sell them to in a day’ but ‘I don’t believe that science [which promotes absolute reductions of animal-sourced foods] is properly thought through’ (RET2). The term ‘those options’ suggests that, when talking about vegan food practices, he does not tend to think about unprocessed vegan foods such as grains, vegetables, fruits, nuts, beans, pulses, or mushrooms. Rather, what seems to come to mind first in current debates about veganism are meat and dairy substitutes. Providing a special vegan ‘option’ evokes that meat or dairy products at least need to be replaced with a look-alike and taste-alike substitute, so that the consumer experience, again, remains the same or is at least meant to be comparable.

Considering the materiality of substitutes, however, a purely plant-based look-and-taste-alike is still different. Inherently, it neither involves slaughtering domesticated animals nor feed conversion, and the latter explains why the environmental ‘impacts of the lowest-impact animal products [e.g. chicken] typically exceed those of vegetable substitutes’ (Poore & Nemecek 2018: 987), but whether substituting is progressive or regressive towards the aim of absolute reductions of actual animal products is still a tricky question.

From a perspective of culinary culture, substitutes illustrate and are a symptom of the dominance of carnist food practices, and they might feed into what Cole and Morgan (2011b: 144) call the stereotype of ‘the hypocritical vegan who is vulnerable to the temptations of nonhuman animals’. Ultimately, for substitutes to make a significant difference towards

sustainability, consumers of substitutes have to outweigh those carnist practitioners who, due to the perceived hypocrisy in substituting, feel reconfirmed in their consumption of actual meat (see Rödl 2018 for an account of how a rise of meat alternatives legitimises the practices and norms established by meat culture).

A more profound turn than just having vegan ‘options’ would indeed require challenging in a more venturesome and dedicated manner not only the powerful symbolism of carnist food practices, but also how they have appropriated palates. A radical departure from carnist culinary culture in practice means getting ‘tuned’ to grains, vegetables, fruits, nuts, beans, pulses, or mushrooms and enjoying them for their own sake, not only when they are processed to resemble meat (see how Carolan 2011 addresses bodies being ‘tuned’ to ‘global food’).

Since any radical turn away from a practice embedded in norms and routines can cause upheaval and reactionary resistance, substitutionism is an intermediary between subversion and submission. Substitutes are materially different and yet still in line with the efficiency paradigm that aims at improving rather than replacing a practice insofar as they do not fully challenge carnist culinary culture and its practices. As they have a lower social-ecological impact (no slaughter, no conversion losses and related ecological consequences), their difference is significant but the need for them to resemble meat and dairy obviously requires work and resources which keep their environmental impact on a certain level. The energy requirement inherent to substituting, i.e. processing costs, is a *physical* boundary that can only be crossed by making a *social* change to practices (see 1.1 and Appendix A.2.3). Giving up the symbolic remnants of carnist food practices altogether—the social not physical need to substitute—would be a full material-discursive shift from efficiency towards sufficiency.

7.2.4 Saving Bananas

Aside from animal foods or their substitutes, the example of bananas shows a similar imperative to always maintain a practice once it is established:

“Ten years ago food miles was the issue. It’s all about “buy it local, buy it local”. And then people were “Well, hang on a minute: if we do that, it means having bananas in greenhouses in the UK”, and that means huge amounts of energy to heat a greenhouse which is stupid, and it means also that people in the Caribbean and in Central America lose an income source. Is it better that we burn that diesel – which is quite low – on a ship taking bananas to the UK from Belize or building a greenhouse in Scotland? And people were like: “That’s nuts!” The answer is take the bananas out of Latin America, provide those people with an income and support, drive their economies, and make possible a broader conversation. And I think that’s

the danger in some of the people's solutions on this, they are "Oh, *this* is the answer!" – it never is, in my experience' (RET2).

While the production of bananas is clearly associated with sustainability problems in John's comment, the practice of eating bananas is nonetheless taken for granted which, again, points to the routinised and normalised nature of practices and marks their social boundary. Trying to challenge any tendency to essentialise that boundary, my subsequent question is suggestive of how that boundary could be crossed and aims at giving an impulse for considerations that deviate from the practical routine:

'And how would you position yourself towards more regulation? I mean, the alternative in the banana example would be to also reduce the amount of bananas eaten.'

John responds that

'It depends on what regulation is. Is the regulation going to be reducing carbon? – which is fine – in which case don't eat bananas! Or, is the regulation [about] find[ing] some other ways to do it: put bananas back onto sail boats. But realise that that would create another dynamic in the market because of the costs associated with having sail boats! You know, nothing is without a consequence. And, to be honest, I don't really see how regulation will work because the market is moving so quickly. Regulation really is coming behind and just making sure that things are cleaned up' (RET2).

While not eating bananas is a clear departure from the practical routine, John deals with this option quite briefly to revert quickly to another one—sail boats—that, again, saves the practice of eating bananas. Materially, however, having sail boats is quite a radical departure, not from a culinary perspective but in the sense of entailing a departure from the practice of using fossil fuels for help. 'Nothing is without a consequence', as John mentions, and there would be 'costs associated with having sail boats' which is an important point as it illustrates how each practice involves costs. As their aim is maximising profits, capitalist economic practices encourage companies and consumers to externalise, rather than bear, the costs of productive processes. Externalised onto others—humans, domesticated animals, wildlife, and ecosystems—these costs entail ethically challenging problems of social-ecological unsustainability. Efficiency gains may reduce these costs, but as they are inherently meant to maintain a given practice, rather than radically deviating from it, the costs associated with the physical, material, and agential realities of that practice never completely disappear. After all, the windows into the realm of agential possibility and more radical practices which were opened in the above comment (i.e. restricting banana consumption or using sail boats) turned out to be rather volatile and were eventually closed by falling back to the logic of the invisible and impenetrable hand of 'the market' that 'is moving so quickly'.

Thus, at the heart of the efficiency paradigm is the prevention of consumer and producer hardship by protecting sacrosanct practices against more than incremental changes. It appears

that denying consumers their alleged “human right to demand” and to engage in an established practice is regarded as “inhumane” and cannot be expected of a profit-oriented corporation with its alleged duty and/or right to provide for whatever the demand. In their vital role for the culinary experiences of consumers, practices are rendered as untouchable. Humanism protects humans from bearing the production costs of their own practices. As a result, the material-discursive boundaries of sustainability revolve around human-centred social convenience, rather than ecological-ethical considerations. Room for sustainable development is confined to increasing the efficiency of normal(ised) practices, whereas sufficiency (see Appendix A.2.3) and the possibility of normalising novel practices are disregarded. Within capitalist economic practices, the “free” market (selling products “free from” gluten, dairy, meat—anything), surely, is relentless. Free from genuine ecological-ethical considerations, it stocks everything; but while still so few humans as a species of producers, consumers, and institutions are willing to actually pay for sustainability—pay with currency and practical hardship—‘nothing’, as we learn, ‘is without a consequence’. As the footprint of carnist food practices is so big, in one way or another everybody—human or nonhuman, carnist or vegan—pays for carnist food practices. In terms of sustainable development, improving these practices is not equivalent to reducing them in absolute terms. No matter how tempting the illusion, efficiency alone is not enough for enacting significant changes.

7.3 The Boundaries of Sustainability in Dairy Farming

Promoting themselves as ‘made from nature, by nature’, *Manor Farm* in South West England (see also 6.2 and 8.2.1) are both a dairy producer with 1,000 cows of their own and a cheese dairy that processes milk from about 150 suppliers. Their cheese is sold at big retailer chains such as *Tesco*, *Sainsbury’s*, *Morrisons*, and, for example, at *Asda’s* branch in Hulme, Manchester which I was examining over the course of this research project. In an advertisement, *Manor Farm* claim that ‘taking care of our cows, the local area, and caring for the environment, is at the heart of what we do. It’s something our ancestors would be proud of as well as our children’. This section summarises how the boundaries of sustainability are drawn in this foodscape and which role these boundaries play for their material-discursive practices of both farming and marketing.

On my tour through their biogas plant, visitor centre, and cheese dairy, my interviewees stress the importance to

‘think from a food sustainability side because the big driver for selling cheese and other things that a lot of consumers like is our 100 per cent green side of the business [...] The two big things that drive everything to do with our business is the heritage of the family history and then the sustainability side [...] that we are [...] family farm house cheese maker[s], and the fact we’ve got renewable energy, we work with the environment’ (FAR1)

Not only do *Manor Farm* themselves care about these aspects, sustainability and heritage are also referred to as ‘a unique selling point for the business’ and a ‘massive selling tool’ (FAR1). As that strong consumer demand for ‘sustainable’ products was highlighted more than once, I ask them about organic food production as a sustainability debate. While they do process dairy from organic farming for *OMSCo* (*The Organic Milk Suppliers Cooperative*) and *Yeo Valley*, the dairy from their own cows is not organic because:

Nancy: ‘I don’t think there is so much of a demand for it.’ (FAR1).

Matt: ‘One, is the [lack of] demand for the product. And, two, we have at the moment just over a thousand cows ourselves and we need to turn over the land fast enough to basically feed them [he chuckles] throughout the whole year, and [...] to go organic you have to have something like two years of not selling that crop as organic [...] and that would be a long time without no kind of real benefit from it’ (FAR1).

According to Nancy, their impression of a lack of demand is backed up by research that

‘showed that more and more people are interested in being more sustainable than they’re [interested in] organic which was interesting [...] but not many people tend to buy organic now [...] people are interested when I say our cheese is made from renewable energy’ (FAR1).

There is a boundary drawn here between sustainable and organic. While it remains unclear whether Nancy herself supports this separation, her comment suggests that customers either see organic as not belonging to debates about sustainability (see 7.1.2) or that they just disregard it because they are more attracted by other aspects of sustainability such as renewable energy. Either way, for *Manor Farm* the lurking decline of profits is enough not to pursue organic farming practices for their own cattle, and they obviously base their claims to be natural, green, and sustainable on something other than organic. As Matt explains, they have got

‘solar panels and that allows the farm to become partly self-sufficient [...], and when we [...] have a quick drive around the cheese dairy, we’ll explain to you the different things around there to make it sustainable, and basically we’ve used the least amount of energy possible, and used the least amount of water possible, and to be able to recycle and stuff like that’ (FAR1).

In their brochure on climate resilience, the big British retailer interviewed for this thesis (see RET2) provide a similar summary of their supplier's sustainability achievements. As the 'largest independent cheese maker in the country', *Manor Farm* 'has built an on-site biogas plant, installed solar technology, reduced packaging, set up a waste water recycling system and uses electric vehicles to reduce its impact on the environment', it is '100% self-sufficient in green electrical energy', and has built a visitor centre for 'passing on knowledge and helping others to be more sustainable'. Being *more* sustainable rather than sustainable is suggestive of big retailers' framings of sustainability within the efficiency paradigm in which that which gets declared as 'sustainable' is not necessarily sustainable in absolute measures (see Appendix A.2.2, see also 7.2). Rather, even the slightest relative improvement to the unsustainable status quo gets generalised into the realm of "good", sustainable practice. In other words, what makes *Manor Farm* 'sustainable' within the efficiency paradigm is their long list of technological and behavioural improvements and their relative superiority over a majority of ordinary farms. What is excluded from mattering, however, is whether the footprint of these improved practices is sufficiently small to be 'sustainable' in absolute terms. Representative for this is how *Manor Farms* does actually pursue some practices that at least resonate with organic agriculture's absolute restrictions on the use of synthetic fertilisers and pesticides:

'before the biogas plant was built [...] there was a lot more artificial fertilisers added but the move to digestate and putting that out on the land has allowed us to not put cow slurry on the land because that goes in the biogas plant [...], and it allows us to reduce the amount of artificial fertilisers [...], and that's a big pro' (FAR1)

Similarly,

'If you plant a crop like maize it's very intensive [...] maize these days is classed more as an energy crop. Less of it is being used to feed animals and we've wanted to move towards more sustainable crops—crops that don't need as much fertilisers, [and for] maize you need to apply a lot of pesticides [...], so there is negative impacts from that' (FAR1)

Whilst, from a sustainability perspective, the problematic role of synthetic fertilisers and pesticides is acknowledged (see also 8.1), *Manor Farm* compromise on sustainability insofar as they reduce these "bad" practices in relative terms only. Although this may allow to speak of an improvement *relative* to ordinary industrial farming, it is hard to justify the *absolute* language that *Manor Farm* use in their marketing which suggests their level of sustainability/naturalness is at '100 per cent'. For example, an encounter with residents of a nearby village illuminated something about *Manor Farm's* practices that did not arise from the interview. When I asked the locals about my observation that the pastures on *Manor Farm* appear unnaturally green, consisting purely of grass, and devoid of any wild flowers or weeds, a couple, perhaps in their 50s, claimed this is due to *Roundup*, a pesticide by *Monsanto* that *Manor Farm* supposedly use.



Figure 10: Manor Farm Vintage Cheddar on a shelf at Asda, Hulme, Manchester (source: SH)

They also said *Manor Farm* overuse the soil, deplete its fertility, and, in turn, use synthetic fertilisers and pig slurry. They had observed that, in consequence, the fields would turn orange. Although, according to Matt, *Manor Farm* do no longer apply pig slurry directly as they use the digestate from the biogas plant, this does not exclude that pig slurry is or was purchased as a ‘liquid feedstock’ (FAR1) for the metabolic process that yields both biogas and the digestate used as fertiliser. The local residents also referred me to an article in the *Daily Mail* that condemns the ‘appalling conditions’ in a piggery providing slurry to *Manor Farm*.

While the above illustrates how controversial the boundaries of “good” farming practices can be, it is worth having a look at *Manor Farms* marketing and the symbolic boundaries of sustainability. Considering that, in the interview, on their website, and on their videos, they strongly highlight sustainability and depict it as a ‘massive selling tool’ (FAR1), it is all the more striking that this is not salient on site, where most consumers meet the product. In the supermarket, their cheddar is marketed as part of *Asda*’s ‘extra special’ range and by attributes of value such as ‘vintage’, the Union Jack printed on it, and its regional origin from South West England (see Fig. 10). Remarkably, nothing on the packaging relates to naturalness, greenness, ecological sustainability, or energy efficiency and self-sufficiency. Similarly, at a branch of *Morrisons* in Chorlton-cum-Hardy, Manchester, the brand is simply promoted as

‘Somerset Cheddar Crunch £2—Made at the [Manor Farm] creamery to a specially selected recipe to give a sweet and nutty flavour with a crunchy texture.’ (see appendix)

This section looked at the ways in which the boundaries of sustainability are drawn via material-discursive practices within a foodscape that by definition involves domesticated animals. Not surprisingly, the sustainability strategy revolves around the energetic efficiency of farming practices and technologies, rather than the energetic inefficiency that animal husbandry *inherently* entails. However, the controversies about the use of fertilisers and pesticides showed that their self-identity as ‘100 per cent green’ implies constitutive exclusions that sideline sustainability practices such as organic farming. Another important observation is that this green identity is largely absent from the shops. Is it perhaps the controversial nature of sustainability as a challenge to normal producer and consumer practices that makes it unsuitable for representation in situ? Within the efficiency paradigm, sustainability is confined to improving not reducing or stopping production. This is to maintain consumer practices and producer profits. While this renders consumer choice as sacrosanct, it is rather questionable how well *Manor Farm* is ‘passing on knowledge and helping others to be more sustainable’, as *Asda* claims about them (App. B.1.1: AS021_01: 7).

If those practical improvements are sidelined where and when they should be considered as most needed, how are consumers supposed to make “*more*” sustainable choices? Let alone sustainable choices in absolute terms...

7.4 Conclusion: How ‘Getting Better’ Saves Practices not the World

This chapter addressed what role an efficiency key to sustainability plays for carnist food practices to persist. Drawing upon retailer and producer perspectives on sustainability, material-discursive patterns were disclosed which illustrate how the boundaries around veganism and carnism are drawn. It is found that efficiency enjoys great popularity to improve practices towards a “sustainability” on the distant horizon, whereas no significant attention is paid to either the *remaining* footprints of those improved practices or the possibility of reducing practices in absolute rather than relative terms.

The first section (7.1) exhibited a big retailer’s rationale by which meeting a certain demand is not merely depicted as an option but an imperative. Treating consumer choice as an object of political intervention towards sustainability is thus excluded. What sustainability itself encompasses appears mostly dictated by external forces such as “the market” and “the consumer” rather than within a retailer’s possibility space. Emphasising sustainability’s complexity equally rids retailers of their responsibility to act on *what* they offer or not. Within that rationale, both vegan and organic products, including the question how sustainable they are, were presented as a mere matter of consumer belief—dematerialised and depoliticised.

As sustainability problems challenge the sanity of established practices, increasing efficiency helps producers and retailers to appear proactive while sanitising and saving those practices (7.2). Hence the paradoxical situation in which vegan food practices are regarded as not even belonging into the sustainability debate, on the one hand, and increasing animal agriculture’s feed conversion efficiency being presented as a major knowledge gap in sustainability research, on the other. *Asda’s* tips on how to use a chicken carcass efficiently illustrate that conventional food waste debates take the existence of the products and thus eating practices for granted and ignore the materiality of production, including the *wasteful* negative feed conversion ratio of animal-sourced foods. In the efficiency paradigm, practices are socially fixed. Therefore, room for sustainable development lies solely within improving carnist food practices, rather than cutting down on them.

The final section (7.3) showcased *Manor Farm* who, due to a list of technological and practical improvements, call themselves ‘100 per cent green’, but whilst this is depicted as a ‘massive

selling tool', none of it turned out to be advertised in supermarkets or on the packaging of their cheddar. Heralded by *Asda* as 'helping others to be more sustainable', *Manor Farm* bizarrely leave consumers alone to make “*more*” sustainable choices—not to mention sustainable choices in absolute terms.

This chapter showed how sustainability is confined to improving unsustainable practices instead of reducing or stopping their production. Exalting consumer choice, increasing efficiency, and sanitising practices from being disreputable—all these material-discursive practices work together in order to maintain consumer practices and producer profits. Whether the footprint of improved practices, the carnist apparatus in particular, is sufficiently small in absolute terms is granted no significance. Even in times of climate change and mass extinction it appears unconcerning that the world's destiny, once again, lies within invisible hands.

8. Vegan Organic: An Emerging Food Practice

By indicating differences to conventional and organic agriculture, this chapter outlines the boundaries of the vegan organic production standard. The materiality and meanings entailed by this emerging practice shatter the established boundaries of both organic agriculture and vegan culinary culture.

The first section (8.1) sketches vitally and lethally important differences between conventional, organic, and vegan organic production practices. A narrative about the origins of the *Vegan Organic Network (VON)* illustrates why and how this network and their growers omit the various forms of industrialised killing developed over the course of the two world wars and (still) intrinsic to both conventional and organic agriculture.

Subsequently, the focus will be on differences between humanist and posthumanist practices in agriculture. A conversation about the lives and deaths of dairy cows and badgers illustrates how producers of ‘vegetarian’ cheese foreground human(ist) concerns and obscure the ecological and social harm animal husbandry entails. By contrast, vegan organic agriculture is based on visibilising and making use of the intra-acting human and nonhuman agencies necessary for producing the closed nutrient cycles of an ecologically and socially sustainable stockfree food production (8.2).

Finally, the material-discursive practices of vegan organic agriculture outlined in the previous sections are complemented by reflections about tensions arising with other practices. Whilst from the perspective of organic standards, synthetic or chemical agriculture is often referred to as “conventional”, the vegan organic movement creates a new impetus that renders the established organic standards also as conventional because they in one way or another involve animal husbandry. This challenges not only the use of domesticated animals in ‘conventional organic’ standards but also how food regulations define agricultural crops such as carrots as vegan *per se*. By tying veganism to the question whether animal by-products are excluded in the production, vegan organic practices constitute veganism as a relational process rather than an individual property (8.3).

The chapter concludes that vegan organic’s processual outlook, its visualisation of wider dimensions of materiality in general, and veganism in particular, is a chance for the human-centred gaze which informs current food practices to give way to a posthumanist one able to respond to anthropogenic climate change and mass extinction (8.4). This deeper engagement with the boundaries of veganism leads me to suggest a sociological framework in the discussion chapter of this thesis (see 9.3.2) which (re)conceptualises veganism relationally as *vegan food practices*. Conceived as performative practice, they can be performed not only by

vegans but by anyone, that is, regardless of one's moral identity as a vegan, vegetarian, or carnist and one's moral economy as a producer, retailer, or consumer. This may rid veganism of some of its dogmatic connotations.

8.1 Omitting Fascist Food Practices: Blood and Soil

In its ideology of “Blut und Boden”, Nazi Germany's racist discrimination (“Blut” = blood) is connected with its willingness to kill for either “territory” or “soil” which both are valid translations of “Boden”. This section draws on an interview with David Graham, a man in his late eighties and one of three founders of the *Vegan Organic Network (VON)*, who discloses not merely analogies but actual synergetic entanglements between conventional farming and industrialised mass killing of both human and nonhuman beings including the life of the soil. Whether the agencies of pesticides, synthetic fertilisers, and animal fertilisers are used or rejected marks vitally and lethally important differences between three agricultural and culinary practices (an illustration of this can be found in section 8.3, figure 11):

- conventional
- organic
- vegan organic

David has worked in agriculture but regards himself much more as a ‘generalist’ (VON1) staying in touch with a broad network of growers and vegan advocates. In the 1970s he was a sociology student at the University of Manchester, and as part of a group of ‘old-fashioned anarchists and socialists’ (VON1) he had occupied 176 Waterloo Place in order to open a vegetarian café which, curiously, is the house next to the one in which I am writing these lines (the Sustainable Consumption Institute is based in numbers 178 and 188). When I conducted my interview with David on 15th December 2017 (see Tab. 2, VON1), I had already been in contact with him, his wife, his son, and other *VON*-members for about a year. I had participated in *VON*'s working group meeting on 4th February 2017, went to a few vegan fairs organised by *VON*, and helped out on their stall at the *Northern Green Gathering*, an eco-festival which took place on the land of *Bradley Nook Farm* (see 4.1.1). So, in contrast to other people I have interviewed, David and I were familiar with each other, and my questions were already informed by previous experiences such as my interview at *Bradley Nook Farm*—a case David had introduced me to.

One of the standard questions to ask my interviewees was to define “good” food. For David, it means food must be ‘satisfying both physically and psychologically’ (VON1) which is more

than an abstract frame as this section and the following ones will reveal. On a very general basis, the psychological qualities of good food require ‘that food omits the killing element’ (ibid.), whereas the physical aspects imply not only that good food is healthy to the body but also ‘that the food is produced through the health of the soil’ (ibid.). In fact, the whole concept of vegan organic production and consumption largely revolves around killing neither domesticated animals nor the life of the soil. But before going into the physical-psychological and material-discursive details of vegan organic standards of living and producing (8.2.2 and 8.3), the following paragraphs illuminate the historical foundation on which *VON*’s values and practices rest.

For David, advocating vegan organic agriculture is embedded historically insofar as the development and use of synthetic fertilisers and pesticides as well as the role they played in the horrible mass murders of the 20th century continue to be relevant in the present. Both the origins of *VON* and the reason why it is so ‘important that food omits the killing element’ (VON1) lie in David’s ‘own family experiences particularly during the Second World War’ (ibid.). As he specified, the reason why they started *VON* is

‘a very personal thing, and [has to do with] what happened to us, particularly with Zyklon B [...] Zyklon B was a development from Fritz Haber [...] who catalysed nitrogen from the air, right? And it is now the main element of nitrogenous fertilisers. Well, an offshoot of that was Zyklon B which was used in the concentration camps. [...] that’s the sort of much more, you know, personal about the origins of *VON*, if you like. So, from an animal point of view we don’t want to be involved in killing. [...] We don’t want to be involved in the unnecessary use of animal fertilisers. There’s no need for the emissions by cows, and we can grow food healthily, economically, sustainable, and ethically without all that.’ (VON1).

Used by the Nazis to murder millions of people in extermination camps, the cyanide-based pesticide Zyklon B was patented by the corporation *Degesch* (*Deutsche Gesellschaft für Schädlingbekämpfung*) in 1922 and distributed to Auschwitz and other camps through its firms *Testa* and *Heli* between 1942 and 1944 (Kalthoff & Werner 1998). *Degesch* was initiated in 1919 by chemist Fritz Haber (ibid.: 26). At least retrospectively, the corporation’s name, which translates to *German Society for Pest Control*, sounds quite cynical considering that Jews, Slavs, Leftists, Disabled, Sinti and Romanies, Homosexuals, and other minorities were first dehumanised to then be exterminated like a pest. David draws his values and political attitudes, in particular his resolute objection to any form of killing, from the Holocaust. What, with his family being affected, he calls a ‘personal thing’ in the quote above should not lessen the fact that elsewhere he highlights ‘the feminist slogan “the personal is political”’ (Graham 2016: 9 in Growing Green International, No. 37). Zyklon B was developed for industrialising agriculture but it also became the chemical agent that enabled an industrialised form of murder. It may or may not come as a surprise that Zyklon B, then under the name of

Cyanosil (ibid.: 215), was a licensed plant ‘protectant’ in Germany until 2001 (BVL 2018). *Detia-Degesch*, the corporation that continued to produce the pesticide after the war, today depicts its own role as resting upon life-affirming principles. With its (historically unchanged) focus on vermin extirpation, that affirmation of life is now humanist inasmuch as it is dedicated but also confined to recreating human life:

‘Feeding the constantly growing population of our planet is one of the greatest global challenges of all. The planting and harvesting of crops for food production is one side of the coin only. Just as important when it comes to ensuring world food supplies are efforts to prevent outbreaks of plant diseases, control agricultural pests and protect stored products effectively. It is our privilege to contribute to the protection of food supplies worldwide. This task inspires us and gives us a special sense of responsibility.’ (Detia-Degesch 2018)

Undoubtedly, the shift from the most inhumane use to a humanist concern for feeding the world appears like a radical one. Meanwhile, the agency of the chemical, the work it is able to do, largely remained the same. As the issue of global food security and the use of pesticides adumbrates, the relation between Zyklon B and *VON*’s approach is about more than just an objection against killing humans and domesticated animals—from a social-ecological perspective, it is more broadly about the element of killing that unsustainable practices entail.

Zyklon B’s developer Fritz Haber, who had already helped to invent chemical weapons for the First World War (Kalthoff & Werner 1998: 11), is important to this relation because his research also revolutionised agriculture by introducing fossil fuels into the nitrogen cycle that maintains soil fertility (Smil 2011). As most of today’s food production relies on synthetic fertilisers, David highlighted the need to be ‘very much aware of the origins of fertilisers, especially the Haber-Bosch process that is still used in the production of food’ (VON1). With a 99 per cent share of all existing methods in 2010, the Haber-Bosch process, since its commercial introduction in 1913, became the most common way to synthesise nitrogen from the air (Smil 2011: 13). Energised with fossil fuels, today mainly gas but also coal (ibid.: 12), the process is a major cause of greenhouse gas emissions. As David noted (VON1), another detrimental ‘cost of synthetic fertilisers’ which together with pesticides form what he calls ‘chemical farming’ is the ‘loss of top soil’ that this agricultural practice entails. While he acknowledges that in relative terms ‘chemical farming does feed 90-plus per cent of the population’ (ibid.) and in quantitative terms it feeds ‘enormous populations’ (ibid.), he disapproves that its

‘external costs are never taken into account [...], for example the run-off, the pollution, the enormous costs of converting nitrogen in the air [...] into an actual fertiliser that is used [...] Organic farming, whether it’s conventional organic or vegan organic, can equally feed the people. The cost of synthetic fertilisers is the loss of top soil which is absolutely enormous, and you’d have to check up on this but I believe it takes a thousand years to produce one centimetre of top soil, and the top soil is being

eroded at such a pace that [...] every year synthetic fertilisers have to be increased in order to maintain the undoubtedly huge crops that they do produce. [...] I think you'll have a very hard time trying to convince organic farmers that [...] the nutrients in the soil can be maintained by chemical farming when it appears to be an absolute fact that the top soil is being lost. And with organic farming, the top soil, the top six inches or so, is being replenished.' (VON1)

Although *chemical farming*, along with unwanted pests, weeds, and fungi, kills off the microbial life of the soil including worms that would normally replenish soil fertility, it is able to produce food because of synthetic fertilisers' capacity to make crops grow even if the soil is made relatively inanimate. The cycle of nitrogen (or other nutrients) works *as long as* there are fossil fuels available to synthesise fertilisers and pesticides. What, from a humanist perspective, was inhumanely used by fascists in the past may be deemed vital and humane today but it will be lethal and inhumane tomorrow as this practice—leaving behind desertified soils and foodless people—is not sustainable on long-term and thus not an actual cycle. Taking a rather posthumanist and social-ecological stance, David also mentions 'the cost of killing off wildlife from his [the synthetic farmer's] poisonous sprays' as well as 'the cost of the emissions from his animals' (VON1).

By rejecting synthetic fertilisers and pesticides, *organic animal agriculture* (at least in theory) fulfils the requirement of maintaining animate soil but in terms of the fates of domesticated animals it does not 'omit the killing element' (VON1). The same applies to *organic crop production* as the nitrogen and nutrient cycle is usually maintained with animal fertilisers such as manure, blood-meal, bone-meal, or horn-meal (VON1; see also Schmutz & Foresi 2017).

The vibrant and lethal agencies of Zyklon B and the Haber-Bosch process in conventional agriculture but also animal fertilisers in organic agriculture help understanding how uniting 'vegan' and 'organic' in our agricultural and culinary practices, for *VON*, is a way to omit consistently the ongoing killing of human, domesticated, and wild animals as well as the life that *is* soil and that is able to maintain so much life on Earth.

8.2 (Post)Humanist Intra-Actions in Agri-Culture

Approaches to *doing* agriculture diverge insofar as the position of humans in it ranges from a god-like role over and above the productive process to being a part of the eco(productive)system in which food is created.

In the section on humanist encounters (8.2.1), the focus is on agricultural practices in dairy farming and how they constitute the lives and deaths of domesticated and wild animals—dairy cows and badgers. It is illustrated that despite of close intra-actions with and

expressions of care by farmers for nonhuman animals, the material-discursive practices in farming are not merely anthropocentric but the ecological and social harm they cause is also obscured. What I call posthumanist encounters (8.2.2), subsequently introduces the agencies of specific plants, human manure, and not-quite-dead bodies. Highlighting their actual and potential roles in creating sustainable food practices with closed nutrient cycles, vegan organic growers illustrate the importance of sustained intra-actions with nonhuman agencies for the productive process that is agriculture.

Both sections illustrate how humans position themselves towards, intra-act with, and respond to nonhuman agencies. Whether a humanist or posthumanist stance is taken, the different ways matter in view of the ethical-environmental crises which the currently predominant practices of food production entail.

8.2.1 Humanist Encounters: Retiring Cows and Bad Badgers

This section illustrates how talking about vegetarian values can challenge humanist views on farming and human-animal-relations. When I ask what is “good” food for them, Nancy and Matt of *Manor Farm* (see Tab. 2, FAR1) mention consumers’ raised awareness about local and organic food as well as the need to support farmers but also that ‘in more recent years more people have moved becoming vegetarian’ (FAR1). My following question, ‘What does it mean for a dairy farm that more people become vegetarian?’ (ibid.), eventually leads to a conversation about the moral issue of slaughtering farm animals.

Having vegetarian customers, Matt says that ‘maybe vegans are a different kettle of fish but I think vegetarians, we’re fine [with them]’ (ibid.), and Nancy explains that whilst ‘some cheese makers around here use pork rennet’ (ibid.), their own cheese is made with vegetarian rennet. For passing as vegetarian, in this definition, the cheese itself and the process of its making have to be free from any animal derivatives except for milk. Although it remained implicit in the comments, vegetarians, at least those who reject meat for *moral* reasons, undoubtedly abjure from animal rennet because they disrelish the slaughter it involves. However, if avoiding the death of farm animals is at stake, what matters next to the question of animal derivatives is what happens to the dairy cows. In the interview, I then initiate a question presupposing that ‘it is a normal practice that the cows are also slaughtered’ as it is a matter of ‘profitability that the cows are still used for meat production’ (ibid.). Although Matt and Nancy do not directly respond to my subsequent request how expensive a cheese would be if the cows were not slaughtered which, as a question, is presumably too far off familiar debates,

their answers are nonetheless revealing about the moral challenges animal farming entails.

Matt claims that

‘the only slaughtering that happens with a dairy herd [is that] they will have the female cows, and they will have a bull in, and they will then produce the calves, and you hope that the calves—the majority of calves that come from that mother—will be female cows that will go on, and they will add to the herd, and as cows die of old age then these young calves will replace them. But you’ve got bull calves as well.’ (ibid.)

Hoping for the calves not to be male, Matt expresses care for the cattle insofar as the females are presented to live out their lives rather than facing slaughter. Surprised by that claim, I enquire whether cows really die of old age to which Matt replies

‘Well, they do retire, we do retire old milking cows. I think when they are retired first, they are retired here at [Manor Farm] but then I do think they are passed on—but I don’t know—passed on to other people [...]’ (ibid.)

The meaning of ‘retiring’ here seems to oscillate between the anthropomorphic analogy that cows go into retirement to enjoy their evening of life without working, on the one hand, and a more utilitarian sense of taking something out of service, on the other. While the first meaning seems to draw from what most vegetarians would wish for the dairy cows, the second one seems to lead to what actually happens when they are ‘passed on’. But as Matt expressed not being entirely sure about the old cows’ fate, Nancy steps in to make a point about bovine tuberculosis (bTB or TB):

‘a lot of farmers around here have been affected by that. Obviously, if their cows have gone down with TB and when they then test it, some of the cows are then slaughtered. [...] So, if they come down TB, they don’t have to be slaughtered. But I don’t know what happens once the cow is retired. I mean, we can find out [...] I mean, vegetarians email us and find out how we look after our cows and whether they’re out on the field during the spring-summer time, and “Do they eat silage?”, that sort of thing, but they have never asked us, yeah, about slaughter and so on.’ (ibid.)

Among the cases in which cows are slaughtered, bovine tuberculosis here serves as an example that, as any disease, is *exceptional*. This reinforces the impression that dairy cows are not slaughtered normally. When I ask about the reasons for bTB, Nancy says that it’s mainly the badgers, whereas Matt specifies that ‘it is a toss-up—do the cows carry it and infect the badgers or do the badgers carry it and infect the cows?’ (ibid.). After all, Nancy says, the disease is ‘an unfortunate thing’ because ‘it’s just, you know, sad to the farmer. He can’t sell any cows for twelve months unless he’s then TB-free.’ (ibid.).

In summary, the conversation, primed by vegetarians’ moral rejection of slaughter, conveyed that, normally, dairy cows are not killed for meat. *If* the practice of slaughtering dairy cows or passing them on to other people who eventually slaughter them for meat became a consumer debate, it would most likely be a challenge to *Manor Farm’s* cheese being called ‘vegetarian’

and suitable for that fraction of customers. The particular case of bTB is not only suggestive of slaughter being exemptive in dairy farming but, with the badgers, also provides “scapegoats” external to dairy farming. Badgers, if not entirely responsible, are at least a factor within the circumstances leading to slaughter which, in face of the disease, appears reasonable enough. Finally, a humanist stance is revealed inasmuch as that which is depicted as ‘unfortunate’ is not the dairy cows suffering from and slaughtered because of tuberculosis but the farmer suffering financial losses.

8.2.2 Posthumanist Encounters: Vibrant Matters of Humus Soil, Green Manure, Humanure, and Dead Bodies

As outlined in section 8.1, conventional agriculture maintains nutrient flows by synthetic fertilisers and animal derivatives, whereas organic agriculture draws largely on animal derivatives in order to not only have nutrients available but also keep the actual soil alive. Since vegan organic agriculture excludes both chemical and animal inputs for ethical reasons, this section introduces four alternative practices to maintain the soil. As Hall and Tolhurst (2015: 35) note, a ‘long-term strategy’ for sustainable agriculture requires ‘to work within closed systems on the individual farm, ensuring that soils have high humus levels, to encourage micro-organism activity to release the nutrients’. The following paragraphs show how nutrients can circulate sustainably in a system that fully excludes domesticated animals and in which ‘the soil had been nourished with organic matter, and where the soil fertility has also been maintained through green manures as well as compost, [and] mulches’ (VON1). A closed cycle implies that humans, rather than the cultivators standing above the productive process, are themselves part of an eco(productive)system or agri(natural)cultural apparatus that allows thriving and decay for the multiplicity of species within. Although with *humus soil* and *green manure* only the first two practices of closing the nutrient cycle are actually performed in commercial growing, there is awareness of the relevance of both *human manure* and *dead bodies* in this context as my interviews and publications of the vegan organic movement show.

First of all, humus soil is regarded as a ‘key factor in guaranteeing a sustainable purely plant-based soil fertility’ (Anders & Eisenbach 2017: 33 in Growing Green International, No. 39). It is built ‘when compost undergoes a post-maturation process, taking it to a soil-like state beyond substrate maturity’ which makes it a ‘long-lasting reservoir of organically bound nutrients (“nutrient battery”). Due to the fact that these nutrients are not water soluble, plants growing on fully mature humus soil have to activate an absorption mechanism’ (ibid.). The plant ‘cracks’ the bound nutrients

‘by producing root acids, or initializing enzymatic processes in the cell wall, or enhancing the development of mycorrhizae, on which already a lot of research has been done. All that forces the plant to operate itself in order to absorb the plant nutrients, and this makes it healthier. Just as diseases are rare in the forest or the wild. And this is exactly what we try to imitate’ (Röthlisberger 2017).

This is opposed to the ‘passive way of nutrition intake [...] by chemical fertilization because all artificial fertilisers are water-soluble, they are absorbed by the plant whether the plant wants it or not’ (ibid.). Furthermore, water-soluble fertilisers can be washed out leading to the ‘eutrophication of fresh water and marine areas’, a state of ‘excessive nitrate levels in ground and surface waters’ (Anders & Eisenbach 2017: 33 in Growing Green International, No. 39). By applying humus soil, however, ‘over-fertilisation is excluded’ and it allows ‘considerable amounts of carbon to be sequestered’ (ibid.).

Secondly, nutrient cycles can be maintained by green manures. In their book on vegan organic growing, Jenny Hall and Iain Tolhurst define them as ‘plants that are grown specifically to benefit the soil, replacing nutrients, improving soil structure and increasing organic matter content’ (Hall & Tolhurst 2015: 15). Green manures ‘should be chopped and shredded at ground level’ (ibid.: 16) before they are turned under and incorporated into the soil.

Among the various green manures, it is the legumes which are able to build up nitrogen supplies: ‘Nitrogen-fixing micro-organisms on the roots of clover are the single most important input of nitrogen into organic farming systems in the UK’ (ibid.: 39). In my interview at *Bradley Nook Farm*, Katja Wilde (see 4.1) says that

‘clover is – also in conventional farming – a very common green manure because it enriches the soil with nitrate, and then when it’s over you just basically [...] plow it back into the soil [...] and that brings organic matter back into the soil, keeps the worms happy, brings the nutrients back. And another option is to take it off and turn it into compost because for the polytunnels you will need a lot of compost’ (FAR2).

While clover is good at maintaining the nitrogen cycle, the phosphate (P) and potassium (K) cycles require ‘deep rooting green manures like lucerne, red clover, lupins and chicory [that] will help bring P and K up from the subsoil’ (Hall & Tolhurst 2015: 35). In a ‘conventional organic’ system, Katja Wilde explains to me,

‘the cows will automatically go into the food chain, and that’s what we want to stop [...], and that’s why we will use green manure and that plant called chicory which [...] has roots that go three metres down, straight down, and it brings up all the nutrients from the depth and brings them up again to the top soil’ (FAR2).

I also asked David Graham (*VON*) about soil fertility and mentioned the example of chicory. While he was not aware of the particular qualities of chicory, he immediately connected the issue to ‘deep-rooted plants’ and mentioned a type of clover that is

‘extremely deep-rooted and it brings up the phosphates and the minerals that otherwise would not be brought up for use by most vegetable plants because they are not deep-rooted and possibly only use the top six to nine inches of the soil’ (*VON1*).

David also remembered that ‘particularly during the war, chicory was used as a substitute for coffee’ (*ibid.*). Although this comment may appear a bit far from the focus of this thesis, it illustrates the multiplicity of sometimes surprising qualities and agencies certain plant species and varieties are endowed with. Given the corresponding knowledge, growers in vegan organic agriculture can build the productive process and their practices on intra-acting with particular nonhuman agencies.

Thirdly, for fully closing the nutrient cycles, food practices need to involve “humanure” (Burnett 2017 in Growing Green International, No. 38). Taking our very own human corpor(e)ality seriously, a sustainable process of producing food requires us—our bodies and their excrements—to be part of that nutrient cycle. In the context of his concept of social-ecological metabolism, Marx had already criticised the waste in cities like London where nutrients passing through our bodies are readily lost to the sea by modern sewage (Marx 1981 [1894]: 195, 959; see also Foster 1999). Since there is already a debate about ‘peak phosphorous’ (Dyke 2014), the possibility of reintroducing the nutrients in human excrements to the soil by separating urine from feces turns out to be a materially crucial but discursively delicate issue. Although squeamishness in light of the ‘geographies of shit’ (Jewitt 2011) may be a reason why this isn’t widely done, another important reason according to my interviewees Amanda (*Unicorn*) and David (*VON*) are the pathogens and chemical residues that human bodies contain excessively (*RET1.1*; *VON1*) and which are presumably the main reason why using humanure is not yet permitted in commercial growing. But Amanda questioned that ‘as a society, [we] are risk-averse in certain areas around human hygiene but have absolutely no wider understanding of the huge amount of harm from antibiotic residues’ (*RET1.1*) which find their way onto fields through animal-fertilisers. David stated for their vegan organic standard that ‘it is not an ideological reason why we don’t use it or don’t subscribe to it [...] if you can show that the feces are devoid of contamination, we would say “use it!”’ (*VON1*). At *Bradley Nook Farm*, Jay Wilde expressed that for him ‘it just makes sense’ to ‘recover the human manure [and] compost that, so you’re closing the nutrient cycle’, and he added that in ‘lots of countries, they use human manure, in India, China [...] It disposes the disposal problem’ (*FAR2*). In terms of the health concerns, Jay mentioned the possibility of sewage plants digesting human manure and removing toxic products and

pharmaceuticals. Rather than a technical problem, for him, this is a question of whether money is spent on it. In addition, one could add, detoxicating our lifestyles would be a mainly social rather than technical way to enable us to compost our own manure safely.

Finally, nutrient cycles also require the vibrant agencies of seemingly passive and inactive things like stones or dead bodies. Not merely the nutrients constantly passing through us do matter, but also the nutrients constantly stored in our bodies, as David Graham suggests:

‘Dave Darlington [see 6.3], who unfortunately is no longer with us, he subscribed [to] and proposed the idea that human bodies should be buried in such a way that crops can be grown on the soil above the body [he laughs] and the phosphorus and other mineral elements would be obtained that way. But [...] it is a very serious problem. Iain Tolhurst, who some of his fields are extremely stony, lots of small stones, large stones in them, uses them nevertheless because he says that the stones as they slowly break down [...] provide essential mineral elements to his crops’ (VON1).

From a deeply ecological, posthuman, and relational perspective, it is worthwhile for humans to consider—against all societal norms—that by materially joining the agricultural nutrient flow that built our bodies, we can make it an actual cycle. Is it, after all, not a sign of humanist privilege, exceptionalism, and hubris that we make dead farm animals part of the nutrient cycle but not our deceased selves?

8.3 Beyond 'Conventional Organic': Veganism as Intra-Active Process rather than Individual Identity

After delineating vegan organic as an agricultural practice which, in order to be productive, requires a posthumanist sense for intra-actions that avoids the various forms of killing intrinsic to both conventional and organic modes of production (see 8.1 and 8.2), this section illustrates tensions between organic and vegan organic. The latter enters the stage as a radical new player that renders organic agriculture as conventional and embodies a paradigm shift in society and agriculture. The material-discursive differences vegan organic conveys challenge the established boundaries of veganism in relation to both organic crops and food regulations.¹³ The stereotype that depicts vegans as eating nothing but carrots—organic or

¹³ By food regulations, I mean that legislation is in place to make sure that what is depicted as “vegan” is not totally arbitrary. Whilst, according to the UK Government, ‘there is no single agreed definition for “vegetarian” or “vegan”’, consumers are protected from false or misleading labelling under the *Food Information to Consumers* regulations (<https://petition.parliament.uk/archived/petitions/122670>). Labelling, for example, a ham sandwich as “vegan” will thus not be without consequences. A sandwich made with vegetable ingredients, however, will currently pass as “vegan” regardless of how the ingredients were cultivated. Furthermore, the *Vegan Society’s* trademark, represented by a sunflower logo, requires that ‘[t]he manufacture and/or development of the product, and where applicable its ingredients, must not involve, or have involved, the use of any animal product, by-product or derivative’ (<https://www.vegansociety.com/your-business/vegan-trademark-standards>). To my

not—is shattered insofar as the vegan organic conception of veganism as a process rather than a property puts into question whether carrots are vegan at all when they are produced by conventional or ‘conventional organic’ standards.

The vast majority of food is still grown conventionally, that is to the minimal standards in legal terms, whereas food certified as organic is quite marginal. As David Graham mentions ‘most people are extremely surprised at meetings to learn that possibly only three or four per cent of all food in this country is grown organically’ (VON1). While organic is marginal, what is referred to as ‘vegan organic’, ‘stockfree organic’, ‘veganic’, or ‘biocyclic vegan’ (VON1) is only a minuscule fraction of that small proportion of producers who are committed to organic agriculture. Although there are minor practical differences which I will not discuss in this thesis; and although the terminology varies geographically and still is vividly negotiated within the movement (VON1), all of the above terms broadly describe ways of cultivation ‘which exclude any animal-byproducts and [...] where the fertility has been maintained not using chemicals, genetically modified organisms, or animal fertilisers’ (VON1).

So, as a practice, what I subsume here under vegan organic, currently is extremely marginal, and yet some of its proponents regard it as no less than a paradigm shift. In fact, Axel Anders and Johannes Eisenbach speak of a paradigm shift in two contexts. One part of the ‘paradigm shift [is] taking place in our societies’ with consumers who increasingly ‘want to buy products that have been produced in a responsible manner with regard to the environment, animal ethics, health and social welfare’ (Anders & Eisenbach 2017: 32 in *Growing Green International*, No. 39). Secondly, referring to the media reception of the newly established biocyclic vegan standard in an email exchange with David Graham (VON), Anders says ‘that more and more people become aware of the need of a paradigm shift in agriculture that can no longer be withheld’ (personal communication, 18th Nov 2017). Likewise, Eisenbach claims in a video about the question ‘What is humus soil?’ (see 8.2.2) that

‘in fact, we have to initiate a paradigm shift in agriculture [...] In organic agriculture and especially in biocyclic-vegan agriculture where no animal manure or any other input of animal origin is allowed to use, soil fertility is a fundamental issue. And we can enormously increase it by imitating the processes of nature.’ (see Röthlisberger 2017)

Following Harris’ (2009) suggestion to read *Alternative Food Networks* ‘for difference rather than dominance’ (a conceptual method which originates from Gibson-Graham 2006; see 3.2), I regard vegan organic practices as a new paradigm not because of a dominance becoming

best understanding, the development and manufacture of a product does not cover the process of crop cultivation which therefore may involve animal manure or bone meal to fertilise fields.

apparent—which, again, is not at all the case—but for the material-discursive differences they incorporate.

The differences in how the boundaries are drawn around veganism as a material-discursive practice can be illustrated with the case of *Unicorn* who, although they refrain from marketing themselves as such (see ch. 5), are, *by food regulations*, a “vegan” supermarket as they do not sell any animal-sourced foods—no meat, dairy, eggs, fish, etc. What they do sell, however, is organic fruit and vegetables, and they put emphasis on buying what quality-wise is considered beyond the EU organic regulations:

‘We search out the Demeter standard here as much as we can, and we switch suppliers to be able to have the Demeter products over and above the standard organic, but again, I suppose it’s like a reality of the market that it’s not possible for all of it to be [above the standard organic]. [But] it’s very much on the radar of the veg buying teams to do that. [...] but for our customers, I don’t think that’s in their minds at all really. I think, there are very few. But for most people it’s just organic’ (RET1.1).

From the perspective of the vegan organic standards, however, Demeter—but in fact also any other organic mode of production that involves animal husbandry—is not “vegan” at all, as David Graham explains:

‘Apart from the fact that they [Demeter] are heavily into animal husbandry, in order to maintain soil fertility [...], you [...] grind up cow horn and you put it in a bucket, and at a certain phase of the moon, you stir it in a particular fashion [...] To me they are another organisation with these strange religious aspects to them [...] Much of their emphasis, is on killing cows, killing animals. I simply don’t go along with it. [...] I mean, okay, that is how the main culture operates anyhow, and [Rudolf] Steiner [whose ideas inspired Demeter], he was a man of his times [...] It’s easy to look back and criticise people. You have to see people in the context of their own time.’ (VON1)

It may appear a paradoxical situation that self-identified vegans who run a supermarket which ‘aim[s] to trade in wholesome foodstuffs and household goods of non-animal origin’ (App. B.1.2: UN010: 35) particularly search out Demeter because it is considered as the best they can get. Just to be clear, by shedding light on this, I do not intend to depict *Unicorn*, neither its members nor customers, as hypocritical. Indeed, we have to see both people and practices in the context of their own time. As a business, and considering how marginal vegan organic produce is, they currently have no alternative to buying organic fruit and vegetables from farms that use animal derivatives to maintain soil fertility. However, the example illustrates that conventional understandings do not tie veganism to the agricultural process. Similarly, as Schneider (2017) argues for the case of Germany,

‘A certification as “vegan” or “vegetarian”, as issued by the Vegetarierbund [equivalent to the *Vegetarian/Vegan Society*], exclusively refers to food legislation but

does not cover the production.’ (Schneider 2017; my translation from the German original)¹⁴

Since vegan organic production is both in its materiality and the meanings it conveys a radical departure from established production practices as well as what is considered as “vegan” by food regulations, David Graham distinguishes between the ‘vegan organic’ and the ‘conventional organic’ standard (VON1). This terminology is also used by Axel Anders for the biocyclic-vegan standard which is available as an international standard of *IFOAM* (*International Federation of Organic Agriculture Movements*) since November 2017 (Anders & Eisenbach 2017: 32 in *Growing Green International*, No. 39). In response to David Graham’s question in an email exchange, he confirms that ‘green manures are also used in biocyclic-vegan farming, which in general is open to all techniques that are common in “conventional” organic agriculture’ (personal communication, Nov 2017; italics mine).

Rather than referring to the minimal legal requirements of food production in which synthetic fertilisers and pesticides are allowed, “conventional” here indicates a relative perspective in which vegan organic standards (=unconventional/radical) are to organic standards (=conventional/orthodox) what organic standards were, or still are, in relation to conventional production. The unusual way in which it is positioned indeed conveys a sense of organic agriculture belonging to the reactionary establishment. A flier distributed by VON seconds this by asking where being vegan begins (see Fig. 11). The fact that organic farming, even in the case of growing crops, normally involves animal agriculture renders it as ‘conventional’, at least in light of the newly emerging and more radical practices in which ‘organic’ is entangled with ‘vegan’ at the level of production. This challenge is embedded in a conversation between VON and the *Biocyclic Network* in which David Graham reports on their experience with *Unicorn*:

‘we found that fostering this awareness and making the connection about what is being eaten and how it’s grown is problematic. When, a few years ago, we tried to market vegan organically grown flour (in attractive bags!), one of the main organic distributors and a vegan supermarket refused to sell the flour because, they said, their customers could ask about the other fruit and veg. They thought that if their shoppers knew that much of the vegan produce was grown using animal by-products this could lose them custom = money’ (personal communication, Nov 2017).

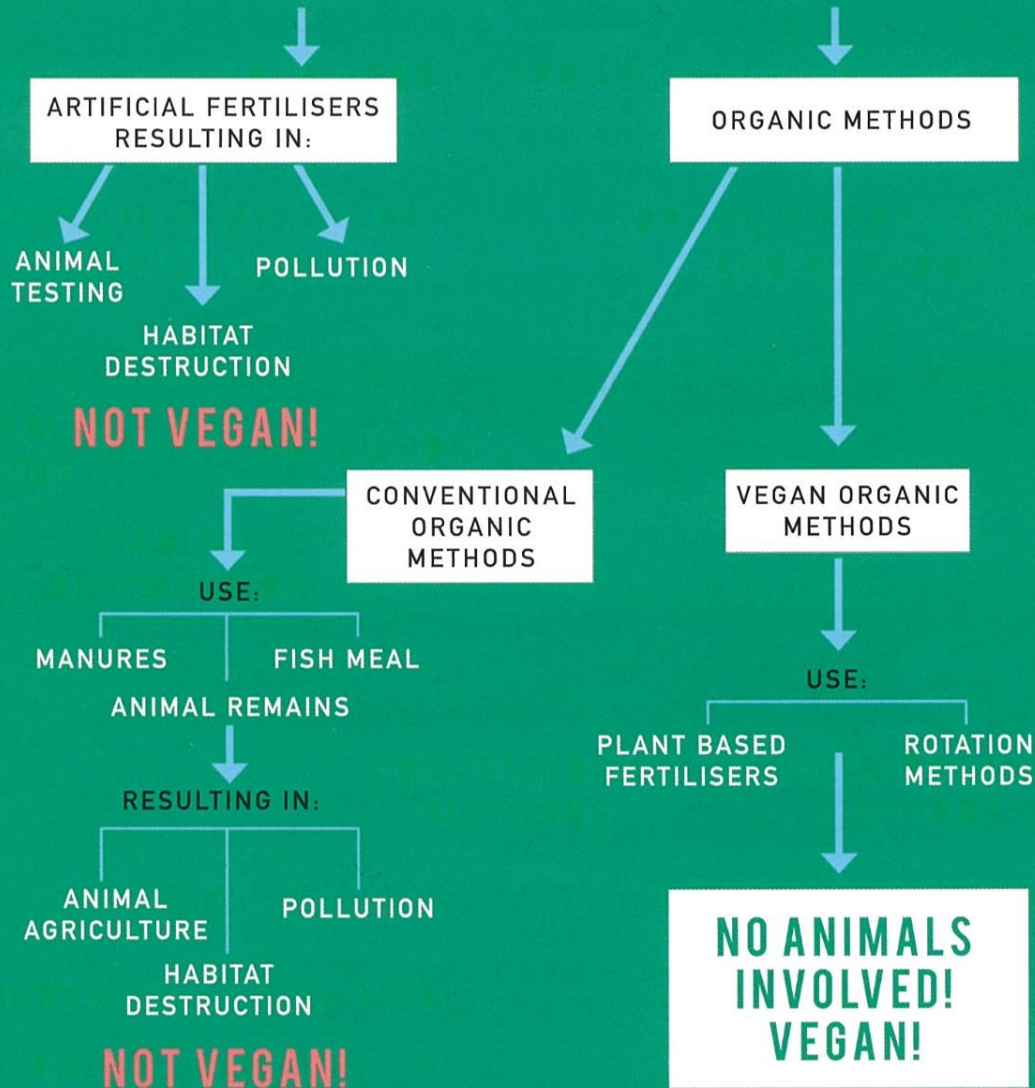
In response, Axel Anders describes their own and very recent attempts to introduce produce labelled as biocyclic-vegan:

‘It is obvious that especially organic food stores still feel reluctant to make vegan organic farming a subject of discussion. We see the same attitude in Germany.

¹⁴ ‘Die Zertifizierung vegan oder vegetarisch, wie sie zum Beispiel der Vegetarierbund vergibt, bezieht sich ausschließlich auf das Lebensmittelrecht, nicht aber auf die Produktion.’ (Schneider 2017)

Q: WHERE DOES BEING VEGAN BEGIN?

YOUR FOOD IS GROWN USING:



SPECIAL OFFER!

ANNUAL MEMBERSHIP ONLY £10*

WITH PROMO CODE: 'VONPROM016'

(FIND THE PROMOTION LINK ON THE HOMEPAGE: WWW.VEGANORGANIC.NET)

*USUALLY £17, INCLUDES 2 DIGITAL MAGAZINES PER YEAR, REGULAR NEWSLETTERS, DISCOUNTS & ACCESS TO GROWING RESOURCES ONLINE. VALID UNTIL 31ST DECEMBER

WITH YOUR MONEY WE:

- Give bursaries to students to study vegan organic growing
- Support and create vegan organic farms worldwide
- Campaign for food to be labelled with the growing method used

Figure 11: A flier distributed by the *Vegan Organic Network* illustrating their way of drawing the boundaries of veganism

Sometimes it seems that the large commercial chains are more open for this topic.’
(personal communication, Nov 2017)

In vegan organic production, the very being of veganism is conceived as a process. A process materialised by human and nonhuman agencies—sunlight, water, soil, plants, mushrooms, stones, human growers and eaters, machines, etc.—intra-acting within possibility space. Conventionally, “vegan” tends to be conceived as a symbolic, timeless, and thus metaphysical property, attribute, or identity held by an individual person or category of products labelled as such. Put differently, the newly emerging emphasis is on accounting for the relational practices people involved in food circulation find themselves in rather than mere consumer identities and choices; it is more about acting veganly than having always already been vegan. If this alternative conception of veganism was broadly applied and ‘conventional organic’ producers would be held accountable for their humanist practices, neither their crops nor the people eating them could be regarded as “vegan” any longer.

8.4 *Conclusion:* Food Practices as Social-Ecological Entanglements

After previous chapters (particularly sections 4.1 and 5.2) found the materiality and meaning of *vegan organic production practices* to be obscured and depoliticised by public media and even within the vegan movement, this chapter focused on outlining this emerging food practice. What it entails, its processual, relational grounding and its posthumanist inclination, was found to challenge the established boundaries of animal-dependent organic agriculture, on the one hand, and mainstream vegan culinary culture, on the other, each of which exhibit humanist and representational residues.

Distinguishing three agricultural and culinary practices—conventional, organic, and vegan organic—section 8.1 illustrated how the first two material-discursive practices intrinsically involve killing. The example of Zyklon B and the Haber-Bosch process showed that the combination of pesticides and synthetic fertilisers in conventional agriculture provokes desertified soils and kills wildlife. Organic animal farming as well as organic crop cultivation involve killing insofar as they maintain soil fertility with animal manure or bone meal. Uniting “vegan” and “organic” within one agricultural and culinary practice, vegan organic food practices are seen as omitting consistently the ongoing killing of human, domesticated, and wild animals as well as the life that soil is and brings.

Section 8.2 juxtaposed humanist and posthumanist agricultural practices in order to show material-discursive difference patterns of human exceptionalism on one side and ecological

posthuman relationism on the other. While the former resulted in the absurd denial of dairy cows being killed for meat and in mourning a farmer's financial losses in cases of culling due to bovine tuberculosis, the latter illustrated that vegan organic agriculture fundamentally relies on specific human and nonhuman agencies intra-acting in closed loops (e.g. humus soil and green manures) in order to maintain soils and be productive.

This leads to the inference of section 8.3 that, as an emerging paradigm, vegan organic production redraws the conventional boundaries of "organic" and "vegan". Involving animal agriculture, organic is rendered as the "conventional organic". And vegan is now conceived as a performative process—a relation rippling through spacetime—rather than a symbolic, timeless, and thus metaphysical representation, property, or identity held by a person or a product. A carrot (and a person consuming it) is no longer vegan *per se*. Rather, the agential intra-actions of the productive process determine whether a carrot is vegan—were animal manure or bone meal involved in fertilising fields or not?

Constituting veganism as a relational process, rather than an individual property, is a difference that matters in terms of the shift of attention it enacts. Away from consumption and towards production, new possibilities and responsibilities emerge. In view of climate change and mass extinction, vegan organic is a chance for the human-centred gaze to give way to posthuman accounts of food practices as social-ecological entanglements of material-discursive practices of production, provisioning, and consumption which, vital and fragile as they are, require footprints sufficiently small to be sustainable in absolute rather than relative terms. In order to address these problems adequately, we are collectively required to perform more vegan food practices.

Part III: Synthesis

9. *Discussion: How Representational and Relational Boundary-Drawing Determines Possibility Space*

Concerned with the major contribution of animal-sourced foods to climate change and mass extinction, this thesis examines human food (and feed) practices along the axis of veganism and carnism. Sketching how the boundaries around vegan and carnist food practices are drawn, I shed light on the conditions of possibility for material-discursive change towards absolute reductions of animal agriculture. Methodologically, this involves a shift away from seeing veganism predominantly as a consumer phenomenon and towards an account of productive processes and producer ethics. I draw on a variety of foodscapes—stock-based and stockless farmers, a big retailer and a co-operative grocery, as well as vegan and carnist advocacy networks—in order to disclose patterns of boundary drawing from a multiplicity of material-discursive practices. This is done by reading the foodscapes, in Barad’s (2007) terms, ‘diffractively’, or, in Gibson-Graham’s (2006) terms, ‘for difference rather than dominance’.

This chapter sums up, reviews and discusses the insights from the preceding five chapters. Overall, the chapter aims at deconstructing how veganism and carnism are currently enacted. By means of material-discursive analysis one common pattern to constitute veganism is identified: Conventionally, veganism is treated representationally rather than relationally.

After a brief theoretical discussion of de- and reconfiguration (9.1), I return to the empirical data collected for this thesis in order to draw fuzzy outlines of both the carnist and vegan apparatuses. First, conventional accounts of veganism will be illustrated by deconstructing patterns of *representational* boundary-drawing and applying them to examples beyond my own empirical research (9.2). An antithetic approach will then focus on reconfiguring food practices by *relational* boundary-drawing. This involves a review of vegan organic agriculture’s material-discursive practices, a conceptual attempt to use the term *vegan food practices* in an undogmatic manner, and addressing how that can enrich the debate on implementing a *Half Earth* proposal in order to mitigate mass extinction (9.3).

9.1. De- and Reconfiguring Practices in an Impure Manifold

Theoretically, I have drawn upon the framework of *Agential Realism* which generally ‘calls for a critical examination of the practices by which the differential boundaries of the human and the nonhuman, and the social and the natural, are drawn’ (Barad 2007: 209). This thesis specifically looks at the differential boundaries between vegan and carnist food practices. On

a conceptual level, these practices are mutually exclusive, or, in Barad's (ibid.) terms, 'complementary', as carnist food practices necessarily *involve* and vegan food practices *exclude* input from nonhuman animals.

However, the material-discursive analysis of boundary-drawing practices has shown that boundary making is always an imperfect process. '[V]egans are [...] making a compromise', as David Graham (VON1) notes, because 'there is a very good chance it [their food] will be grown with animal manure'. As Alexis Shotwell (2016) argues in *Against Purity*, there is no perfectly sanitised state, place, or practice that we can (re)turn to in our hope for addressing colonialism, disease, pollution, and climate change. Perhaps, veganism is contaminated by the abundance of animal agriculture and human exceptionalism as much as carnism and its hegemony is threatened by the carcinoma of vegan food practices metastasising within the realm of "normal" food. Both phenomena, veganism and carnism, are 'the effect of boundary-drawing practices that make some identities or attributes intelligible (determinate) to the exclusion of others' (Barad 2007: 208), but in a world of multiplicity—a constantly changing spacetime manifold—none of them is able to retain total purity through the exclusions made. Nevertheless, an acknowledgement of impurity is not to be misunderstood as an ethical free pass to indulge oneself arbitrarily in the imperfection of the practices one performs. Rather, it forces us to recognise 'that individual purity or actions aiming toward it are not going to solve the collective, complex problems in which we are differentially complicit' (Shotwell 2016: 202).

One aim of this material-discursive analysis is to exhibit both veganism and carnism in their bare imperfection (I will come back to this in 9.3.2), but 'the political potential of deconstructive analysis', as Barad emphasises,

'lies not in simply recognizing the inevitability of exclusions but in insisting on accountability for the particular exclusions that are enacted and in taking up the responsibility to perpetually contest and rework the boundaries' (2007: 205).

Similarly, Nimmo acknowledges that genealogy, understood as a Foucauldian method of discourse analysis,

'is a powerful critical strategy for decentring the humanist subject-agent' because '[i]ts consistently epistemological approach to history eschews the adoption of ontological explanation'. However, 'this in itself, though wholly necessary, is not in the end sufficient; it only clears the ground for a new conception of the human being—it is deconstructive *but not reconstructive*. This is problematic both theoretically and politically.' (2010: 156; italics added)

In lack of a historical outlook, my material-discursive analysis is not strictly a genealogy, but even an approach that addresses change through difference rather than through temporality

itself (see 3.2), needs to acknowledge that deconstructing boundary-drawing practices around veganism and carnism alone is not enough. In order to enact absolute reductions of animal agriculture and, thereby, address climate change and mass extinction, both the vegan and carnist apparatus have to be deconstructed (as far as this is possible by means of social scientific analysis). However, exposing the boundaries drawn and the exclusions made and showing how the materiality and discursivity around both practices create friction is only the precondition for critical interventions. Radically speaking, knowledge production itself has no *social* value at all, unless in some way or another it is transduced into reconstructing, reconfiguring, and reworking boundaries in order to solve the collective and complex problems we, *all* life on Earth, currently face (in our very own ways).

9.2 Deconfiguring the Representational Boundaries of Veganism

The main claim of this thesis is that, conventionally, the boundaries of veganism in particular, but also food practices in general, are conceived representationally rather than relationally. Due to its dematerialised orientation, representational boundary-drawing depoliticises conceptions of food practices as a relation and, thereby, stabilises the carnist apparatus. This section summarises and explains in more detail what this claim means, which particular exclusions come along with representational boundaries (9.2.1), and why that matters beyond the empirical data of this thesis. The latter includes a critical discussion of three food-related conceptions in academic, policy, and public debates: plant-based food, the water-energy-food nexus, and food waste (9.2.2).

9.2.1 Patterns of Representational Boundary-Drawing

What does it mean to oppose representational and relational boundary-drawing? This differentiation largely draws on Barad's (2007) onto-epistemological critique of representationalism (see 2.3) and her methodological distinction between reflection and diffraction (see 3.2). While reflecting on representations means to deploy a gaze from afar and assume preexisting determinate boundaries, Barad's preferred methodology of diffraction requires closeness in that it depends on taking account of marks on (all kinds of) "bodies" (see Tab. 1), i.e. addressing the differences and relationalities from within and as part of an entangled state from which the phenomenon at stake emerges. Applying this to the specific context and the data collected in this thesis, table 4 juxtaposes representational and relational conceptions of food and food practices.

Table 4: Differences between conceiving vegan and carnist food practices representationally or relationally (source: SH).

Conceiving Food (Practices)	
Representationally	Relationally
veganism treated as a mere consumer phenomenon (superficial account of matter)	veganism involves both production and consumption (the full spectrum of relations)
“vegan” = ideological identity of persons and essentialised property of plant foods	<i>vegan food practices</i> = whether plant foods are vegan depends on process/intra-action/practice
carnism (invisible and unnamed) = normal, natural, necessary	carnist food practices = historically-specific and contingent practice
what <i>appears to matter</i> : moments of purchase and eating	moments of production, provisioning, and consumption
essence	performativity
ontologically separate actors	intra-acting agencies
focus on reduction of animal-sourced consumption (ignoring production)	focus on reduction of animal-sourced production (and thus consumption)
atomism acting on: surface (superficial/taking entities for granted; see 2.3.1 and Barad 2007)	relationism acting on: content/matter (accounting for how “entities” materialise)
main victims of carnism: domesticated animals	victims of carnism: human, domesticated, and wild animals
ethical veganism/animal rights = compassion with farm animals	ethical veganism/animal rights = social-ecological justice and responsibility for all life
ethical consumers	ethical producers and ethical consumers
food waste = wasting taken-for-granted products (superficial)	food waste = waste within productive processes (material) = food (conversion) loss
individual agency/responsibility	distributed agency/responsibility
(perceived or desired) purity	(pragmatic) impurity (Shotwell 2016)
fixed boundaries	adaptable boundaries
food = eating	food = creating, providing, eating, and re(cr)eating
food = personal/private affair	food = public, social, political, collective, economic, and ecological entanglement
humanist/anthropocentric	posthumanist/biocentric

From the empirical chapters (4 to 8) a number of difference patterns emerged. These patterns make intelligible the broader argument that representational conceptions appear to dominate boundary-drawing practices at the expense of relational ones. More specifically, superficial representations obscure important material dimensions of phenomena, particularly the social-ecological footprints of different food practices. In the following four points, these different, yet entangled, patterns are reviewed.

Firstly, veganism is regarded as a consumer phenomenon rather than one that includes production. It is attached to moments of purchasing and eating rather than cultivating and retailing.

For example, the headline in the *Daily Express* about ‘viewers in melt-down as vegan farmer eats an egg’ (Hughes 2017; see 4.1.3) illustrates that all the agents involved, including *BBC Countryfile*, who had reported about *Bradley Nook Farm*, were generally confused about the meaning of “vegan farmer”. Even the *BBC*’s attempt to clarify, saying that the farmer is a vegetarian who grows ‘organic vegetables to sell on the vegan market’, ended in framing the term “vegan” as a consumption attribute (the ‘vegan market’ being defined by selling vegetables and/or having vegan customers). The media failed either to fundamentally understand or just to convey to their audience that, in this case, “vegan” is a producer attribute. What should have been explained is that vegan organic growing is a production standard that is “vegan” because the farmer does not use animal manure or bone meal to fertilise fields, whereas this is allowed in both conventional and organic agriculture (see 8.3). The ways in which the boundaries of veganism are drawn here exclude the possibility of production practices being a part of the phenomenon. That considered, it does not surprise that the media reports were silent about the farmers’ social-ecological reasons for giving up animal agriculture.

Likewise, in the case of the big retailer, veganism is treated as an issue of consumer *belief* rather than a sustainability issue (see 7.1.2). Using religious metaphors for those who choose not to consume animal products went along with rejecting science that points out sustainability problems related to animal agriculture. Paradoxically, the retailer strongly supports increasing meat and dairy farms’ efficiency and frames this as a measure towards sustainability. That veganism is nonetheless excluded from sustainability debates illustrates that it is treated as a phenomenon of consumers eating meat and dairy substitutes which ‘are on the shelves’ no more and no less than ‘in a proportion which their sales justify’ (RET2)—it is regarded as a phenomenon represented by consumer choices rather than a relational phenomenon that includes production. By representing the efficiency of meat and dairy production as an issue of ethical producers, animal agriculture is generally acknowledged as a sustainability problem. However, it is logically inconsistent that veganism, despite the absence of conversion losses (i.e. the circumvention of animal husbandry’s intrinsic inefficiency; see 1.1), is not in turn framed as a potential sustainability solution.

Instead, it is reduced to choice and belief of ethical consumers, but both from a carnist perspective (see 4.1) and even within the vegan community (see 5.2), ethical veganism tends to be confined to consumers’ compassion with farm animals rather than an ethical practice concerned with the food politics of the environment, wildlife, and production. The constitutive exclusion of the latter materialities makes veganism appear as an issue of ethical

consumers rather than ethical producers, an exclusion which sentimentalises and dematerialises the (conceived) boundaries of ethics.

Secondly, and closely related, veganism is conventionally used as an ideological identity of and label for persons—“vegans”—and an essentialised property of foods (see ch. 8). A carrot, for example, or purely plant-based meat substitutes, are seen as vegan *per se*, regardless of how these plant foods were produced. Veganism is usually perceived as a dietary ideology and “vegan” is its label. Ideologies, identities, labels—all this purports an ideational illusion, a certain hollowness, a focus on surface rather than content, appearance rather than becoming, and representing rather than performing. That dematerialised superficiality works to reduce veganism to being “just”...

- about compassion with farm animals,
- or, if not, personal health,
- and a consumer fad,

...but rarely ever about wider social-ecological concerns of food production and consumption. The representational outlook thus impedes really or fully accounting for how veganism, or any food practice, matters beyond the essentialised boundaries of a so labelled person or food. What it lacks is a ‘Global Sense of Food’ (Strüver 2015: 14, drawing on geographer Doreen Massey’s conception of responsibility and her notion of a ‘progressive [...] global sense of place’ 1994: 156), an ontological, epistemological, and ethical account of the material-discursive practices that materialise food relations.

The third point is about big retailers stabilising carnist food practices by adopting an efficiency key to sustainability. The cases examined show that the boundaries of veganism are affected by how the boundaries around sustainability are drawn (see ch. 7 and Appendix A.2.2). When sustainability is framed and enacted solely in relative terms, for example, as part of an efficiency paradigm that is focused on improvements of existing practices only, materialising sustainability in absolute terms is excluded. An efficiency key to sustainability “saves” carnist agri- and culinary culture inasmuch as improving animal agriculture by increasing its efficiency passes as “sustainable”. However, this representation of sustainability does not actually save the world from its ecological crises because once a practice is howsoever improved and thus purified as “sustainable”, the materiality of the *remaining* footprint is not accounted for. It is ignored whether the footprints of our most efficient (= “most sustainable”) practices are sufficiently small to be sustainable in absolute terms. Blending out that materiality in order to enforce the social imperative to maintain established practices is ultimately based on privileging a consumer-centred (representational) over a

processual (relational) reading of food and/or sustainability practices. In the reading of profit-oriented retail, sustainability is represented by efficiency as constant improvement. An alternative reading would relate sustainability to the (f)actual footprints of the material-discursive practices we perform. One might assume that, other than retailers, not-for-profit organisations like the FAO and IPCC would rather apply the latter reading, one which factors in complex relations and possibilities. However, as pointed out in section 1.1, their food-related solutions for solving the climate and other ecological crises are also largely confined to increasing the efficiency of animal agriculture. Neither do they consistently question the hegemony of carnist food practices nor the imperative of (green) economic growth.

Fourthly, and following from point three, the efficiency key that focuses on *animal* agriculture's efficiency carelessly disregards both efficiency and productivity of agriculture as a whole. The second law of thermodynamics is a physical boundary that inevitably hinders a loss-free conversion of energy from phytomass to zoomass (see 1.1 and Appendix A.2.3). This means it is physically impossible to produce food from animate beings without losing nutritional energy, i.e. being inefficient. This *physical* boundary cannot be crossed (only approached) by technological means, but animal husbandry also has a *social* boundary that is perfectly traversable by the choice to consume plants directly, for example, by replacing the cultivation of feed with food crops (see 6.2). The meat and dairy industry and other stakeholders do acknowledge the existence of that physical boundary by constantly working to improve animal agriculture's efficiency, but carnism also works to conceal the existence of a social boundary—the possibility to increase efficiency of agri- and culinary culture by producing phytomass without a detour through the metabolism of animals.

Food security discourses, dominated by the productivist paradigm, often suggest that agriculture must produce higher quantities of food to satisfy a growing world population (see 6.1). However, perhaps due to a lack of social imagination, this usually does not consider the possibility of producing higher quantities of food (=nutritional energy; 1.1) by replacing carnist with vegan food practices. Assumptions such as the 'nutrition transition' (Bruinsma 2003; see also 6.1) tend to treat existing eating habits and taste patterns apolitically as a fixed essence rather than a socially determinable performative practice. There is an unquestioned imperative to at least keep supplying for current (if not increased future) consumption rates of meat and dairy. This confines the possibility space for productivity gains to technological improvements in cultivating feed crops and raising animals. This is all the more severe as the productivity gains from veganising agriculture (social boundary) would outperform gains from technological improvements (physical boundary). An intrinsic part of the various crises around morbid factory-farm animals and degraded soils is that the successive intensification

of (animal) agriculture has precisely been about coming close to the physical limits of bodies and ecosystems (under conditions of excessive fossil-fuel supply). By exclusively representing “normal” diets in the quest for increasing productivity to feed the world, the possibility of gains through more vegan food practices is as neglected as better redistribution of foods and finances—both would traverse social boundaries and challenge current power relations. It is, again, the dominance of a representational over a relational outlook that works to disregard important material and social dimensions of food practices, particularly their social-ecological impacts as well as possibilities for change.

9.2.2 Dematerialised Language: ‘Plant-Based’, ‘Water-Energy-Food Nexus’, ‘Food Waste’

The case studies of the foodscapes examined in this thesis suggest that a representational framing of veganism in particular, but also food practices in general, is hegemonic, and that it is reproduced not only by agencies in carnist domains but also in vegan ones. In what follows, I illustrate how representational boundary-drawing matters beyond the empirical scope of this thesis. This involves a critical discussion of three notions currently salient in food sustainability debates.

Firstly, vegan food is often referred to as “plant-based” food. Correspondingly, veganism and vegetarianism are identified as plant-based diets. This language is used by academics, businesses, media, and policy-makers alike, and seemingly independent of inclinations towards or against vegan food practices. From a relational, processual perspective, my objection against this parlance is that *all* food is based on plants, and meat and dairy even more so than vegan foods. To be fair, calling vegan food plant-based makes sense intuitively, whereas depicting meat or dairy so is rather counter-intuitive. However, the conventional use of plant-based food derives from a superficial and consumption-centred focus on food. What this language represents is the plants eaten by human consumers, but it obscures what nonhuman “prosumers”—cattle, pigs, and chickens—consume; the “grey” ingredients of meat and dairy, that is, the basis of plants fed into and getting lost in the productive process, more precisely, in feed conversion. An outlook which, by contrast, factors in production and accounts for the relationality of the whole supply chain from farm to fork would have to recognise not only that meat and dairy, too, are based on plants, but also that the amount of plants required for animal-sourced foods is many times that of plant foods (see Fig. 2a). The conventional use of the term conceals *why* livestock requires more land, energy, and resources. My concern is that this depoliticises absolute reductions of animal agriculture as a means of mitigating climate change and mass extinction.

Secondly, and similarly, the Water-Energy-Food (Security) Nexus is a term that risks obscuring materiality by representing energy and food as different, though intertwined, categories. Although I appreciate that the intention of nexus thinking is an inclusive one which emphasises the ‘interconnectedness of water, energy and food production cycles’ (Gulati et al. 2013: 150), my perception is that the term nonetheless invites to simplify these connections by treating energy as largely synonymous with electricity or heat. Food and energy are regarded as interrelated through irrigation, fertilisers, transportation, packaging, processing, and disposal (the energy required by food production); in turn, biofuels are an agricultural product that provides energy. However, what is not really considered is the fact that food *is* energy. Perhaps against all intention, the term creates a divide. Usually, energy is conceived as an agricultural input of electricity or heat, while food makes an appearance mostly as an output but, to my best knowledge, the literature remains remarkably silent about *nutritional energy*, feed efficiency, and conversion losses (see 1.1). Where livestock is dealt with, demand for animal-sourced foods is taken for granted and treated as a mandate for improving animal agriculture, for example, by making it more energy-efficient (e.g. FAO 2014, Sobrosa Neto et al. 2018). Rather exceptionally, Arent et al. (2014: 164) mention in a figure that a ‘low-meat diet or [...] vegetarian diet generally reduces [...] energy demand as well as GHG emissions’, but neither do they explain this or connect it to data on nutritional energy and feed (in)efficiency nor do they mention a vegan diet (although it is mainly the absence of animal-sourced foods that reduces energy demand). My argument is in line with other warnings that the concept of nexus can be used in reductive ways (Kraftl et al. 2018, Wichelns 2017).

Thirdly, in debates on food losses and waste, the kind of foods which are produced in the first place are taken for granted (see 7.2.2). Stakeholders agree that, in line with Sustainable Development Goals, large reductions of food losses and waste are required (Willett et al. 2019). While ‘in popular and political imaginations, food waste is positioned as an “end of pipe” problem’ (Evans 2014: 10), in informed circles, it is acknowledged that losses occur throughout the food chain in production, processing, and retailing (ibid.). However, recognising not only consumption but also production does not automatically mean registering the problem exhaustively in all its possible material-discursive dimensions. This matters particularly in the case of animal-sourced foods. Generally, it is acknowledged that food losses arise due to insufficient technology and planning in agriculture (or later in the food chain; e.g. Gustavsson et al. 2011), but producing meat and dairy is not treated as a *choice* that results in avoidable conversion losses of nutritional energy. That livestock is “there” in the first place is not part of the debate and remains unchallenged.

In sum, what these notions and debates have in common is a lack of depth and accountability for the materialities and the relational, contingent character of agricultural and culinary practices.

9.3 Reconfiguring: Drawing the Boundaries of Veganism Relationally

In this section, I pursue a ‘reconfiguration approach’ (Southerton & Welch 2016; see also 2.3.2) that reviews how the boundaries of veganism are (re)drawn relationally. Rather than a representational, humanist, and consumer-centred gaze from afar, this implies a posthumanist sense for the material-discursive intimacy and entanglement of human, domesticated, and wild animals as well as plants and the life of the soil.

The following subsection (9.3.1) outlines the boundaries of the vegan organic production standard in differential delineation to conventional and organic agriculture. The materiality and meanings entailed by this emerging practice challenge the established boundaries of both “organic” agriculture and “vegan” culinary culture. Drawing on this input as well as relational and posthuman approaches in the social sciences, I then conceptualise and suggest the term “*vegan food practices*” in an attempt to free veganism of some of its dogmatic connotations in order to reclaim space, time, and possibilities for social-ecological imperatives within food practices (9.3.2). This is used to give a prospect on how my relationally-grounded account of food practices can inform future research, for example, on implementing a *Half Earth* proposal in order to mitigate mass extinction (9.3.3).

9.3.1 Vegan Organic Cultivation Practices: Locking Nutrients in and Domesticated Animals out

As an academic approach, a relational perspective is not only deemed to be more comprehensive about ecological and social processes but it also implies a spatio-temporal dimension of possibility emphasising that relations could be otherwise (see Darnhofer et al. 2016 for a relational account of farming and 2.3.3). In this thesis, I propose that the emergence of vegan organic production marks a fundamental departure from conventional ways to configure and perform veganism. This subsection reviews and discusses how vegan organic practices redraw the boundaries of veganism relationally.

Modern humanist agriculture has developed ways which allow producers and consumers not to bear the full costs of food production. Firstly, drawing upon fossil-fuels for crop

protection and fertilising. Secondly, using both human and nonhuman others for (cheap) labour and exploiting and killing farm animals for fertilisers and food. By definition, organic production can only involve the second one, whereas conventional methods largely depend on both ways (see 8.1). Today, vegetables, grains, and fruit cultivated by these methods are generally regarded as “vegan”—simply because they are (derived from) plants.

Vegan organic agriculture, however, states that the very process by which plant foods come into being matters (see 8.2.2 and 8.3). As a consequence, this production standard forbids the use of animal manure, bone meal, or any other animal derivatives for fertilising fields. A carrot, for example, is thus not vegan *per se*. This not only turns “normal” organic production into “conventional organic” for its lack of consistently excluding animal husbandry when producing food crops, but the vegan organic standard’s alternative boundary-drawing also means to constitute veganism by way of processual, relational assessment. By refraining from attributing fixed properties to foods and fixed identities to eaters, it is not taken for granted what each of them, *superficially*, seems to be (i.e. a “vegan” plant or plant-eater).

Processual thinking makes us accountable for the relations we are part of, the intra-actions we engage in (see 2.3.2). Ethical responsibility, as Bennett (2010: 37) suggests, ‘resides in one’s response to the assemblages in which one finds oneself participating’. This is not to be mistaken as an invitation to individualise responsibility. Regarding veganism as a process, rather than an attribute or property that individual persons or products hold, forces us to make visible the intra-actions that enact the productive process; i.e. the human and nonhuman agencies that work together—intentionally or unintentionally—as a ‘material-discursive apparatus of bodily production’ (Barad 2007: 390) to create food.

More specifically, vegan organic growing requires deep knowledge about and entanglement with particular nonhuman agencies (see 8.2.2). As fossil-fuels and nonhuman animals drop out as agents of maintaining soil fertility, humus soil and green manures are drawn upon. Practices involve intra-active alliances with specific plants such as chicory whose deep-rootedness makes them capable of lifting phosphates or potassium up to the top layers of the soil. This makes nutrients available for other, less deep-rooted crops to thrive. Moreover, in commercial vegan organic growing, there is critical awareness of the currently unused nutrients within “humanure” and dead human bodies. A truly posthumanist approach means to co-operate intimately with ‘vibrant’ (Bennett 2010) agencies and to imitate—or rather: actively participate in—natural flows in order to create sustainable nutrient circulation within closed loops (see also Puig de la Bellacasa 2017).

Even if it sounds counter-intuitive, the lesson from vegan organic practices is that the term animal-sourced foods must include grains, vegetables, and fruit from conventional and

“conventional organic” agriculture as they have been nurtured by animal fertilisers. Furthermore, its posthuman, biocentric approach challenges the notion of “producers” which is no longer reserved for humans. Domesticated animals, too, matter as food producers, even though involuntarily and enslaved, and wildlife participates unintentionally in constituting the (un)sustainability phenomena of climate change and mass extinction. Putting it this way does not mean to question their status as victims within these phenomena. Rather, acknowledging their entanglement in the productive process helps to shed light on them in the first place, take their needs into account, and enable ethical food practices to be informed accordingly. Without a doubt, plants are exploited and killed, too, but only taking the productive process *deeply* into account brings to mind and *brings to matter* that producing and consuming meat or dairy is intrinsically more plant-intensive than eating plants directly (see 1.1 and 9.2.2).

In sum, vegan organic agriculture’s processual, relational approach delivers more awareness of social-ecological entanglement than a superficial, representational one. By (re)materialising practices in the sense of posthuman performativity, the food supply chain is subjected to a political ontology that shatters established agricultural and culinary paradigms. As an emerging paradigm, it comprises possibility space for (re)materialising public, policy, and academic debates on veganism and other food practices, but also for excluding domesticated animals from nutrient flows more consistently than conventional veganism. This would free up biomass and space for wildlife to recover while maintaining reasonable levels of productivity thanks to the superior efficiency of vegan food practices (see 1.1 and 6.3).

9.3.2 Meeting Carnism Halfway? Towards Vegan Food Practices

Just as vegan consumerism, vegan organic production runs risk of being depicted as dogmatic for its radical departure from established standards. Therefore, this subsection elaborates on the notion of “vegan food practices” as something that humans can, must, and do perform undogmatically, that is, *regardless of* their status as a producer or consumer and their personal dietary identity as a vegan, vegetarian, or “meat-eater” (carnist). By reconceptualising food practices in this manner, conventional veganism may rid itself of some of its humanist, anthropocentric residues.

The painful realities of climate change and mass extinction show that sustainability, the ability to sustain current and future generations of human and nonhuman animals, indeed all life on Earth, including plants and the life of the soil, is at stake. Scientific evidence suggests that our survival as a posthuman ‘community of fate’ (Wienhues 2017) is not compatible with a high production of animal-sourced foods, and yet all too many farmers, retailers, consumers,

policy makers, and academics fear the “spectre of veganism” (see ch. 1). Dogmatic debates on identity and ideology are often tedious for vegans and carnists alike. Within the scope of this thesis, I have deliberately not focused on animal rights and the question whether using nonhuman animals for food is right. Instead, I prioritise a baseline I deem more fundamental. The absolute “ethical minimum” for being a “decent” human being or collective involved in food supply chains, I propose, is simply to comply with the collective need to stop the ongoing anthropogenic eco(sui)cide. Arguably, this is achievable by bringing carnist food practices to a low-level rather than fully giving them up. Since a safe social-ecological operating space is a pre-condition for all food practices, vegans and carnists at least have to somehow “meet halfway”.

Focusing on vegan food practices means to conceptualise veganism as a performative practice rather than an identity or ideology (i.e. an *-ism*). This means that “vegan” is no longer an attribute of an individual entity, a person or a product. Rather than about (the atemporal and thus metaphysical assumption of) being, it is about *doing*. It is not a property of prefixed subjects. Instead, vegan subjects and objects—persons and foods, producers and consumers—emerge from relations, or in Barad’s (2007) terms agential intra-actions. Thus, the whole food supply chain matters, and veganism emerges from the productive process as a result of material-discursive practices. The weaker key to this is performing vegan food practices by growing, retailing or eating plant foods; the stronger, more consistent key implies producing and/or consuming crops cultivated by vegan organic standards.

This performativity entails that not only vegans, but also carnists and vegetarians, can perform vegan food practices—simply, for example, by having a lunch free of animal input, or by growing vegetables by vegan organic standards. Analysing boundary-drawing practices has revealed that the boundaries of veganism and carnism are neither self-evident nor fixed. With Shotwell’s (2016) *Against Purity* in mind (see 9.1), this impurity of diets is in a way welcome, or at least we can learn from it.

The impurity of diets brings to mind that vegans constantly, and perhaps unconsciously and involuntarily, make ethical compromises as their food is being nourished by animal manure and bone meal. Vegans can (and increasingly do) learn that they need to address more than a consumer phenomenon and more than the suffering of domesticated animals. Caring *only* for those nonhuman animals we can easily develop a bond of affection and compassion with, for example, because they are “cute” and cruelly slaughtered, is itself a somewhat narcissistic, humanist, and anthropocentric trait. Wildlife suffers equally from animal agriculture’s extinction agenda, even though often indirectly through habitat loss.

Carnists, in turn, do not purely eat meat, although, in the heat of the argument, it may sometimes appear so. They can learn to appreciate both vegetable and animal-sourced foods much more by really making sure to eat no more of the latter than what can be considered as ecologically sound. Scientific evidence (see 1.1) suggests that, in consequence, they will have to perform vegan food practices most of the time.

Furthermore, not only consumers but also producers can perform vegan food practices. A documentary on *Bradley Nook Farm* (see 4.1), *73 Cows*, just won the Bafta for the best short film for stressing, as *The Guardian* quotes the *Humane Society*, the ‘strong ethical as well as environmental imperative to leave meat off the menu’ (Shoard & Pulver 2019: no p.). Producers (intra-)act ethically, too, and not in a vacuum. An Irish dairy farmer who had seen the *BBC Countryfile* piece on *Bradley Nook Farm* (see 4.1.2) joined in by also sending her cattle to *Hillside* sanctuary in Norfolk (Allen 2017). More recently, a farmer in Devon gave his lambs to a sanctuary, focusing on growing vegetables from now on (BBC 2019). In a sustainable future, most farming will have to be based on the performance of vegan food production practices, whether it is done for ethical reasons or not, and regardless of a farmer’s personal identity as a vegan, vegetarian, or carnist.

As a disclaimer and in order to clarify, I suggest that the applicability of the term vegan food practices may be quite situational. I acknowledge that *Unicorn*, the co-operative grocery which keeps its vegan offer inconspicuously (see 5.1), does so strategically, in order not to lose non-vegan customers and make them perform vegan food practices more often. The routinised nature of practices, particularly in the context of eating (Warde 2016), and the lesson from the vegan reducitarian movement (see 5.1.2) suggests that open controversy may sometimes be counter-productive to the vegan cause. Particularly in more “visceral” (see Hayes-Conroy & Hayes-Conroy 2010) situations such as sitting at the dining table or doing grocery shopping, vegan advocates seem to be well-advised avoiding value debates.

Similarly, in her account of political responsibility, Young (2006) sees no point in liability, i.e. blaming and shaming people involved in structural injustices for past harm done. Whether the aim is to overcome carnism or to “meet it halfway”, either way might require to let the past be the past. However, her ‘social connection model’ focuses on assigning and taking responsibility in a forward-looking temporality. Both producers and consumers are born into complicity with structural injustices, but due to the indeterminacy of the future (see 2.3.3), they cannot opt out of being accountable for what they do next.

As delineated in subsection 9.2.2, rather than using the term “vegan”, “plant-based” is often used to avoid off-putting debates on identity and ideology. Fair enough—businesses want to sell their products and, ecologically, it does not really matter *why* animal-sourced foods

decrease. In all other, rather “non-visceral” situations, however, that is neither eating nor shopping, it may be counter-productive to adopt this terminology and, thereby, dematerialise and depoliticise food practices—particularly in academic and policy contexts. Therefore, insisting on the notion of *vegan* (rather than plant-based) food practices means to hold stakeholders accountable for the effects of their current and future practices while calling a spade a spade.

9.3.3 ...on a Shared Planet? Implementing the Half Earth Proposal

The relational conception of (vegan) food practices proposed in the previous subsection, might—or so I hope—enrich academic and policy debates with (re)materialised, posthumanist agency, i.e. help actualising biocentric declarations of mutual dependence.

The term Half Earth was coined by Hiss (2014) in an article on evolutionary biologist Edward O. Wilson, who, amongst others, leads an ongoing debate about conserving half of the planet for (nonhuman) nature (Dinerstein et al. 2017, Noss et al. 2012, Wilson 2016). Against the background of dramatic losses of biodiversity, also referred to as the sixth mass extinction in the history of the planet (Ceballos et al. 2015; see also Worm et al. 2006), this (seemingly) ambitious goal might conserve (only) about 85 per cent of existing species (Wilson 2016). As opposed to *environmental justice*, i.e. fair distribution of environmental goods and bads among humans, sharing the Earth can be seen as a biocentric account of *ecological justice* to nature, and Half Earth might just be where the demands of environmental and ecological justice meet halfway (Wienhues 2017, 2018).

Accounts of its practical implementation, however, have been rather silent about animal agriculture’s land use. A recent exception is Mehrabi et al. (2018) who address potential global trade-offs between the areas given back to nature and agricultural production. Among the political consequences for achieving the Half Earth conservation targets, they mention, albeit briefly, the need for agricultural and culinary changes by replacing feed crops with food crops for direct human consumption. Willett et al. (2019) put their account of healthy diets from environmentally sustainable food systems in context with Half Earth conservation efforts, yet without making clear that avoiding feed conversion reduces land use (see 1.1). The hesitancy with which an actual degrowth of animal agriculture is (or is not) put forth illustrates hardship within dominant food security discourses to address the vegan question openly.

A truly biocentric approach might be a precondition for conceding that ‘justice to nature’ (Wienhues 2017) might only be achieved if humanity and its domesticated animals occupy less biomass and land. My materialised and politicising account of vegan food practices (see

9.3.2) might inform future research frameworks in this field. Conceptualised as an undogmatic performative practice, it grants a space of reconciliation for maintaining carnist and vegetarian food practices in principle, as long as vegan ones *dominate* daily life in order to mitigate climate change and mass extinction. Dogmatic debates on dietary purity and identity can be resumed as soon as humanity, by adopting biocentric practices, will have navigated terrestrial life toward a relatively safe operating space just as Half Earth has the potential to be.

10. A Posthumanist Declaration of Dependency: Redrawing Boundaries Towards Politically Mature Food Practices

'You are not mature enough to tell it like it is. Even that burden you leave to us children [...] you say you love your children above all else, and yet you are stealing their future in front of their very eyes.' (Greta Thunberg at COP24 in Katowice in December 2018)

About three decades have passed since the insight that 'our common future' (Brundtland 1987) is at stake spread more widely and was followed by the Earth Summit in Rio de Janeiro 1992. Ironically, with these decades being dominated by mantras of economic growth and neoliberal policies, humans now use more land, emit more greenhouse gases, and produce more plastic and animal products than ever. Today, it is activists such as *Extinction Rebellion*¹⁵ and 16-year-old Greta Thunberg who demand systemic changes and deplore that neither adults in general, nor governments in specific, are (behaving) mature enough to take appropriate action against anthropogenic climate change and mass extinction (see Walker 2019 for a critical account of how children are held responsible as 'agents of change').

This thesis resonates with Thunberg's accusation of immaturity inasmuch as, overall, neither the impact of animal farming nor the potential of vegan food practices to mitigate ecological crises are taken seriously in producer practices and sustainability debates. My starting point was the discrepancy between overwhelming scientific evidence for animal agriculture's high social-ecological costs due to feed conversion losses and an underwhelming will of producers, policy makers, and even academics to demand reductions through dietary changes, let alone degrowth of the livestock sector in *absolute* terms (see Fuchs et al. 2016). The findings suggest that what stakeholders usually serve as "vegan" is strongly centred on consumer identities and essentialises properties of foods, for example, by assuming a carrot to be "vegan" *per se*. This lacks the depth of a processual perspective, one which includes the practices through which vegan subjects and objects, people and foods, come into being in the first place. Even though a carrot is usually nourished by manure, bone meal, or other animal derivatives used to fertilise fields, its status as a "vegan" food remains unquestioned within that framework. In short, conventional accounts of carnism and veganism are largely dematerialised, depoliticising, and thus "*immature*".

By saying that 'language has been granted too much power' and that discourse and culture have been receiving attention, whilst 'the only thing that does not seem to matter anymore is matter', Barad (2003: 801) makes an important point about the rampant anthropocentrism

¹⁵ <https://rebellion.earth/>

within social sciences. *Agential Realism*, her relational approach to material-discursive practices, enforces to account fully, or at least more *maturely*, for the entanglements of *what is* (ontology), *what is known* (epistemology), and *what should be* (ethics/politics). Drawing upon Barad's theory, this thesis sheds light on the boundary-drawing practices, that is the material-discursive inclusions and exclusions which normalise or problematise specific food practices, particularly veganism. Conducting material-discursive analyses based on interviews and ethnographic observations at different foodscapes, this research has foregrounded various patterns of boundary-drawing.

At *Bradley Nook Farm*, the farmers decided to give up meat and dairy production in favour of vegan organic growing. Owing to a sentimentalising focus on the compassion the farmers (genuinely) felt for their cattle, commentators turned out not to report on the ecological reasons the farmers nonetheless had for their decision. Framing veganism simply as a consumer phenomenon, various media such as *BBC Countryfile* fundamentally failed to either understand or convey that the farmers' plan to grow *vegan organic* crops refers to a production standard, certified by the *Vegan Organic Network*, which consistently excludes animal derivatives from crop cultivation. This processual dimension is conventionally ignored in representational, i.e. identity-based, accounts of veganism (or any other food practice).

Lest this is fully attributed to carnist recalcitrance, other insights suggest that even within the vegan movement important ethical reasons for performing vegan food practices are depoliticised. Firstly, by tendencies to confine the realm of the ethical to concerns about the well-being of *domesticated* animals only, rather than *all* living beings and their habitats. Secondly, by reducing vegan advocacy largely to enacting changes in consumer demand, rather than making production an ethical matter. As a result, vegans involuntarily and often unknowingly make ethical compromises when they buy their food from the 99.9 per cent of retailers who have a "vegan" offer in conventional terms, which includes plant foods grown with animal derivatives.

However, this blind spot is compromising not only for vegans. Rather than being simply about the ethical purity of vegan diets, it matters much more broadly and should be considered in food security and sustainability debates. These tend to merely suggest (bio)technological means to increase animal husbandry's (feed) efficiency. The feasibility of feeding a rising world population with *vegan productivity*, however, is largely ignored, although, from a bio-physical perspective, there is no doubt that replacing feed crops grown on arable land with food crops for direct human consumption is more energy efficient. Thus, growing food crops, rather than feed crops, either nourishes a bigger population on a (near-)vegan diet

or requires less land to provide sufficiently for the current population (opening up possibilities for rewilding and carbon sequestration).

The interviews at a dairy farm and a big retailer have unearthed arguments against more vegan food practices. Firstly, there is an assumption that the UK's naturalcultural topology, dominated by *grassland*, does not allow for reducing animal agri- and culinary culture. This argument stands and falls with the logically inconsistent move to ignore not only the considerable amount of feed crops grown on *arable land* (where natural suitability is not an issue), but also the possibilities to reclaim pastures for plant food production. Secondly, the adoption of an efficiency key to sustainability leads retailers and farms to consider only techno-practical improvements of animal agriculture. This ignores the remaining (still unsustainable) footprint of "improved" carnist food practices as well as the possibility of socio-practical change towards a more vegan agri- and culinary culture which, by the second law of thermodynamics, i.e. through the absence of feed conversion losses, generally yields larger sustainability gains than improving animal agriculture's feed efficiency.

Other findings show that even the production of grains, vegetables and fruits to an organic standard, which expresses aspirations for sustainable practices, typically relies largely on animal agriculture to fertilise fields. Consistently forgoing animal manure and bone meal, by contrast, requires intra-acting with alternative agencies in practices such as composting, producing carbon-sequestering humus soil, mulching, and using green manures in order to keep nutrients flowing in closed loops and maintain soil fertility. Internationally, it is the *IFOAM*-certified biocyclic-vegan standards, and in the UK the *Vegan Organic Network* and their associated growers, who challenge widespread assumptions, particularly among "conventional organic" circles, that crops cannot be produced without inputs from animal agriculture. Stakeholders emphasise the need for an agricultural paradigm shift accompanied by research on practices to consistently and thus *processually* free food production from domesticated animals.

However, mainstream food sustainability debates are still largely devoid of questioning animal agriculture (see 1.1; see also Arcari 2017a). This hardly surprises considering that, in the broader public and media too, veganism is a heavily polarising label, often seen as a buzzword for a mere fad, provoking conflicts over the naturalness and purity of dietary identities of consumers. In this thesis, I seek to explain the behaviour and identities of neither individual corporate, human, or nonhuman agents nor carnist or vegan advocates. Rather, I foreground the rampant patterns—phenomena occurring as part of foodscapes and across—of representational boundary-drawing that exclude significant material-discursive dimensions of (different) agri- and culinary culture(s). The conventional use of terms such as "plant-based",

“food waste”, or the “water-energy-food nexus” illustrates that social-ecological ramifications, particularly feed conversion losses of nutritional energy, are often only superficially understood and—even among academics—rarely taken into account. That debates on “ethical” food practices are largely confined to whether or not to have compassion with farm animals risks foreclosing ethical responsibility for catastrophic phenomena such as climate change and mass extinction which are an existential threat to *all* animals, including humans.

I began this thesis by stealing from the *Communist Manifesto* (Marx & Engels 1992 [1848]), saying that, instead of communism, the spectre of veganism is haunting foodscapes around the globe. Marx and Engels revealed capitalism to be a historically-specific mode of production that can be overcome by shifts in power and practices. Their metaphor of the (in)famous spectre implies that socio-material change will inevitably cause fears and reactionary resistance. Just as capitalist economic practices (see Gibson-Graham 2006; see also 3.2 and 5.1.1), carnist food practices, too, are ultimately contingent. For fear of the spectre, stakeholders try to confine veganism to consumer choice; put behind the neoliberal bars of the “free market”, the threat to “normal” food practices is confined—or so they hope. However, as Peet et al. (2011: 14) note, ‘something scarcely credible might indeed be happening: “normal” production and consumption destroy the natural environment, historical origin and material source of human existence’. Rather than pursuing hopeless tasks such as putting spectres behind bars, what is needed to survive climate change and mass extinction in the ‘anthropo-obscene’ (Swyngedouw and Ernstson 2018) is a *mature* relational approach to food (and other) practices. The contribution of this thesis is to sketch how to ‘meet the universe halfway’ (Barad 2007) by integrating the mitigation potential of vegan food practices into a deeply materialised, posthumanist political ontology.

Not everybody is or wants to be a vegan. Yet, anybody can perform what I call *vegan food practices*. This is conditional on redrawing boundaries of food practices as capable of being performed regardless of both one’s dietary identity as a vegan, vegetarian, or “meat eater” (carnist) and one’s position as a consumer or producer. Rather than shooing the spectre of veganism away, this is an attempt at reconciliation by allowing for diverse food practices to co-exist ideologically while nonetheless insisting on the *absolute ethical minimum*. Meeting halfway, here, means that not everybody has to become fully vegan, but the amount of animal-sourced foods produced collectively must be as low as necessary to at least ensure a safe and just operating space for us, the posthumanist us, all life on Earth. Dogmatic debates can be revived as soon as that space is ensured.

Declarations of mutual dependence such as Half Earth might reclaim just enough space, time, and possibility for non-human and non-domesticated thriving to save us from materialising

the worst possible magnitudes of climate change¹⁶ and mass extinction¹⁷—provided that attempts for implementation are mature enough to consider both the intrinsic feed conversion inefficiency of carnist food practices and the mitigation potential of vegan organic food practices. That, of course, requires systemic material-discursive changes beyond techno-fixes, green growth, and consumer ethics.

¹⁶ i.e. beyond 1.5 °C (IPCC 2018)

¹⁷ saving less than 85 per cent of currently existing species (Wilson 2016)

References

- Abbott EA (1884) *Flatland: A Romance of Many Dimensions*. London: Seeley & Co.
- Abrahamsson S, Bertoni F, Mol A, et al. (2015) Living with Omega-3: New Materialism and Enduring Concerns. *Environment and Planning D: Society and Space* 33(1): 4–19.
- Adams CJ (1990) *The Sexual Politics of Meat: A Feminist-Vegetarian Critical Theory*. 20th Anniversary edition (2010). New York, London: Continuum.
- Alaimo S (2012) Sustainable This, Sustainable That: New Materialisms, Posthumanism, and Unknown Futures. *PMLA* 127(3): 558–564.
- Alaimo S (2016) *Exposed: Environmental Politics and Pleasures in Posthuman Times*. Minneapolis, London: University of Minnesota Press.
- Alaimo S and Hekman S (eds.) (2008) *Material Feminisms*. Bloomington: Indiana University Press.
- Alvaro C (2017) Ethical Veganism, Virtue, and Greatness of the Soul. *Journal of Agricultural and Environmental Ethics* 30(6): 765–781.
- Anders A and Eisenbach J (2017) Biocyclic-Vegan Agriculture. *Vegan Organic Network* (ed.) *Growing Green International* No. 39(Summer/Autumn): 32–34.
- Anderson B, Kearnes M, McFarlane C, et al. (2012) On assemblages and geography. *Dialogues in Human Geography* 2(2): 171–189.
- Andreatta MM (2015) Being a Vegan - A Performative Autoethnography. *Cultural Studies ↔ Critical Methodologies* 15(6): 477–486.
- Arcari P (2017a) Normalised, human-centric discourses of meat and animals in climate change, sustainability and food security literature. *Agriculture and Human Values* 34(1): 69–86.
- Arcari P (2017b) Perverse visibilities? Foregrounding non-human animals in “ethical” and “sustainable” meat consumption. *The Brock Review* 13(1): 24–53.
- Archer M (2011) Ordering the vegetarian meal? There’s more animal blood on your hands. In: *The Conversation*. Available at: <http://theconversation.com/ordering-the-vegetarian-meal-theres-more-animal-blood-on-your-hands-4659> (accessed 25 October 2017).
- Archer MS (2013) Collective Reflexivity: A Relational Case for It. In: Powell C and Dépelteau F (eds.) *Conceptualizing Relational Sociology - Ontological and Theoretical Issues*. New York: Palgrave Macmillan, pp. 145–161.
- Arent DJ, Döll P, Strzepek KM, et al. (2014) Cross-Chapter Box on the Water–Energy–Food/ Feed/Fiber Nexus as Linked to Climate Change. In: Field CB, Barros VR, Dokken DJ, et al. (eds.) *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, New York: Cambridge University Press, pp. 163–166.
- Asda (2017a) One roast chicken - 3 great meals. *Good Living* (January): 32–33.
- Asda (2017b) “We could save thousands each year.” *Good Living* (January): 29–31.
- Asda (2017c) Weigh to go! *Good Living* (January): 82.
- Atkins PJ (1988) Redefining agricultural geography as the geography of food. *Area* 20(3): 281–283.
- Bacon L and Krpan D (2018) (Not) Eating for the environment: The impact of restaurant menu design on vegetarian food choice. *Appetite* 125: 190–200.
- Bailey C (2007) We are what we eat: Feminist vegetarianism and the reproduction of racial identity. *Hypatia* 22(2): 39–59.
- Banchoff TF (1990) From Flatland to Hypergraphics: Interacting with Higher Dimensions. *Interdisciplinary Science Reviews* 15(4): 364–372.
- Barad K (2003) Posthumanist performativity: Toward an understanding of how matter comes to matter. *Signs: Journal of women in culture and society* 28(3): 801–831.
- Barad K (2007) *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham, London: Duke University Press.
- Barad K (2010) Quantum Entanglements and Hauntological Relations of Inheritance: Dis/continuities, SpaceTime Enfoldings, and Justice-to-Come. *Derrida Today* 3(2): 240–268.

- Barad K (2012a) Nature's Queer Performativity. *Kvinder, Køn og forskning/ Women, Gender and Research* (1–2): 25–53.
- Barad K (2012b) On Touching—The Inhuman That Therefore I Am. *differences* 23(3): 206–223.
- Barad K (2012c) What Is the Measure of Nothingness? Infinity, Virtuality, Justice / Was Ist Das Maß Des Nichts? Unendlichkeit, Virtualität, Gerechtigkeit. *dOCUMENTA* (13): 100 Notes – 100 Thoughts / 100 Notizen – 100 Gedanken | Book N°099 (English & German edition). Ostfildern: Hatje Cantz Verlag.
- Barad K (2014) Diffracting Diffraction: Cutting Together-Apart. *Parallax* 20(3): 168–187.
- Barad K (2016) La grandeur de l'infinitésimal: Nuages de champignons, écologies du néant, et topologies étranges de l'espace-temps matérialisant. *Multitudes* 65(4): 64–74.
- Barbour J (2009) The Nature of Time. arXiv:0903.3489 [gr-qc]. Available at: <http://arxiv.org/abs/0903.3489> (accessed 13 November 2018).
- Barnett C, Cloke P, Clarke N, et al. (2011) *Globalizing Responsibility: The Political Rationalities of Ethical Consumption*. Chichester: Wiley-Blackwell.
- Bauriedl S and Wissen M (2002) Nachhaltigkeit als Konfliktterrain. Post-fordistische Transformation und Repräsentationen von Natur in der Metropolregion Hamburg. *geographische revue* 4(2): 35–55.
- BBC (2019) Devon farmer “too upset” by slaughter gives lambs to Kidderminster sanctuary. 28 January. Available at: <https://www.bbc.com/news/uk-england-47026123> (accessed 30 January 2019).
- BBC Stories (2017) A vegetarian beef farmer protecting his stock from slaughter. Available at: <https://www.youtube.com/watch?v=9kEchDPXvtA> (accessed 4 July 2017).
- Beardsworth A and Keil T (1991) Vegetarianism, Veganism, and Meat Avoidance: Recent Trends and Findings. *British Food Journal* 93(4): 19–24.
- Beardsworth A and Keil T (1992) The Vegetarian Option: Varieties, Conversions, Motives and Careers. *The Sociological Review* 40(2): 253–293.
- Bell D and Valentine G (1997) *Consuming Geographies: We Are Where We Eat*. London: Routledge.
- Bellotti E and Panzone L (2016) Media effects on sustainable food consumption. How newspaper coverage relates to supermarket expenditures. *International Journal of Consumer Studies* 40(2): 186–200.
- Bennett J (2010) *Vibrant Matter: A Political Ecology of Things*. Durham: Duke University Press.
- Birks M, Chapman Y and Francis K (2008) Memoing in qualitative research - Probing data and processes. *Journal of Research in Nursing* 13(1): 68–75.
- Blaikie P (1995) Changing Environments or Changing Views? A Political Ecology for Developing Countries. *Geography* 80(3): 203–214.
- Blaikie P (1999) A Review of Political Ecology. Issues, Epistemology and Analytical Narratives. *Zeitschrift für Wirtschaftsgeographie* 43(Heft 3-4): 131–147.
- Bowler IR and Ilbery BW (1987) Redefining agricultural geography. *Area* 19: 327–332.
- Braidotti R (1994) *Nomadic Subjects: Embodiment and Sexual Difference in Contemporary Feminist Theory*. New York: Columbia University Press.
- Braun B (2002) *The Intemperate Rainforest: Nature, Culture, and Power on Canada's West Coast*. Minneapolis.
- Braun B and Whatmore S (2010) The Stuff of Politics: An Introduction. In: Braun B and Whatmore S (eds.) *Political Matter - Technoscience, Democracy, and Public Life*. Minneapolis, London: University of Minnesota Press, pp. ix–xl.
- Bröckling U, Krasmann S and Lemke T (2011) From Foucault's Lectures at the Collège de France to Studies of Governmentality - An Introduction. In: Bröckling U, Krasmann S, and Lemke T (eds.) *Governmentality: Current Issues and Future Challenges*. New York, London: Routledge, pp. 1–33.
- Bruinsma J (2003) *World agriculture: towards 2015/2030: an FAO perspective*. London: Earthscan Publications.
- Brundtland GH (1987) *Our common future: Report of the World Commission on Environment and Development*. Oxford: Oxford University Press.
- Bryant RL and Goodman MK (2004) Consuming narratives: the political ecology of 'alternative' consumption. *Transactions of the Institute of British Geographers* 29(3): 344–366.

- Burnett G (2017) On humanure and vegan organic growing systems. *Vegan Organic Network* (ed.) *Growing Green International* No. 38(Winter/Spring): 14–15.
- Butler J (1990) *Gender Trouble. Feminism and the Subversion of Identity*. New York, London: Routledge.
- Butler J (1993) *Bodies That Matter: On the Discursive Limits of “Sex.”* New York: Routledge.
- BVL - Bundesamt für Verbraucherschutz und Lebensmittelsicherheit (2018) Abgelaufene Pflanzenschutzmittel. Available at: https://www.bvl.bund.de/SharedDocs/Downloads/04_Pflanzenschutzmittel/Abgelaufene_PSM.html (accessed 19 March 2018).
- Caldwell ML (2004) Domesticating the French Fry: McDonald’s and Consumerism in Moscow. *Journal of Consumer Culture* 4(1): 5–26.
- Callon M (1986) The Sociology of an Actor-Network: The Case of the Electric Vehicle. In: Callon M, Law J, and Rip A (eds.) *Mapping the Dynamics of Science and Technology: Sociology of Science in the Real World*. London: Palgrave Macmillan UK, pp. 19–34.
- Carolan M and Stuart D (2016) Get Real: Climate Change and All That ‘It’ Entails. *Sociologia Ruralis* 56(1): 74–95.
- Carolan MS (2011) *Embodied Food Politics*. Farnham, Burlington.
- Casselot M-A (2016) Ecofeminist Echoes in New Materialism? *PhaenEx* 11(1): 73–96.
- Cassidy ES, West PC, Gerber JS, et al. (2013) Redefining agricultural yields: from tonnes to people nourished per hectare. *Environmental Research Letters* 8(3): 034015. DOI: 10.1088/1748-9326/8/3/034015.
- Castricano J and Simonsen RR (eds.) (2016) *Critical Perspectives on Veganism*. London: Palgrave Macmillan.
- Ceballos G, Ehrlich PR, Barnosky AD, et al. (2015) Accelerated modern human-induced species losses: Entering the sixth mass extinction. *Science Advances* 1(5): e1400253. DOI: 10.1126/sciadv.1400253.
- Cherry E (2006) Veganism as a Cultural Movement: A Relational Approach. *Social Movement Studies* 5(2): 155–170.
- Cherry E (2015) I Was a Teenage Vegan: Motivation and Maintenance of Lifestyle Movements. *Sociological Inquiry* 85(1): 55–74.
- Clarke AE (2005) *Situational Analysis: Grounded Theory After the Postmodern Turn*. Thousand Oaks, London, New Delhi: SAGE.
- Clarke AE (2010) Situational Analysis. In: *Encyclopedia of Case Study Research*. Thousand Oaks: SAGE Publications, Inc., pp. 871–875.
- Clarke AE, Friese C and Washburn R (eds.) (2015) *Situational Analysis in Practice: Mapping Research with Grounded Theory*. Walnut Creek: Left Coast Press.
- Cole M (2014) ‘The greatest cause on earth’: The historical formation of veganism as an ethical practice. In: Taylor N and Twine R (eds.) *The Rise of Critical Animal Studies: From the Margins to the Centre*. London: Taylor & Francis Group, pp. 203–224.
- Cole M (2017) Introducing leafu. *Vegan Organic Network* (ed.) *Growing Green International* No. 38(Winter/Spring): 20.
- Cole M and Morgan K (2011a) Veganism Contra Speciesism: Beyond Debate. *The Brock Review* 12(1): 144–163.
- Cole M and Morgan K (2011b) Vegaphobia: derogatory discourses of veganism and the reproduction of speciesism in UK national newspapers. *The British Journal of Sociology* 62(1): 134–153.
- Cole M and Stewart K (2017) Speciesism Party: A Vegan Critique of Sausage Party. *ISLE: Interdisciplinary Studies in Literature and Environment*. DOI: 10.1093/isle/isx075.
- Cook I and Crang P (1996) The World On a Plate: Culinary Culture, Displacement and Geographical Knowledges. *Journal of Material Culture* 1(2): 131–153.
- Cook I, Crang P and Thorpe M (1998) Biographies and geographies: consumer understandings of the origins of foods. *British Food Journal* 100(3): 162–167.
- Cook I et al. (2006) Geographies of food: following. *Progress in Human Geography* 30(5): 655–666.
- Cooper D (1994) Productive, relational and everywhere? Conceptualising power and resistance within Foucauldian feminism. *Sociology* 28(2): 435–454.

- Cottrell F (1955) *Energy and Society: The Relation between Energy, Social Change, and Economic Development*. New York, Toronto, London: McGraw-Hill.
- Countryfile (2017) *Worcestershire*. First Broadcast: BBC One, 02/07/2017. Available at: <https://www.bbc.co.uk/programmes/b08xhdrl> (accessed 4 July 2017).
- Crang MA and Cook I (2007) *Doing Ethnographies*. Los Angeles: SAGE.
- Crossley N (2011) *Towards Relational Sociology*. London, New York: Routledge.
- Crutzen PJ (2002) Geology of mankind. *Nature* 415(6867): 23.
- Cudworth E (2014) Beyond Speciesism: Intersectionality, Critical Sociology and the Human Domination of Other Animals. In: Taylor N and Twine R (eds.) *The Rise of Critical Animal Studies: From the Margins to the Centre*. London: Taylor & Francis Group, pp. 19–35.
- Cummins S and Macintyre S (2002) A Systematic Study of an Urban Foodscape: The Price and Availability of Food in Greater Glasgow. *Urban Studies* 39(11): 2115–2130.
- Darlington D (2010) *Growing Sustainability*. Manchester: The Vegan Organic Network.
- Darnhofer I, Lamine C, Strauss A, et al. (2016) The resilience of family farms: Towards a relational approach. *Journal of Rural Studies* 44: 111–122.
- De Backer CJS and Hudders L (2014) From Meatless Mondays to Meatless Sundays: Motivations for Meat Reduction among Vegetarians and Semi-vegetarians Who Mildly or Significantly Reduce Their Meat Intake. *Ecology of Food and Nutrition* 53(6): 639–657.
- de Ruiter H, Macdiarmid JI, Matthews RB, et al. (2017) Total global agricultural land footprint associated with UK food supply 1986–2011. *Global Environmental Change* 43: 72–81.
- Deckers J (2016) *Animal (De)Liberation : Should the Consumption of Animal Products Be Banned?* London: Ubiquity Press.
- Deleuze G and Guattari F (1987) *A Thousand Plateaus: Capitalism and Schizophrenia*. Minneapolis: University of Minnesota Press.
- Dépelteau F (2015) Relational sociology, pragmatism, transactions and social fields. *International Review of Sociology* 25(1): 45–64.
- Detia-Degesch (2018) The harvest is only the beginning. Available at: <http://www.detia-degesch.de/index.php?lang=en&hid=1> (accessed 19 March 2018).
- Díaz Carmona EM (2012) Profile of the Vegan Animal Rights Activist in Spain. *Revista Espanola de Investigaciones Sociologicas* 3(139): 175–188.
- Díaz EM (2016) Animal Humanness, Animal Use, and Intention to Become Ethical Vegetarian or Ethical Vegan. *Anthrozoös* 29(2): 263–282. DOI: 10.1080/08927936.2016.1152720.
- Díaz EM (2017) Predictive Ethical Consumption: Gender and Veganism. *Journal of Consumer Ethics* 1(2): 100–110.
- Diaz-Bone R and Schneider W (2010) Qualitative Datenanalysesoftware in der sozialwissenschaftlichen Diskursanalyse - Zwei Praxisbeispiele. In: Keller R, Hirsland A, Schneider W, et al. (eds.) *Handbuch Sozialwissenschaftliche Diskursanalyse. Band 2: Forschungspraxis*. Wiesbaden: Springer, pp. 491–529.
- Dibden J, Gibbs D and Cocklin C (2013) Framing GM crops as a food security solution. *Journal of Rural Studies* 29. *Food Security*: 59–70.
- Dicks LV, Bardgett RD, Bell J, et al. (2013) What Do We Need to Know to Enhance the Environmental Sustainability of Agricultural Production? A Prioritisation of Knowledge Needs for the UK Food System. *Sustainability* 5(7): 3095–3115.
- Dilworth C (2009) General Principles. In: Boersema JJ and Reijnders L (eds.) *Principles of Environmental Sciences*. Springer, pp. 75–83.
- Dinerstein E, Olson D, Joshi A, et al. (2017) An Ecoregion-Based Approach to Protecting Half the Terrestrial Realm. *Bioscience* 67(6): 534–545.
- Dirksmeier P (2013) Zur Methodologie und Performativität qualitativer visueller Methoden – Die Beispiele der Autofotografie und reflexiven Fotografie. In: Rothfuß E and Dörfler T (eds.) *Raumbezogene Qualitative Sozialforschung*. Wiesbaden, pp. 83–101.
- Dolphijn R (2005) *Foodscapes: Towards a Deleuzian Ethics of Consumption*. Delft: Eburon Publishers.
- Donati P (2011) *Relational Sociology. A New Paradigm for the Social Sciences*. London: Routledge.

- Doyle J (2016) Celebrity vegans and the lifestyling of ethical consumption. *Environmental Communication* 10(6): 777–790.
- Dragsdahl R-C (2016) The practices of Indian vegetarianism in a world of limited resources. In: Sahakian M, Saloma CA, and Erkman S (eds.) *Food Consumption in the City: Practices and Patterns in Urban Asia and the Pacific*. London: Routledge, pp. 141–157.
- Dyett PA, Sabaté J, Haddad E, et al. (2013) Vegan lifestyle behaviors. An exploration of congruence with health-related beliefs and assessed health indices. *Appetite* 67: 119–124.
- Dyke J (2014) Peak phosphorus will be a shortage we can't stomach. In: *The Conversation*. Available at: <http://theconversation.com/peak-phosphorus-will-be-a-shortage-we-cant-stomach-25065> (accessed 23 March 2017).
- Ehgartner U (2018) Discourses of the food retail industry: Changing understandings of 'the consumer' and strategies for sustainability. *Sustainable Production and Consumption* 16: 154–161.
- Emel J and Neo H (2011) Killing for profit: global livestock industries and their socio-ecological implications. In: Peet R, Robbins P, and Watts M (eds.) *Global Political Ecology*. London, New York, pp. 67–83.
- Emirbayer M (1997) Manifesto for a relational sociology. *American Journal of Sociology* 103(2): 281–317.
- Emirbayer M (2013) Relational Sociology as Fighting Words. In: Powell C and Dépelteau F (eds.) *Conceptualizing Relational Sociology - Ontological and Theoretical Issues*. New York: Palgrave Macmillan, pp. 209–211.
- Ermann U (2006) Geographien moralischen Konsums: Konstruierte Konsumenten zwischen Schnäppchenjagd und fairem Handel. *Berichte zur deutschen Landeskunde* 80(2): 197–220.
- Escobar A (1998) Whose knowledge, whose nature? Biodiversity, conservation, and the political ecology of social movements. *Journal of political ecology* 5(1): 53–82.
- Evans AB and Miele M (2012) Between food and flesh: how animals are made to matter (and not matter) within food consumption practices. *Environment and Planning D: Society and Space* 30(2): 298–314.
- Evans D (2011) Consuming conventions: sustainable consumption, ecological citizenship and the worlds of worth. *Journal of Rural Studies* 27(2): 109–115.
- Evans D (2014) *Food Waste: Home Consumption, Material Culture and Everyday Life*. London, New York: Bloomsbury Academic.
- Evans DM (2018) What is consumption, where has it been going, and does it still matter? *The Sociological Review*: 003802611876402. DOI: 10.1177/0038026118764028.
- FAO (2006) *Livestock's long shadow: environmental issues and options*. Rome: Food and Agriculture Organization of the United Nations. Available at: <http://www.fao.org/docrep/010/a0701e/a0701e00.HTM> (accessed 25 October 2012).
- FAO (2009) *The State of Food Insecurity in the World: Economic crises – impacts and lessons learned*. Rome: Food and Agriculture Organization of the United Nations.
- FAO (2014) *The Water-Energy-Food Nexus: A new approach in support of food security and sustainable agriculture*. Rome: Food and Agriculture Organization of the United Nations. Available at: <http://www.fao.org/3/a-bl496e.pdf> (accessed 12 February 2019).
- FAO (2018) *The State of Food Insecurity in the World: Building climate resilience for food security and nutrition*. Rome: Food and Agriculture Organization of the United Nations.
- Fiscaletti D and Sorli A (2015) Perspectives of the Numerical Order of Material Changes in Timeless Approaches in Physics. *Foundations of Physics* 45(2): 105–133.
- Fish K (2013) Relational Sociology and Historical Materialism: Three Conversation Starters. In: Powell C and Dépelteau F (eds.) *Conceptualizing Relational Sociology - Ontological and Theoretical Issues*. New York: Palgrave Macmillan, pp. 27–44.
- Flitner M (2003) Kulturelle Wende in der Umweltforschung? - Aussichten in Humanökologie, Kulturökologie und Politische Ökologie. In: Gebhardt H, Reuber P, and Wolkersdorfer G (eds.) *Kulturgeographie – Aktuelle Ansätze Und Entwicklungen*. Heidelberg, Berlin, pp. 213–228.
- Foer JS (2009) *Eating Animals*. New York: Little, Brown and Company.
- Forchtner B and Tominc A (2017) Kalashnikov and Cooking-spoon: Neo-Nazism, Veganism and a Lifestyle Cooking Show on YouTube. *Food, Culture & Society* 20(3): 415–441.
- Foucault M (1977) *Überwachen Und Strafen. Die Geburt des Gefängnisses*. Frankfurt am Main: Suhrkamp.

- Foucault M (1980) *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*. New York: Pantheon Books.
- Foucault M (1991) *Die Ordnung des Diskurses*. Inauguralvorlesung Am Collège de France, 2. Dezember 1970. Frankfurt am Main: Fischer.
- Foucault M (1993) *Technologien des Selbst*. Frankfurt am Main: Fischer.
- Foucault M (2004a) *Die Geburt der Biopolitik - Geschichte der Gouvernementalität II*. Frankfurt am Main: Suhrkamp.
- Foucault M (2004b) *Sicherheit, Territorium, Bevölkerung - Geschichte der Gouvernementalität I*. Frankfurt am Main: Suhrkamp.
- Foucault M (2005) *Schriften, in Vier Bänden. = Dits et Ecrits 1980-1988/4*. Frankfurt am Main: Suhrkamp.
- Fox NJ and Alldred P (2015) New materialist social inquiry: designs, methods and the research-assemblage. *International Journal of Social Research Methodology* 18(4): 399–414.
- Fox NJ, Bissell P, Peacock M, et al. (2018) The Micropolitics of Obesity: Materialism, Markets and Food Sovereignty. *Sociology* 52(1): 111–127.
- Freeman CP (2010) Meat's Place on the Campaign Menu: How US Environmental Discourse Negotiates Vegetarianism. *Environmental Communication* 4(3): 255–276.
- Freidberg S (2010) Commentary. Perspective and power in the ethical foodscape. *Environment and Planning A* 42: 1868–1874.
- Friedland WH (1984) Commodity systems analysis: an approach to the sociology of agriculture. In: Schwarzweller HK (ed.). *Research in Rural Sociology and Development*. Greenwich, CT, pp. 221–235.
- Fuchs D, Di Giulio A, Glaab K, et al. (2016) Power: the missing element in sustainable consumption and absolute reductions research and action. *Journal of Cleaner Production* 132: 298–307.
- Garnett T and Godde C (2017) *Grazed and confused? FCRN - Food Climate Research Network*. Available at: http://www.fcrn.org.uk/sites/default/files/project-files/fcrn_gnc_report.pdf (accessed 25 October 2017).
- Gerber PJ, Steinfeld H, Henderson B, et al. (2013) *Tackling Climate Change through Livestock*. Rome: Food and Agriculture Organization of the United Nations. Available at: www.fao.org/3/i3437e/I3437E.pdf (accessed 17 January 2019).
- Gherardi S (2015) To start practice theorizing anew: The contribution of the concepts of agencement and formativeness. *Organization*: 1–19. DOI: 10.1177/1350508415605174
- Gibson-Graham JK (2006) *A Postcapitalist Politics*. Minneapolis.
- Gibson-Graham JK (2008) Diverse economies: performative practices for 'other worlds'. *Progress in Human Geography* 32(5): 613–632.
- Glaser BG and Strauss AL (2010) *Grounded Theory. Strategien Qualitativer Forschung*. Bern: Huber.
- Glasze G, Hussein S and Mose J (2009) Kodierende Verfahren in der Diskursforschung. In: Glasze Georg and Matissek A (eds.) *Handbuch Diskurs Und Raum. Theorien Und Methoden Für Die Humangeographie Sowie Die Sozial- Und Kulturwissenschaftliche Raumforschung*. Bielefeld, pp. 293–314.
- Godfray HCJ, Beddington JR, Crute IR, et al. (2010) Food Security: The Challenge of Feeding 9 Billion People. *Science* 327(5967): 812–818.
- Goodland R and Anhang J (2009) Livestock and climate change: what if the key actors in climate change are... cows, pigs, and chickens? Worldwatch Institute. Available at: <http://www.worldwatch.org/files/pdf/Livestock%20and%20Climate%20Change.pdf>.
- Goodman D and Watts M (eds.) (1997) *Globalising Food: Agrarian Questions and Global Restructuring*. London.
- Goodman MK (2016) Food geographies I: Relational foodscapes and the busy-ness of being more-than-food. *Progress in Human Geography* 40(2): 257–266.
- Goodman MK, Maye D and Holloway L (2010) Ethical foodscapes?: premises, promises, and possibilities. *Environment and Planning A* 42(8): 1782–1796.
- Graham D (2014a) Mind your language, and know your terminology. *Vegan Organic Network* (ed.) *Growing Green International* No. 33(Summer): 9–10.

- Graham D (2014b) Planting the seeds of social, economic and political change. *Vegan Organic Network* (ed.) *Growing Green International* No. 33(Summer): 28–29.
- Graham D (2016) Celebrating 20 years of the Vegan Organic Network. *Vegan Organic Network* (ed.) *Growing Green International* No. 37(Summer/Autumn): 8–11.
- Greenebaum J (2012) Veganism, Identity and the Quest for Authenticity. *Food, Culture & Society* 15(1): 129–144.
- Greenebaum J and Dexter B (2017) Vegan men and hybrid masculinity. *Journal of Gender Studies* 0(0): 1–12. DOI: 10.1080/09589236.2017.1287064.
- Greenhalgh JFD (1976) The dilemma of animal feeds and nutrition. *Animal Feed Science and Technology* 1(1): 1–7.
- Gulati M, Jacobs I, Jooste A, et al. (2013) The Water–energy–food Security Nexus: Challenges and Opportunities for Food Security in South Africa. *Aquatic Procedia* 1. At the Confluence - Selection from the 2012 World Water Week in Stockholm: 150–164.
- Gustavsson J, Cederberg C and Sonesson U (2011) *Global food losses and food waste: extent, causes and prevention*. Rome: Food and Agriculture Organization of the United Nations.
- Guthman J (2007) Commentary on teaching food: Why I am fed up with Michael Pollan et al. *Agriculture and human values* 24(2): 261–264.
- Guthman J (2008) Neoliberalism and the making of food politics in California. *Geoforum* 39(3): 1171–1183.
- Guthman J (2011) Excess consumption or over-production?: US farm policy, global warming, and the bizarre attribution of obesity. In: Peet R, Robbins P, and Watts M (eds.) *Global Political Ecology*. London, New York, pp. 51–66.
- Hall J and Tolhurst I (2015) *Growing Green: Organic Techniques for a Sustainable Future*. 3rd edition (first published March 2006). Manchester: The Vegan Organic Network.
- Hamilton C (2016) sex, work, meat: the feminist politics of veganism. *Feminist Review* 114(1): 112–129.
- Haraway D (1985) Manifesto for Cyborgs: Science, technology, and socialist feminism in the 1980s. *Socialist Review* 80: 65–108.
- Haraway D (1991) *Simians, Cyborgs, and Women. The Reinvention of Nature*. New York: Routledge.
- Haraway D (2003) *The Companion Species Manifesto: Dogs, People and Significant Otherness*. 2nd edition. Chicago: Prickly Paradigm Press.
- Hardy C and Thomas R (2014) Discourse in a Material World. *Journal of Management Studies* 52(5): 680–696.
- Harris E (2009) Neoliberal subjectivities or a politics of the possible? Reading for difference in alternative food networks. *Area* 41(1): 55–63.
- Harvey M (2014) The Food-Energy-Climate Change Trilemma: Toward a Socio-Economic Analysis. *Theory, Culture & Society* 31(5): 155–182.
- Hawking S and Mlodinow L (2010) *Der Große Entwurf: Eine Neue Erklärung Des Universums*. Reinbek bei Hamburg: Rowohlt.
- Hayes-Conroy J and Hayes-Conroy A (2010) Visceral Geographies: Mattering, Relating, and Defying. *Geography Compass* 4(9): 1273–1283.
- Hecht SB (1998) Tropische Biopolitik — Wälder, Mythen, Paradigmen. In: Flitner M, Görg C, and Heins V (eds.) *Konfliktfeld Natur: Biologische Ressourcen Und Globale Politik*. Opladen, pp. 247–274.
- Hedenus F, Wirsén S and Johansson DJA (2014) The importance of reduced meat and dairy consumption for meeting stringent climate change targets. *Climatic Change* 124(1–2): 79–91.
- Helfferich C (2011) Allgemeine Grundlagen. In: *Die Qualität Qualitativer Daten*. Wiesbaden: Springer, pp. 21–54.
- Herrero M, Gerber P, Vellinga T, et al. (2011) Livestock and greenhouse gas emissions: The importance of getting the numbers right. *Animal Feed Science and Technology* 166–167: 779–782.
- Hirschler CA (2011) “What Pushed Me over the Edge Was a Deer Hunter”: Being Vegan in North America. *Society and Animals* 19(2): 156–174.
- Hirth S (2015) Umwandlungsverluste in der Tierproduktion und globale Ernährungssicherheit. In: Strüver A (ed.) *Geographien der Ernährung - Zwischen Nachhaltigkeit, Unsicherheit und Verantwortung*.

Hamburger Symposium Geographie. Hamburg: Institut für Geographie der Universität Hamburg, pp. 31–49.

- Hiss T (2014) Can the World Really Set Aside Half of the Planet for Wildlife? In: Smithsonian. Available at: <https://www.smithsonianmag.com/science-nature/can-world-really-set-aside-half-planet-wildlife-180952379/> (accessed 26 February 2019).
- Hopkins PD and Dacey A (2008) Vegetarian Meat: Could Technology Save Animals and Satisfy Meat Eaters? *Journal of Agricultural and Environmental Ethics* 21(6): 579–596.
- Hsiao T (2017) Industrial Farming is Not Cruel to Animals. *Journal of Agricultural and Environmental Ethics* 30(1): 37–54.
- Huber J and Keller M (2017) Fleischalternativen - Ernährungsphysiologische Bewertung von konventionell und ökologisch erzeugten vegetarischen und veganen Fleisch- und Wurstaternen. Studie im Auftrag der Albert Schweitzer Stiftung für unsere Mitwelt. Berlin. Available at: www.albert-schweitzer-stiftung.de/fleischalternativen-studie.
- Hughes R (2017) Countryfile HITS BACK as viewers have MELTDOWN over “vegan” farmer eating an EGG. Available at: <https://www.express.co.uk/pictures/celebrity/4445/Adventurous-Countryfile-nature-presenter-Ellie-Harrison-in-pictures> (accessed 26 January 2018).
- Hultman K and Lenz Taguchi H (2010) Challenging anthropocentric analysis of visual data: a relational materialist methodological approach to educational research. *International Journal of Qualitative Studies in Education* 23(5): 525–542.
- IAASTD -Washington, DC: International Assessment of Agricultural Knowledge, Science and Technology for Development Global report. .
- Iovino S (2013) Material Ecocriticism: Matter, Text, and Posthuman Ethics. In: Müller T and Sauter M (eds.) *Literature, Ecology, Ethics: Recent Trends in Ecocriticism*. Heidelberg: Universitätsverlag Winter, pp. 51–68.
- Iovino S (2015) The Living Diffractions of Matter and Text: Narrative Agency, Strategic Anthropomorphism, and how Interpretation Works. *Anglia* 133(1): 69–86.
- Iovino S and Oppermann S (2014) *Material Ecocriticism*. Bloomington, IN: Indiana University Press.
- IPCC (2007) *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. Geneva. Available at: <https://www.ipcc.ch/report/ar4/syr/>.
- IPCC (2014) *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. Geneva. Available at: <https://www.ipcc.ch/report/ar5/syr/>.
- IPCC (2018) *Special Report: Global Warming of 1.5 °C*. October. Geneva. Available at: <https://www.ipcc.ch/sr15/>.
- Jackson P (2000) Rematerializing social and cultural geography. *Social & Cultural Geography* 1(1): 9–14.
- Jackson P (2015) *Anxious Appetites: Food and Consumer Culture*. London, New York: Bloomsbury.
- Jackson P, Ward N and Russell P (2009) Moral economies of food and geographies of responsibility. *Transactions of the Institute of British Geographers* 34(1): 12–24.
- Jalava M, Kummu M, Porkka M, et al. (2014) Diet change—a solution to reduce water use? *Environmental Research Letters* 9(7): 074016. DOI: 10.1088/1748-9326/9/7/074016.
- Janssen M, Busch C, Rödiger M, et al. (2016) Motives of consumers following a vegan diet and their attitudes towards animal agriculture. *Appetite* 105: 643–651.
- Jenkins S and Twine R (2014) On the limits of food autonomy: Rethinking choice and privacy. In: Taylor N and Twine R (eds.) *The Rise of Critical Animal Studies: From the Margins to the Centre*. London: Taylor & Francis Group, pp. 225–240.
- Jewitt S (2011) Geographies of shit: Spatial and temporal variations in attitudes towards human waste. *Progress in Human Geography* 35(5): 608–626.
- Johnston J and Goodman MK (2015) Spectacular Foodscapes: Food celebrities and the politics of lifestyle mediation in an age of inequality. *Food, Culture & Society* 18(2): 205–222.
- Johnston J, Biro A and MacKendrick N (2009) Lost in the Supermarket: The Corporate-Organic Foodscape and the Struggle for Food Democracy. *Antipode* 41(3): 509–532.

- Joy M (2010) *Why We Love Dogs, Eat Pigs, and Wear Cows: An Introduction to Carnism*. San Francisco: Conari Press.
- Kalthoff J and Werner M (1998) *Die Händler Des Zyklon B: Tesch & Stabenow: Eine Firmengeschichte Zwischen Hamburg Und Auschwitz*. Hamburg: VSA.
- Kazig R and Weichhart P (2009) Die Neuthematisierung der materiellen Welt in der Humangeographie. *Berichte zur deutschen Landeskunde* 83(2): 109–128.
- Kirsch S (2013) Cultural geography I: Materialist turns. *Progress in Human Geography* 37(3): 433–441.
- Klein N (2014) *This Changes Everything: Capitalism Vs. The Climate*. New York: Simon and Schuster.
- Klohn W and Voth A (2010) *Agrargeographie*. Darmstadt: WBG.
- Kraftl P, Balastieri JAP, Campos AEM, et al. (2018) (Re)thinking (re)connection: Young people, “natures” and the water–energy–food nexus in São Paulo State, Brazil. *Transactions of the Institute of British Geographers* 0(0). DOI: 10.1111/tran.12277.
- Kropotkin P (2009) *Mutual Aid: A Factor of Evolution*. London: Freedom Press.
- Krüger T and Strüver A (2018) Narrative der ‚guten Ernährung‘: Ernährungsidentitäten und die Aneignung öffentlicher Nachhaltigkeitsdiskurse durch Konsument*innen. *Zeitschrift für Wirtschaftsgeographie* 62(3–4): 217–232.
- Laestadius LI, Neff RA, Barry CL, et al. (2014) “We don’t tell people what to do”: An examination of the factors influencing NGO decisions to campaign for reduced meat consumption in light of climate change. *Global Environmental Change* 29: 32–40.
- Lamnek S (2010) *Qualitative Sozialforschung*. 5., vollständig überarbeitete Aufl. Weinheim, Basel: Beltz.
- Lamont M (2012) Toward a Comparative Sociology of Valuation and Evaluation. *Annual Review of Sociology* 38(1): 201–221.
- Lamont M and Molnár V (2002) The Study of Boundaries in the Social Sciences. *Annual Review of Sociology* 28(1): 167–195.
- Lang T and Barling D (2012) Food security and food sustainability: reformulating the debate. *The Geographical Journal* 178(4): 313–326.
- Larsson CL, Rönnlund U, Johansson G, et al. (2003) Veganism as status passage: the process of becoming a vegan among youths in Sweden. *Appetite* 41(1): 61–67.
- Latimer J (2013) Being Alongside: Rethinking Relations amongst Different Kinds. *Theory, Culture & Society* 30(7–8): 77–104.
- Latour B (2005) *Reassembling the Social - An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.
- Law J and Mol A (2008) Globalisation in practice: On the politics of boiling pigswill. *Geoforum* 39(1): 133–143.
- Le Heron R (1993) *Globalized Agriculture: Political Choice*. Oxford, New York: Pergamon Press.
- Leitzmann C (2003) Nutrition ecology: the contribution of vegetarian diets. *The American journal of clinical nutrition* 78(3): 657S–659S.
- Leitzmann C and Keller M (2013) *Vegetarische Ernährung*. Stuttgart: UTB.
- Lemke H (2012) *Politik des Essens - Wovon die Welt von morgen lebt*. Bielefeld: Transcript.
- Lemke T (2015) New Materialisms: Foucault and the “Government of Things.” *Theory, Culture & Society* 32(4): 3–25.
- Leneman L (1999) No Animal Food: The Road to Veganism in Britain, 1909-1944. *Society and Animals* 7(3): 219–228.
- Lester A (2012) Humanism, race and the colonial frontier. *Transactions of the Institute of British Geographers* 37(1): 132–148.
- Lorimer J (2012) Multinatural geographies for the Anthropocene. *Progress in Human Geography* 36(5): 593–612.
- Lundborg T and Vaughan-Williams N (2015) New Materialisms, discourse analysis, and International Relations: a radical intertextual approach. *Review of International Studies* 41(01): 3–25.
- Lünzer I (1979) *Energiefragen in Umwelt und Landbau*. Burg: Verlag das fenster.

- MacDonald K and Montford KS (2014) Eating Animals to Build Rapport: Conducting Research as Vegans or Vegetarians. *Societies* 4(4): 737–752.
- MacGregor S and Seymour N (eds.) (2017) *Men and Nature: Hegemonic Masculinities and Environmental Change. RCC Perspectives: Transformations in Environment and Society*, 2017, no. 4. DOI: 10.5282/rcc/7977
- Mansvelt J (2010) Geographies of consumption: engaging with absent presences. *Progress in Human Geography* 34(2): 224–233.
- Marcus E (1998) *Vegan: The New Ethics of Eating*. Ithaca: McBooks Press.
- Marsden T (2010) Food 2030: Towards a Redefinition of Food? A Commentary on the New United Kingdom Government Food Strategy. *The Political Quarterly* 81(3): 443–446.
- Martens L (2016) From intergenerational transmission to intra-active ethical-generational becoming: Children, parents, crabs and rockpooling. *Families, Relationships and Societies* 5(3): 447–462.
- Marx K (1981 [1894]) *Capital*. Vol. 3. New York: Vintage.
- Marx K and Engels F (1992 [1848]) *The Communist Manifesto*. Oxford: Oxford University Press.
- Massey D (1992) Politics and Space/Time. *New Left Review* 196: 65–84.
- Massey D (2005) *For Space*. London: SAGE.
- Massey D (2013) Vocabularies of the Economy. In: Hall S, Massey D, and Rustin M (eds.) *After Neoliberalism? The Kilburn Manifesto*. Soundings, pp. 3–17.
- Mathar T (2008) Review Essay: Making a Mess with Situational Analysis? *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research* 9(2). Available at: <http://www.qualitative-research.net/index.php/fqs/article/view/432> (accessed 4 March 2016).
- Matheny G (2003) Least Harm: A Defense of Vegetarianism from Steven Davis's Omnivorous Proposal. *Journal of Agricultural and Environmental Ethics* 16(5): 505–511.
- Mattisek A and Wiertz T (2014) Materialität und Macht im Spiegel der Assemblage-Theorie: Erkundungen am Beispiel der Waldpolitik in Thailand. *Geographica Helvetica* 69(3): 157–169.
- Mazzei LA (2013) A voice without organs: interviewing in posthumanist research. *International Journal of Qualitative Studies in Education* 26(6): 732–740.
- McDonald B (2000) Once you know something, you can't not know it. *Society and Animals* 8(1): 1–23.
- McFarlane C (2009) Translocal assemblages: Space, power and social movements. *Geoforum* 40(4). Themed Issue: The 'view from nowhere'? Spatial politics and cultural significance of high-resolution satellite imagery: 561–567.
- McFarlane C (2011) Assemblage and critical urbanism. *City* 15(2): 204–224.
- McFarlane C (2013) Relational Sociology, Theoretical Inhumanism, and the Problem of the Nonhuman. In: Powell C and Dépelteau F (eds.) *Conceptualizing Relational Sociology - Ontological and Theoretical Issues*. New York: Palgrave Macmillan, pp. 45–66.
- McLeod K (2014) Orientating to Assembling: Qualitative Inquiry for More-Than-Human Worlds. *International Journal of Qualitative Methods* 13(1): 377–394.
- McMichael AJ, Powles JW, Butler CD, et al. (2007) Food, livestock production, energy, climate change, and health. *The Lancet* 370(9594): 1253–1263.
- Mermin ND (1998) What is quantum mechanics trying to tell us? *American Journal of Physics* 66(9): 753–767.
- Metz M and Hoffmann I (2010) Effects of Vegetarian Nutrition—A Nutrition Ecological Perspective. *Nutrients* 2(5): 496–504.
- Miewald C and McCann E (2014) Foodscapes and the Geographies of Poverty: Sustenance, Strategy, and Politics in an Urban Neighborhood. *Antipode* 46(2): 537–556.
- Mikkelsen BE (2011) Images of foodscapes: Introduction to foodscape studies and their application in the study of healthy eating out-of-home environments. *Perspectives in Public Health* 131(5): 209–216.
- Minson JA and Monin B (2012) Do-Gooder Derogation: Disparaging Morally Motivated Minorities to Defuse Anticipated Reproach. *Social Psychological and Personality Science* 3(2): 200–207.
- Mitchell D (1995) There's No Such Thing as Culture: Towards a Reconceptualization of the Idea of Culture in Geography. *Transactions of the Institute of British Geographers* 20(1): 102–116.

- Mol A (2002) *The Body Multiple: Ontology in Medical Practice*. Durham, London: Duke University Press.
- Monbiot G (2018) The best way to save the planet? Drop meat and dairy. *The Guardian*, 8 June. Available at: <https://www.theguardian.com/commentisfree/2018/jun/08/save-planet-meat-dairy-livestock-food-free-range-steak> (accessed 8 June 2018).
- Monson S (2005) *Earthlings* (Film). USA.
- Moore JW (2016) The Rise of Cheap Nature. In: Moore JW (ed.) *Anthropocene or Capitalocene? Nature, History and the Crisis of Capitalism*. Oakland, CA: PM Press, pp. 78–115.
- Morgan K (2013) The Rise of Urban Food Planning. *International Planning Studies* 18(1): 1–4.
- Morris C and Evans N (2004) Agricultural turns, geographical turns: retrospect and prospect. *Journal of Rural Studies* 20(1): 95–111.
- Morris C and Kirwan J (2006) Vegetarians: uninvited, uncomfortable or special guests at the table of the alternative food economy? *Sociologia ruralis* 46(3): 192–213.
- Murdoch J, Marsden T and Banks J (2000) Quality, nature, and embeddedness: some theoretical considerations in the context of the food sector. *Economic Geography* 76(2): 107–125.
- Musil R (1978) *Der Mann Ohne Eigenschaften*. Reinbek bei Hamburg: Rowohlt.
- Mylan J (2018) Sustainable Consumption in Everyday Life: A Qualitative Study of UK Consumer Experiences of Meat Reduction. *Sustainability* 10(7): 2307. DOI: 10.3390/su10072307.
- Nally D (2011) The biopolitics of food provisioning. *Transactions of the institute of British geographers* 36(1): 37–53.
- Naylor R, Steinfeld H, Falcon W, et al. (2005) Agriculture: Losing the Links Between Livestock and Land. *Science* 310: 1621–1622.
- New Economics Foundation (2017) *Grow Green: Solutions for the farm of the future*. Available at: www.vegansociety.com/growgreen.
- Nijdam D, Rood T and Westhoek H (2012) The price of protein: Review of land use and carbon footprints from life cycle assessments of animal food products and their substitutes. *Food Policy* 37(6): 760–770.
- Nimmo R (2010) *Milk, Modernity and the Making of the Human: Purifying the Social*. London, New York: Routledge.
- Noss RF, Dobson AP, Baldwin R, et al. (2012) Bolder Thinking for Conservation. *Conservation Biology* 26(1): 1–4.
- Oreskes N and Conway E (2010) *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming*. London: Bloomsbury.
- Pachucki MA, Pendergrass S and Lamont M (2007) Boundary processes: Recent theoretical developments and new contributions. *Poetics* 35(6). Culture lines: Emerging research on boundaries: 331–351.
- Peet R, Robbins P and Watts M (2011) Global Nature. In: Peet R, Robbins P, and Watts M (eds.) *Global Political Ecology*. London, New York, pp. 1–47.
- Pelletier N and Tyedmers P (2010) Forecasting potential global environmental costs of livestock production 2000–2050. *Proceedings of the National Academy of Sciences* 107(43): 18371–18374.
- Pimentel D (2009) Agriculture and Food Problems. In: Boersema JJ and Reijnders L (eds.) *Principles of Environmental Sciences*. Springer, pp. 513–516.
- Pimentel D and Pimentel M (2003) Sustainability of meat-based and plant-based diets and the environment. *The American Journal of Clinical Nutrition* 78(3): 660S–663S.
- Pimentel D, Hurd LE, Bellotti AC, et al. (1973) Food Production and the Energy Crisis. *Science* 182(4111): 443–449.
- Pollan M (2006) *The Omnivore's Dilemma: A Natural History of Four Meals*. New York: Penguin Books.
- Poore J and Nemecek T (2018) Reducing food's environmental impacts through producers and consumers. *Science* 360(6392): 987–992.
- Poulter S (2017) Exposed: “Hell hole” pig farm used for green energy. Available at: [http://www.dailymail.co.uk/~article-4221860/index.html](http://www.dailymail.co.uk/~/article-4221860/index.html) (accessed 25 August 2017).

- Powell C (2013) Radical Relationism: A Proposal. In: Powell C and Dépelteau F (eds.) *Conceptualizing Relational Sociology - Ontological and Theoretical Issues*. New York: Palgrave Macmillan, pp. 187–208.
- Powell C and Dépelteau F (eds.) (2013) *Conceptualizing Relational Sociology - Ontological and Theoretical Issues*. New York: Palgrave Macmillan.
- Probyn E (2011) Eating Roo: Of Things That Become Food. *New Formations* 74(74): 33–45.
- Puig de la Bellacasa M (2010) Ethical doings in naturecultures. *Ethics, Place & Environment* 13(2): 151–169.
- Puig de la Bellacasa M (2015) Making time for soil: Technoscientific futurity and the pace of care. *Social Studies of Science* 45(5): 691–716.
- Puig de la Bellacasa M (2017) *Matters of Care: Speculative Ethics in More Than Human Worlds*. posthumanities 41. Minneapolis, London: University of Minnesota Press.
- Quinn EJ (2016) No Country for Queer Dogs: Veganism in the Contemporary Hollywood Romantic Comedy. *Society & Animals* 24(5): 507–521.
- Raphaely T and Marinova D (2014) Flexitarianism: Decarbonising through flexible vegetarianism. *Renewable Energy* 67. *Renewable Energy for Sustainable Development and Decarbonisation*: 90–96.
- Reckwitz A (2002) Toward a Theory of Social Practices: A Development in Culturalist Theorizing. *European Journal of Social Theory* 5(2): 243–263.
- Reckwitz A (2010) *Subjekt*. Bielefeld: Transcript.
- Redshaw S (2013) Feminist Preludes to Relational Sociology. In: Powell C and Dépelteau F (eds.) *Conceptualizing Relational Sociology - Ontological and Theoretical Issues*. New York: Palgrave Macmillan, pp. 13–26.
- Reijnders L and Soret S (2003) Quantification of the environmental impact of different dietary protein choices. *The American Journal of Clinical Nutrition* 78(3): 664S–668S.
- Renting H, Marsden TK and Banks J (2003) Understanding alternative food networks: exploring the role of short food supply chains in rural development. *Environment and planning A* 35(3): 393–412.
- Righetti N (2016) L'inchiesta digitale è vegano? La rappresentazione del veganismo sulla stampa [Is Digital Ink Vegan? The Representation of Veganism in the Italian Press]. *Cambio* 6(11): 181–194.
- Rockström J, Steffen W, Noone K, et al. (2009) A safe operating space for humanity. *Nature* 461: 472–475.
- Rose G (2007) *Visual Methodologies. An Introduction to the Interpretation of Visual Materials*. London, Thousand Oaks, New Delhi: SAGE.
- Rödl MB (2018) Marketing Meat Alternatives: Meat Myths and Their Replication in Advertising for Plant-Based Meat. In: Bogueva D, Marinova D, and Raphaely T (eds.) *Handbook of Research on Social Marketing and Its Influence on Animal Origin Food Product Consumption: Advances in Marketing, Customer Relationship Management, and E-Services*. Hershey, PA: IGI Global, pp. 327–343.
- Röthlisberger F (2017) What is Humus Soil? The Biocyclic-Vegan Standard, Biocyclic Park Kalamata, IFOAM ABM Meeting. Athens. Available at: <http://www.biocyclic-vegan.org/>.
- Rovelli C (1996) Relational Quantum Mechanics. *International Journal of Theoretical Physics* 35(8): 1637–1678.
- Rovelli C (2004) *Quantum Gravity*. Cambridge: Cambridge University Press.
- Ruby MB (2012) Vegetarianism. A blossoming field of study. *Appetite* 58(1): 141–150.
- Ruby MB, Alvarenga MS, Rozin P, et al. (2016) Attitudes toward beef and vegetarians in Argentina, Brazil, France, and the USA. *Appetite* 96: 546–554.
- Sabaté J (ed.) (2001) *Vegetarian Nutrition*. Boca Raton: CRC Press.
- Saja K (2013) The moral footprint of animal products. *Agriculture and Human Values* 30(2): 193–202.
- Salter K (2016) Can you be a vegan and eat eggs? *The Guardian*, 3 February. Available at: <http://www.theguardian.com/lifeandstyle/2016/feb/03/can-you-be-vegan-eat-eggs> (accessed 4 February 2016).
- Sarmiento ER (2017) Synergies in alternative food network research: embodiment, diverse economies, and more-than-human food geographies. *Agriculture and Human Values* 34(2): 485–497.
- Scarborough P, Appleby PN, Mizdrak A, et al. (2014) Dietary greenhouse gas emissions of meat-eaters, fish-eaters, vegetarians and vegans in the UK. *Climatic Change* 125(2): 179–192.

- Schatzki TR, Knorr Cetina K and von Savigny E (eds.) (2001) *The Practice Turn in Contemporary Theory*. London: Routledge.
- Schlosberg D and Coles R (2016) The new environmentalism of everyday life: Sustainability, material flows and movements. *Contemporary Political Theory* 15(2): 160–181.
- Schmutz U and Foresi L (2017) Vegan organic horticulture – standards, challenges, socio-economics and impact on global food security. *Acta horticulturae* 1164: 475–484.
- Schneider D (2017) Landwirtschaft ohne Tiere? sueddeutsche.de, 1 November. Available at: http://www.sueddeutsche.de/wissen/ernaehrung-landwirtschaft-ohne-tiere-1.3730360?utm_source=Maileon (accessed 21 November 2017).
- Searchinger T, Waite R, Hanson C, et al. (2018) Creating a sustainable food future. A menu of solutions to feed nearly 10 billion people by 2050. Synthesis Report, December. World Resources Institute. Available at: https://wriorg.s3.amazonaws.com/s3fs-public/creating-sustainable-food-future_0.pdf?_ga=2.144437557.1237177695.1548062581-1565012165.1548062581 (accessed 21 January 2019).
- Sen A (1981) *Poverty And Famines: An Essay on Entitlement and Deprivation*. Oxford: Clarendon Press.
- Shapiro KJ (2015) “I am a Vegetarian”: Reflections on a Way of Being. *Society & Animals* 23(2): 128–147.
- Shoard C and Pulver A (2019) Baftas 2019: 73 rescued cows to Joanna Lumley – the real winners and losers. *The Guardian*, 11 February. Available at: <https://www.theguardian.com/film/2019/feb/11/baftas-2019-73-rescued-cows-to-joanna-lumley-the-real-winners-and-losers> (accessed 25 February 2019).
- Shotwell A (2016) *Against Purity: Living Ethically in Compromised Times*. Minneapolis: University of Minnesota Press.
- Skriver CA (1980) *Stephanus*. Hannover: Manufactur.
- Smil V (2002) Worldwide transformation of diets, burdens of meat production and opportunities for novel food proteins. *Enzyme and Microbial Technology* 30(3): 305–311.
- Smil V (2011) Nitrogen cycle and world food production. *World Agriculture* 2: 9–13.
- Smil V (2014) Eating meat: Constants and changes. *Global Food Security* 3(2): 67–71.
- Smolin L (2001) *Three Roads to Quantum Gravity*. New York: Basic Books.
- Snejder P and te Molder HFM (2005) Moral logic and logical morality: Attributions of responsibility and blame in online discourse on veganism. *Discourse & Society* 16(5): 675–696.
- Sobrosa Neto R de C, Berchin II, Magtoto M, et al. (2018) An integrative approach for the water-energy-food nexus in beef cattle production: A simulation of the proposed model to Brazil. *Journal of Cleaner Production* 204: 1108–1123.
- Southern D and Welch D (2016) FOCUS: New Directions in Sustainable Consumption. In: Discover Society. Available at: <http://discoversociety.org/2016/01/05/focus-new-directions-in-sustainable-consumption/> (accessed 12 January 2016).
- Spedding CRW (1981) *Biological Efficiency in Agriculture*. London: Academic Press.
- Spedding CRW (1996) *Agriculture and the Citizen*. London, New York: Chapman & Hall.
- Springmann M, Godfray HCJ, Rayner M, et al. (2016) Analysis and valuation of the health and climate change cobenefits of dietary change. *Proceedings of the National Academy of Sciences* 113(15): 4146–4151.
- Springmann M, Clark M, Mason-D'Croz D, et al. (2018) Options for keeping the food system within environmental limits. *Nature* 562(7728): 519–525.
- St. Martin K (2005) Mapping economic diversity in the First World: the case of fisheries. *Environment and Planning A* 37(6): 959–979.
- Stannard R (1989) *Grounds for Reasonable Belief*. Edinburgh: Scottish Academic Press.
- Stengers I (2010) Including Nonhumans in Political Theory: Opening Pandora's Box? In: Braun B and Whatmore S (eds.) *Political Matter - Technoscience, Democracy, and Public Life*. Minneapolis, London: University of Minnesota Press, pp. 35–62.
- Stephens N, Di Silvio L, Dunsford I, et al. (2018) Bringing cultured meat to market: Technical, socio-political, and regulatory challenges in cellular agriculture. *Trends in Food Science & Technology* 78: 155–166.
- Stoll-Kleemann S and O'Riordan T (2015) The Sustainability Challenges of Our Meat and Dairy Diets. *Environment: Science and Policy for Sustainable Development* 57(3): 34–48.

- Strahm RH (1985) Warum sie so arm sind: Arbeitsbuch zur Entwicklung der Unterentwicklung in der Dritten Welt mit Schaubildern und Kommentaren. 2. Auflage. Wuppertal: Peter Hammer Verlag.
- Strüver A (2012) Fit oder fett - Körperkult(-ur) und die Erforschung der Interdependenzen sozialer und räumlicher Kategorisierungen. *Geographische Zeitschrift* 100(1): 17–33.
- Swyngedouw E and Ernstson H (2018) Interrupting the Anthro-po-obScene: Immuno-biopolitics and Depoliticising Ontologies in the Anthropocene. *Theory, Culture & Society* 35(6): 3–30.
- Timko CA, Holmes JM and Chubski J (2012) Will the real vegetarian please stand up? An investigation of dietary restraint and eating disorder symptoms in vegetarians versus non-vegetarians. *Appetite* 58(3): 982–990.
- Tolia-Kelly DP (2013) The geographies of cultural geography III: Material geographies, vibrant matters and risking surface geographies. *Progress in Human Geography* 37(1): 153–160.
- Tolstoi L, Wichmann C, Reclus E, et al. (2010) Das Schlachten Beenden! Zur Kritik der Gewalt an Tieren. Anarchistische, pazifistische und linkssozialistische Traditionen. Graswurzelrevolution. Available at: http://www.residenzbuch.de/Product/Sach--und-Fachb%C3%BCher_Fachb%C3%BCher/Leo-N-Tolstoi/Das-Schlachten-beenden/45710/4099276460822233274/433576/-3/4099276460822241337/4099276460822241336/4099276460822241336 (accessed 18 June 2014).
- Tomlinson I (2013) Doubling food production to feed the 9 billion: A critical perspective on a key discourse of food security in the UK. *Journal of Rural Studies* 29: 81–90.
- Tuomisto HL and Teixeira de Mattos MJ (2011) Environmental Impacts of Cultured Meat Production. *Environmental Science & Technology* 45(14): 6117–6123.
- Twigg J (1981) The Vegetarian Movement in England 1847-1981: A Study in the Structure of its Ideology. Doctoral dissertation. London School of Economics, University of London, London. Available at: <https://ivu.org/history/thesis/index.html> (accessed 15 April 2018).
- Twine R (2010) Genomic Natures Read through Posthumanisms. *The Sociological Review* 58(S1): 175–195.
- Twine R (2014) Ecofeminism and Veganism: Revisiting the Question of Universalism. In: Adams CJ and Gruen L (eds.) *Ecofeminism: Feminist Intersections with Other Animals and the Earth*. New York: Bloomsbury, pp. 191–208.
- Twine R (2017) A Practice Theory Framework for Understanding Vegan Transition. *Animal Studies Journal* 6(2): 192–224.
- Twine R (2018) Materially Constituting a Sustainable Food Transition: The Case of Vegan Eating Practice. *Sociology* 52(1): 166–181.
- Tykwert T, Wachowski A and Wachowski L (2012) *Cloud Atlas* (Film). Germany, USA.
- Véron O (2016) (Extra)ordinary activism: veganism and the shaping of hemeratomias. *International Journal of Sociology and Social Policy* 36(11/12): 756–773.
- von Koerber K, Kretschmer J and Schlatzer M (2007) Ernährung und Klimaschutz - Wichtige Ansatzpunkte für verantwortungsbewusstes Handeln. *Ernährung im Fokus* 7(5): 130–137.
- Waldmann A, Koschitzke JW, Leitzmann C, et al. (2003) Dietary intakes and lifestyle factors of a vegan population in Germany: results from the German Vegan Study. *European Journal of Clinical Nutrition* 57(8): 947–955.
- Walker C (2019) Victims, saviours or villains? Children in popular climate imaginaries. In: Discover Society, 6 February. Available at: <https://discoversociety.org/2019/02/06/victims-saviours-or-villains-children-in-popular-climate-imaginaries/> (accessed 1 March 2019).
- Warde A (2005) Consumption and theories of practice. *Journal of consumer culture* 5(2): 131–153.
- Warde A (2016) *The Practice of Eating*. Cambridge: Polity Press.
- Warde A (2017) *Consumption - A Sociological Analysis*. London: Palgrave Macmillan.
- Washick B, Wingrove E, Ferguson KE, et al. (2015) Politics that matter: Thinking about power and justice with the new materialists. *Contemporary Political Theory*; Basingstoke 14(1): 63–89.
- Whatmore S (1991) Agricultural geography. *Progress in Human Geography* 15(3): 303–310.
- Whatmore S (2006) Materialist returns: practising cultural geography in and for a more-than-human world. *Cultural Geographies* 13(4): 600–609.

- Whatmore S and Thorne L (1997) Nourishing networks: Alternative geographies of food. In: Goodman D and Watts MJ (eds.) *Globalising Food: Agrarian Questions and Global Restructuring*. London, pp. 287–304.
- Whatmore S, Stassart P and Renting H (2003) What's alternative about alternative food networks? *Environment and Planning A* 35(3): 389–391.
- Wichelns D (2017) The water-energy-food nexus: Is the increasing attention warranted, from either a research or policy perspective? *Environmental Science & Policy* 69: 113–123.
- Wienhues A (2017) *Sharing the Earth: A Biocentric Account of Ecological Justice*. *Journal of Agricultural and Environmental Ethics* 30(3): 367–385.
- Wienhues A (2018) *Life in Common: Distributive Ecological Justice on a Shared Earth*. Doctoral dissertation. The University of Manchester, Manchester. Available at: https://www.research.manchester.ac.uk/portal/files/78647598/FULL_TEXT.PDF (accessed 17 March 2019).
- Willett W, Rockström J, Loken B, et al. (2019) Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. *The Lancet*. DOI: 10.1016/S0140-6736(18)31788-4.
- Wilson EO (2016) *Half Earth: Our Planet's Fight for Life*. New York: Liveright Publishing Corporation.
- Winders B and Nibert D (2004) Consuming the surplus: expanding “meat” consumption and animal oppression. *International Journal of Sociology and Social Policy* 24(9): 76–96.
- Wolfe C (2010) *What Is Posthumanism?* Minneapolis: University of Minnesota Press.
- Worm B, Barbier EB, Beaumont N, et al. (2006) Impacts of Biodiversity Loss on Ocean Ecosystem Services. *Science* 314(5800): 787–790.
- Wrenn CL (2017) Trump Veganism: A Political Survey of American Vegans in the Era of Identity Politics. *Societies* 7(4): 32.
- Wrenn CL and Johnson R (2013) A Critique of Single-issue Campaigning and the Importance of Comprehensive Abolitionist Vegan Advocacy. *Food, Culture & Society* 16(4): 651–668.
- Yeh H-Y (2013) Boundaries, Entities, and Modern Vegetarianism: Examining the Emergence of the First Vegetarian Organization. *Qualitative Inquiry* 19(4): 298–309.
- Yeh H-Y (2014) Voice with Every Bite: Dietary Identity and Vegetarians' “The-Second-Best” Boundary Work. *Food, Culture & Society* 17(4): 591–613.
- Young IM (2006) Responsibility and global justice: a social connection model. *Social Philosophy and Policy* 23(01): 102–130.
- Zachmann K (2012) Past and Present Energy Societies. An Introduction. In: Möllers N and Zachmann K (eds.) *Past and Present Energy Societies. How Energy Connects Politics, Technologies and Cultures*. Bielefeld: transcript, pp. 7–44.
- Zierhofer W (2009) *Materie und Gesellschaft - methodologische Überlegungen*. *Berichte zur deutschen Landeskunde* 83(2): 193–211.

Appendix

Appendix A: Tracing Websites for Discourses and Practices of Sustainability

My project examines the material-discursive practices of eating or not-eating meat and dairy in the context of sustainability problems. As well as trying to understand how carnism and lactism – the ideologies that producing or consuming meat and/or dairy is normal and necessary – materialise performatively, I am interested in the material-discursive practices that challenge this ‘normality’ and ‘necessity’. In the foodscapes to be analysed, *Asda* and *Unicorn*, I trace marks of pleasure or anxiety in relation to dairy and meat as well as sustainability.

A.1 Identifying the main themes: *What is addressed?*

In this step of the analysis, I look at the websites of both companies to search for material-discursive patterns in textual and visual data. Basically, this involves tracing the most important discourses and connected material practices for each company. What is each company’s main narrative with regard to sustainability and, where applicable, to animal agriculture or stockfree agriculture? Moreover, I characterise both differences and similarities between the foodscapes.

For this purpose, I have examined websites and linked videos and reports (see Appendix B.1) by assigning codes or ‘tags’ (see Appendix B.2) that refer in one way or another to sustainability, animal products or veganism. Tags drawn from textual data are relatively close to the original formulation; when it came to visual data I tried to formulate what can factually be seen. These tags are the rather ‘messy’ foundation of further generalisations that are supposed to disclose the broader narratives as well as the material practices of production and consumption connected to these narratives. All in all, this means to map patterns of material-discursive practices within and across the foodscapes.

There are a good dozen of main themes that I have identified in the data. Local Food, for example, is one of these themes; it embraces both textual and visual meanings (how is ‘local’ defined?) as well as specific material practices (which agentic forces are intra-acting ‘locally’? – e.g. trade relations with a local grower). The material practices are regarded as being in a mutually constitutive relation to the discursive practices. In other words, meaning and matter are only separable as part of my analytical agency, i.e. the ‘cuts’ that I enact as a researcher who differentiates between meaningful and negligible, discourse and materiality. On an ontological level, however, I regard matter and meaning as ‘intra-acting’ or ‘entangled’ in complex ways. As a researcher, I must be held accountable for *how* I reduce material-

discursive complexity and *why* I resolve it into particular ‘bits’ while disregarding other ‘bits’ of the relational whole of existence.

Making analytical cuts that differentiate between meaningful and negligible means to simplify complex processes to make them intelligible; while that is an inevitable part of all research, the *actual aim* here is to understand the agential cuts enacted in the foodscapes – the boundary-drawing practices that materialise or challenge the fact that eating meat and dairy are mainly regarded as normal and necessary practices. The fact that specific themes are picked up and others are neglected or ignored within the foodscapes, discloses the material-discursive patterns that I identify as *Asda’s* and *Unicorn’s* main themes.

A lot of these main themes are part of both foodscapes, some are more salient in one foodscape than in the other, and some only occur in one of them (see Tab. 5). Only for analytical purposes I categorise the main themes as falling either into economic, social, or ecological sustainability. Although there is a lot of overlap, some of the main themes are more framed in one of the three columns of sustainability than the others.

Economic Sustainability

Both *Asda* and *Unicorn* are concerned with consumer choices and competitive product prices. Renewable energies are discussed in economic terms but also in the context of ecological sustainability (less so with regard to social aspects).

Asda refers very often to various forms of efficiency, often but not always in connection to dairy or meat production, while these themes are almost absent at *Unicorn*. Food Waste, is picked up by both, although much more is found about this issue on *Asda’s* website.

Unicorn’s dominant economic theme is its status as a worker’s co-operative, while at *Asda* there’s only one little reference to their co-operative dairy supplier *Arla* but also a few references to ‘co-operating’ in a rather abstract a-political sense of working together.

Social Sustainability

The social aspects both *Asda* and *Unicorn* touch upon encompass food (in)security as a current or future challenge; fair-trade as a way of improving livelihoods in Global South or addressing global inequalities between North and South; donating money, foods or other goods to support social projects; products that are ‘free from’ (mainly gluten but sometimes also dairy).

Asda’s favourite issues of efficiency and food waste come along with the prospect of saving money which is presented as beneficial for *Asda*, their customers and their suppliers.

Only *Unicorn* brings up the social issue of Fair Tax Paying, and both its status as an anti- or non-capitalist co-operative and its rather unique and deviant business model result in connotations of revolution and radicalness which is hardly touched upon at *Asda* where it is rather used for ‘revolutionary’ technologies than in the sense of social revolution.

Ecological Sustainability

There’s more than a handful of ecological themes that are found both at *Asda* and *Unicorn*: Local Food and UK Food are very recurrent, although *Asda* focuses more on British origin, while *Unicorn* refers a lot to their local South Manchester suppliers; As a topic, Climate Change and GHG emissions as well as Soil fertility seem to be equally important to both. Other common themes are renewable energy, water/irrigation, deforestation, palm oil, packaging and seasonal food.

Only *Asda* strongly relates efficiency and food waste to ecological sustainability.

Unicorn, for their part, are alone in broaching the issues of organic production versus conventional production and (threats to) biodiversity; in a few cases they connect dairy and meat production and consumption to ecological (un)sustainability, whereas *Asda* is not making this connection as clearly.

Table 5: The main sustainability-related themes that occur on the websites of two retailers (themes occur either in both foodscapes or only one of them; non-bold brackets indicate that a theme occurs only marginally).

<i>Asda & Unicorn</i>	<i>Asda</i>	<i>Unicorn</i>
Choice, customers’	Dairy/Meat	(Dairy/Meat)
Climate Change/GHG Em.	Efficiency	
Competition	Food Waste	(Food Waste)
Deforestation	Saving Money	(Saving Money)
Donating/Project support		Biodiversity
Fair-Trade	(Co-operative/Co-operation)	Co-operative/Co-operation
Food (In)Security		Conventional
Free from		Fair Tax Paying
Local Food/UK Food	(Organic)	Organic
Packaging	(Revolution)	Revolution
Palm oil		(veganism)
Prices		
Renewable energy		
Seasonal		
Soil		
Water/irrigation		

In conclusion, there are many themes in the context of economic, social and ecological sustainability to which both *Unicorn* and *Asda* refer frequently, and there are a few that are touched upon mainly or exclusively by one of them. *Unicorn* focuses on its status as a co-operative, social inequalities, their organic produce, as well as the ecological threats by

conventional agriculture and global food provisioning. *Asda* focuses on saving money by means of efficiency – in particular the efficiency of the dairy and meat supply chain – as well as avoiding food waste.

A.2 How are themes addressed and put in practice?

So far, I have outlined in the most general and – arguably – non-controversial way which themes *Asda* and *Unicorn* do or don't touch upon. The core of the analysis, however, concerns retracing in detail how the themes are addressed. The task is to disclose the commonalities and differences of these themes within and across the foodscapes materialising and 'hosting' particular narratives and correspondent practices.

A.2.1 Framings of Sustainability

Before coming to more specific themes I am going to introduce and discuss briefly where *Asda* or *Unicorn* draw the boundaries of non/sustainable practices. First, I'm going to explore three different patterns of the meaning of 'sustainability' at *Asda*. The statements I discuss here are not necessarily definitions of sustainability in the strict sense but rather framings that help in one way or another to understand how the companies transduce meanings into 'sustainable' practices, and in particular how they switch between different possible meanings of sustainability (which, in turn, would suggest different material practices to respond to unsustainable practices). Subsequently, I will sketch how sustainability is defined and used at *Unicorn*. Finally, I'm going to summarise and discuss the differences and commonalities.

On *Asda's* 'Our approach' website the company specifies their sustainability goals: 'to be supplied by 100% renewable energy; to create zero waste; to sell products that *sustain* people and *the environment*' (App. B.1.1: AS006_00; emphasis mine). While renewable energy and waste are two rather specific issues, the more fundamental level that defines the boundary of non/sustainability is that people and the environment need to be 'sustained' which on the simplest level means that both need continued existence on long-term – anything else would be unsustainable. This existential but still rather abstract call to 'sustain people' is illustrated more drastically in *Asda's Simply Sustainable Soils*. In this manual for farmers, Franklin D. Roosevelt is quoted to remind us that 'The nation that destroys its soil destroys itself' (App. B.1.1: AS023_01). In a more scientific manner, the report warns that in the UK '[m]ost fields are experiencing erosion rates of up to 1.0 t/ha/yr and with soil regeneration rates in the range of 0.5–1.0 t/ha/yr, this is not sustainable' (ibid.). In conclusion, the first framing takes

into account that living beings rely on their environment for sustaining their existence. Put differently, the *Asda* foodscape exhibits marks of anxiety about economic practices as an existential (and therefore unsustainable) threat.

The second framing is remarkably devoid of existential anxieties. *Asda* highlights that their ‘approach to sustainability is based on the belief that protecting the environment and *saving people money* go hand in hand’ (App. B.1.1: AS006_00; emphasis mine). A similar meaning, albeit in a more compacted way, is inferred in *Asda*’s main slogan ‘Save money. Live better.’ In another part of the website, *Asda* suggests that ‘[r]educing carbon also means saving money, and all these actions add up to help us save millions of pounds, which we can then pass onto our customers’ (App. B.1.1: AS007_00). Anxiety has turned into outright pleasure. As well as acting as a generous donator, *Asda* implies that passing on money to their customers, is a socially sustainable practice which, in addition, is compatible with ecological sustainability.

A third and equally pleasurable framing of sustainability comes to the fore when they stress their *long-term commitment* to dairy company *Arla* and their farmers with whom ‘[w]e have been working [...] for over 10 years and have recently strengthened our commitment with a new long term contract’ (App. B.1.1: AS005_00). As this statement is taken from the website ‘Asda and British farming’, which is part of their sustainability homepage, *Asda* implicitly infers that their *sustained* relation to *Arla* is in a broader sense ‘*sustainable*’. This resonates with the common use of ‘sustainability’ as having sustained economic relations.

After sketching three very different framings of sustainability at *Asda* – some coming rather as ‘anxieties’ others more as ‘pleasures’ –, I will now turn to *Unicorn*’s take on it. Like *Asda*, *Unicorn* do in one case provide a negative framing of sustainability. After introducing *Glebelands*, their local South Manchester supplier of organic vegetables, and criticising the big retail business, they warn: ‘In effect what we’re doing is moving towards the most unsustainable option. [...] if there aren’t many more *Glebelands* very soon, people in towns and cities could have very empty stomachs’ (App. B.1.2: UN027). In short, certain practices are acknowledged as an unsustainable existential threat to (urban) food security.

While the former, rather particular quote was supposed to illustrate that the first framing I sketched above for *Asda* occurs at *Unicorn* as well, the following quote is more prominently positioned on *Unicorn*’s website:

‘We aim to trade in a manner which supports a sustainable world environment and economy. We trade preferentially in products which follow the “Fair Trade” ethos and we communicate with our customers about the problems with cash crop agriculture. We are concerned that much of world trade is to the disadvantage of poorer nations with a consequence for people’s health and lives. We operate a fund

from which to support projects addressing and challenging this imbalance. 4% of our wage costs are contributed to this fund. We trade in products which produce minimum impact on the environment and we make decisions about our packaging with this also in mind.’ (App. B.1.2: UN006)

Like *Asda*, *Unicorn* acknowledges that certain economic practices are an existential threat to people and the environment (framing 1); it also frames passing on money to other people as part of social sustainability (framing 2). On the one hand, and not surprisingly, there is some clear overlap in the use of ‘sustainability’.

On the other hand, there are some differences which matter. It makes a practical difference, for example, if money is passed on to one’s customers in the Global North (*Asda*) or one’s suppliers in the Global South (*Unicorn*). Furthermore, the third framing of sustainability as ‘sustained economic relations’ is not picked up literally by *Unicorn*, i.e. they don’t call it ‘sustainability’ when they highlight that ‘we have long supported our growers in other ways, helping them out when times are hard, and always dealing with them in an honest and human way. They tell us they much prefer dealing with us to the supermarkets’ (App. B.1.2: UN012). Long-term commitment, at *Unicorn*, is not depicted as ‘sustainable’ per se.

In the following I will explore how the different patterns in the use of sustainability occur across various themes and are transduced into specific practices.

A.2.2 Sustainability = Efficiency

‘Working to make Asda a better business’ (App. B.1.1: AS004_00), as the second slide on *Asda*’s sustainability homepage states, and changing current practices towards less unsustainability, could be suspected to be challenging, tedious, and bad for profits. *Asda*’s narrative, however, suggests the exact opposite: everybody can profit or, as they put it, ‘reap benefits for the *environment*, *Asda*, our *partners* and, most importantly, our *customers*’ (App. B.1.1: AS006_00; emphasis mine).

One key to these benefits is *Asda*’s relation with their partners or suppliers. *Asda*’s *Sustain & Save Exchange (SSE)* is an online platform that facilitates intra-actions of *Asda*-suppliers enabling them to ‘ask questions, share best practice and identify ways to make their businesses more efficient’ (App. B.1.1: AS006_00). Encouraging suppliers to ‘sustain’ and ‘save’ resonates with *Asda*’s credo of providing consumers with sustainable products while saving money. In a carbo-capitalist economy which, to a high degree, relies on access to fossil fuels and cheap labour for generating profits (Peet et al. 2011), it sounds quite miraculous to say that *everybody* can profit but, for *Asda*, the piece that resolves the puzzle is efficiency.

Asda refers to efficiency in many different contexts like transport, water, packaging, waste, GHG emissions, and social relations:

- ‘Ecolution trucks’ promise 3-6% fuel efficiency benefit
- Using cooking oil from restaurants and rotisseries to make biofuels
- Saving 27,000m³ of water in 2015
- Changing vinegar bottles from glass to plastic saves 250 tonnes of packaging
- Reducing plastic in water bottles by 6% (which makes the “lightest water bottle on the market”)
- Reducing food and drink waste by 20% within 10 years
- Reducing GHG emissions of food and drink by 20% within 10 years
- Efficient Consumer Response (ECR) is an initiative to tackle the biggest issues affecting the food and grocery supply chain, incl. food waste
- Sustain & Save Exchange (SSE) makes businesses more efficient

Asda’s vocabulary resonates strongly with efficiency as they focus on becoming a ‘better’ business; they try to find ‘greener ways to act’ (App. B.1.1: AS007_00); and with their products, even ‘Christmas [is] made better’ (App. B.1.1: AS001_00). On a basic level, efficiency means to improve one’s practices relative to a certain baseline which is usually but not necessarily the status quo; these improvements are usually but not necessarily measurable values.

In *Asda*’s Sustainability Study ‘Green is Normal’ CEO Andy Clarke explains: ‘At Asda we believe that sustainability is good business sense’ (App. B.1.1: AS032_00). In the next paragraph, he connects that good business sense to efficiency:

‘At Asda, our mission is to save our customers money everyday – and that means minimising waste wherever possible and making our business as efficient as possible. For us, sustainability isn’t about reinventing the wheel – it’s just what we do’ (App. B.1.1: AS032_00).

Since, in this foreword to a report which promises to be about sustainability, Clarke puts the mission to save customers money in front, *Asda*’s aim of being ‘green’ or ‘sustainable’ (here reduced to ‘minimising waste’) merely appears as a collateral benefit. His formulation might actually evoke the feeling that, for him, it is more about sustaining the way *Asda* does business rather than sustaining current life-forms’ material conditions for existence on earth.

As *Asda* sells carnist and lactist products, it doesn’t come as a surprise that they also refer to dairy and meat products in terms of efficiency:

- Assessing feed intake for improved genetic selection

- Superior genetics in beef farming (by Cogent)
- Improving beef farms' performance with new technologies
- Improving lamb production's performance
- Lamb feed efficiency trial
- Pioneering the use of calving monitors to improve animal welfare
- Pioneering the use of Video Image Analysis for assessing the market value of carcasses
- Cows drinking 90 to 190 litres of water per day (water efficiency is important)
- Reducing packaging on 'Chosen By You' and 'Butcher's Selection' meat

The slogan I started this section with, 'Working to make *Asda* a better business', is accompanied by an image that is actually worth mentioning. It shows an agricultural scenery including a flock of sheep, apparently mothers and lambs, and a male human with a cane, obviously a shepherd, against the background of a hilly landscape with grass, bushes, flowers, and blue sky. First of all, reading the slogan suggests that *Asda*, raising the issue of improving their business, are aware of certain problems with the way their business works; secondly, they are aware that the process of getting better requires work; thirdly, reading text and image together evokes that somebody in the scenery is actually working towards that end. It doesn't matter if it is the shepherd's best practice, *Asda*'s push towards efficiency, both, or something completely different what makes *Asda* a 'better business', the point for me here is that, in principle, animal agriculture is depicted as being compatible with a sustainable environment.

Another example is a story from *Asda*'s report *Simply Sustainable Water* about their supplier *Billockby Farms* in Norfolk: "The new 24:48 swingover milking parlour has slashed milking times, and the business is well on track with plans to expand towards its 700 cow target. The investments have benefited from grant funding and the advice of their dairy consultant.' The efficiency gains in milking times are not the only mark of 'pleasure' here, as being 'well on track' with the expansion plans is positively connoted as well. Even if this is a single case in which *Asda* doesn't necessarily make a statement about global dairy production, the effects of almost doubling the number of cows on the farm are neither reflected for greenhouse gas emissions, nor for water use, although the whole report is focused on sustainable water use. This suggests, that *Asda* cares about water efficiency rather than absolute amounts of water use.

Asda indirectly problematise their "major supply chains to explain how we source your favourite products" (App. B.1.1: AS005_00) by writing about dairy, beef, lamb, and pork on their sustainability homepage. However, not surprisingly, the sustainability framing here comes along with marks of 'pleasure' about improvement rather than 'anxiety' about

existential threats. Focussing on their long-term commitment to their dairy and meat producers and aspects like increasing feed efficiency (see the bullet points above), *Asda*'s main sustainability strategy is *improving* animal agriculture. Improving rather than abandoning involves taking for granted that animal agriculture is necessary and normal. In a supermarket which sells dairy and meat, this may not be surprising either but a side effect of relating sustainability *mainly* to efficiency is that *Asda* doesn't address the possibility of *absolute reductions* of dairy and meat production and consumption (Fuchs et al. 2016). Plant food is neither in the list of their 'major supply chains', nor is it showcased as one of their customer's 'favourite products' (see App. B.1.1: AS005_00).

A.2.3 Sustainability = Sufficiency

As much as meat is at the heart of a traditional meal, efficiency is at the core of *Asda*'s sustainability strategy. With efficiency as a paradigm, the baseline for sustainability is the unsustainable status quo from where they try to get 'better'. This resonates with sustainability as a mark of 'pleasure' about *improving* unsustainable practices. The opposite approach would be to take the material conditions for existence as a baseline and to build up a business that takes *sufficiency* as a paradigm. In this case, unsustainability would be an existential threat, a mark of 'anxiety' that required *alternative* practices. While sufficiency would work towards sustainable conditions in absolute terms, efficiency improves unsustainable conditions in relative terms. At the core of discourses on improving the efficiency of a particular practice is the implicit assumption that the practice itself cannot be dispensed with.

As a vegan supermarket, *Unicorn* does dispense with the practices of eating dairy, meat or other animal products. Although I will make a point in this direction, I don't intend to argue that *Asda* simply stands for efficiency and *Unicorn* for sufficiency. Firstly, *Unicorn* doesn't use either of the terms (the word 'sufficiency' appears only once in the context of the self-sufficiency of the UK in providing itself with fresh salad; App. B.1.2: UN027). Secondly, eating plants instead of animal products increases nutritional energy efficiency – but it is still eating and consumes some amount of nutritional energy. Strictly speaking, only totally refusing all food would be about sufficiency.

On the other hand, eating plants directly does require significantly less land, water, and other resources. Increasing the efficiency of meat production, in contrast, saves energy only within the physical boundaries of animal husbandry. By this I mean that regular raising of animals¹⁸

¹⁸ In-vitro meat production is a different case, though, as it doesn't involve an animate being that breathes, moves, and uses energy for its metabolism (see Stephens et al. 2018, Tuomisto & Teixeira de Mattos 2011).

inevitably involves conversion losses of nutritional energy (the energy animals use for their metabolism while converting feed crops into dairy or meat; see 1.1). Vegan food practices can save energy beyond that physical boundary set by conversion losses because they simply cannot involve conversion losses. When eating plants, their nutritional energy is used by the human body *directly* (without the lossy detour through the body of a farm animal). Hence, vegan food practices can cross a boundary that the practice of eating-meat-which-is-‘better’-than-other-meat cannot cross by definition and by nature because the genetics of farm animals, for example, can be improved only so much, but the conversion losses, due to the breathing and moving of the animal, are still prescribed by the laws of physics. In that sense, vegan food practices are indeed not only more efficient but also more sufficient. Differentiating the sustainable from the unsustainable may be a complex affair, but vegan food practices can reach at least in terms of that particular criterion – the absence of conversion losses – a dimension of sustainability which is impossible with carnist and lactist food practices that involve animals.

A.2.4 ‘Co-operate or die’

As suggested before, a simple argument connecting *Asda* with efficiency and carnism and *Unicorn* with sufficiency and veganism would fall short. Although I introduced *Unicorn* as a vegan supermarket, they don’t – at least not in written language – present themselves as ‘vegan’. Actually, the term ‘vegan’ barely appears on their website, and it is only in the report ‘Grow a Grocery – A guide to starting and growing a wholefood co-operative’ that they refer to themselves as ‘vegan-friendly’ (App. B.1.2: UN010). In the same report, they explain: ‘*Unicorn* has never marketed itself as a “vegan” or “sugar-free” store, which would have turned away the majority of our customers before they set foot inside’ and ‘[w]hile our stock is entirely vegan-friendly and we appeal particularly to people with specific dietary requirements, we aim to provide a range of goods to satisfy the bulk of any customer’s weekly shop’ (App. B.1.2: UN010).

I will come back to the issue of not marketing veganism (providing a comparison to *Asda* as well) and focus here on how they do market themselves: as a workers’ co-operative. This is how they describe ‘[t]he Unicorn model in a nutshell

- Wholefood grocery store (not a health food shop)
- Fresh, wholesome, quality produce
- Direct and bulk buying, alongside minimal handling
- Large premises (at least 400m²) with half retail, half warehouse area

- Accessible location near market centre; also parking, lorry access, non-high street rates
- Sourcing based on clear nutritional and ethical criteria
- Broad range of products with a focus on staple cooking ingredients
- Prices (like for like) competitive with supermarkets
- Value added through on-site packing (and later, fresh-cooked food)
- Good relationships with suppliers (honest trading and prompt payment)
- Co-operative ownership with a flat management structure
- Dedicated staff, shared principles underpinning all business decisions
- Strong customer loyalty based on trust and clear, consistent ethics
- Welcoming, friendly image' (App. B.1.2: UN010)

It is worth noting that this description is not directed at customers who visit their homepage but, as part of the 'Grow a Grocery' report, it is a manual for people who might want to build a co-operative. Therefore, it is also part of their particular way of expansion:

'Unicorn Grocery was established to provide a real alternative to the supermarket norm. We have achieved this goal on our premises, but we have not really fulfilled our purpose until people stop driving across the country to shop with us' (App. B.1.2: UN010).

This is an interesting statement moving in the grey zones between self-praise and self-critique; while *Unicorn* is proud not to be the norm in this world dominated by 'the multiples', as they refer to multinational corporations, they clearly want co-operative business models to become the norm; while people are driving across the country to shop at *Unicorn*, their vision of a better food system is local sourcing on a global scale.

Expansion, for *Unicorn*, doesn't mean to open new branches, it rather means to spread the idea of co-operation as an alternative to conventional business models. Since all the workers are employees and employers at the same time, the unequal power relations within "normal" labour-capital-relations are undermined:

'As cooperative members, we are all company directors. We take responsibility equally for the decisions that govern our business, from long-term strategy, to budgets and recruitment, to procedures that run the shop from day to day' (App. B.1.2: UN024).

As a co-operative, *Unicorn* is not strictly a capitalist company in the sense Gibson-Graham (2006) suggest, because the surplus value workers generate cannot be appropriated by one or a few 'capitalists'. Not regarding capitalism as an essential structure, but rather a performative economic practice implies the possibility that seeds of alternative economies sprout and thrive, i.e. materialise, in a world that is, although dominated by capitalist practices, not entirely determined by them. These non-capitalist companies may not be entirely independent

from capitalist economic practices as they - due to capitalist dominance - necessarily intra-act with more capitalist agencies, but they do make a difference that matters in one way or another.

That difference is brought to mind quite drastically in the slogan ‘co-operate or die’ which I found printed on a female worker’s shirt on the website’s photo gallery and, in another picture, as a promotion for a social event, the ‘co-operatives fortnight’ (App. B.1.2: UN009). Ironically, this slogan does not only mimic a death threat, a final call for obedience before the trigger is pulled, it also resonates with Russian anarchist geographer Pyotr Kropotkin’s (2009 [1902]) *Mutual Aid: A Factor of Evolution*. His work challenges social-Darwinist interpretations of Darwin’s concept of the struggle for existence which overemphasise competition as well as aggressive or violent behaviour as an evolutionary strategy for survival. Observing behaviour among human and nonhuman animals, Kropotkin argues that in the struggle for existence in a harsh environment *mutual aid* is equally common (sometimes even across species) – an evolutionary survival strategy which is simply disregarded by social Darwinists. While the latter would be more likely to see a call for obedience in ‘co-operate or die’, Kropotkin would see the natural necessity of working together (see also 5.1.1).

Two of the main themes relate particularly to the existential need for co-operation: Fair trade relations as well as retailers co-operating with their suppliers and the life of the soil.

A.2.5 Competition, Fairness and Food Justice

‘We keep competitive on price whilst still promoting our ethics and selling great tasting products.’ (App. B.1.2: UN016) – In its logic, this argument is like *Asda’s* claim that saving money and the environment is compatible. Low prices are depicted as not in contradiction to ethical values.

On other parts of their website, however, *Unicorn* and their supplier *Glebelands* criticise the ‘competitive tendering’ and the historical shift to ‘multiple retailers’ (App. B.1.2: UN027) which, so they argue, destroyed the traditional market gardens of the Mersey Valley in South Manchester (where *Glebelands* produce salads and vegetables for *Unicorn*).

Problematizing and normalising competitiveness alike, may appear as a contradiction, and being ‘competitive on price’ may sound odd or even hypocritical juxtaposed to *Unicorn’s* business model based on co-operation. For a fair evaluation, it is crucial to take into account and discuss in more detail in which specific ways *Unicorn* is ‘competitive’. What are the material-discursive practices connected to it? How do they keep their prices low? How do they resolve the oxymoron of cheap and fair and transduce it into economic practice?

‘We are keen to support our growers, who are typically at the bottom of the food system chain. We try to balance affordable prices for customers with a good return for the growers, a very difficult thing to achieve given the market realities of UK horticulture. Cheap overseas labour, low fuel-mile costs and low grocery expenditure in the UK have all combined to muddle our shopping perceptions. In real terms, fresh fruit and veg has never been cheaper. Farmers (including ours) are surviving on very low wages because *the prices we have all come to expect don’t meet the true costs of production*, and trading systems generally favour the buyers rather than the growers. Although we can’t change the market overnight, we have long supported our growers in other ways, helping them out when times are hard, and always dealing with them in an honest and human way. They tell us they much prefer dealing with us to the supermarkets’ (App. B.1.2: UN012; emphasis mine).

Elsewhere, *Unicorn* claim ‘that the *large supermarkets* are cheaper for one reason: they *don’t pay for the external* social, environmental and economic *costs* they impose on society’ (App. B.1.2: UN027, emphasis mine). *Unicorn’s* main rationale for being competitive and fair at the same time seems to be cutting out the intermediaries common in conventional supply chains. This is achieved by ‘bulk buying’ and ‘adding value through on-site packing’ (App. B.1.2: UN010) as well as having direct trade relations with local and UK growers but also with suppliers from the Global South.

In the sustainability-related quote I presented earlier, *Unicorn* express their concern ‘that much of world trade is to the disadvantage of poorer nations with a consequence for people’s health and lives’ (App. B.1.2: UN006). Part of being a co-operative, and what distinguishes it from a “normal” capitalist company (see Gibson-Graham 2006), is that the workers decide together how the surplus value – or: profit – is redistributed. *Unicorn* operate a fund that redistributes 5% of their wage costs: 1% of that is for supporting co-operative projects in the Global North and 4% address the global inequalities and disadvantages of producers in the Global South.

As well as *Unicorn*, *Asda* sell certified products: ‘We support the use of schemes and standards where they provide clear information that helps customers in their purchasing decisions’ (App. B.1.1: AS029_00). This statement is followed by short descriptions of specific certifications: Red Tractor, Lion Code, Rainforest Alliance, Best Aquaculture Practices (BAP), Forest Stewardship Council (FSC), Organic farming and food, Marine Stewardship Council (MSC), and Fair Trade. The following is the full information they provide their customers with on fair products:

‘Fair Trade is a global organisation with national representation in many countries. It operates in the UK as the Fair Trade Foundation. The Fair Trade Foundation has four areas of activity:

- certification of products and licensing the use of the Fair Trade mark

- helping in growing demand for fair trade products
- supporting producer organisations
- raising awareness of Fair Trade.

Asda stocks a range of Fair Trade labelled products such as hot drinks and chocolate.’ (App. B.1.1: AS029_00)

Comparing *Asda*’s and *Unicorn*’s accounts with regard to my analytical lenses of sustainability either as an existential threat or a thriving improvement, observed as marks of ‘anxiety’ or ‘pleasure’, I see one significant difference. *Unicorn* express a clear concern about the global inequalities between the rich and the poor as well as the unfair power relations between growers and buyers. They acknowledge and empathise with the existential anxieties farmers in the Global South might have, and they respond with their call upon the privileged end of the supply chain to co-operate. *Asda*’s four points to describe the *Fair Trade Foundation*’s activities does not contain any mark of ‘anxiety’ in the sense of an explanation *why* a certification is necessary in the first place; ‘helping in growing demand’, ‘supporting’, ‘raising awareness of Fair Trade’ – all these are positive framings.

The ways, in which the tension between competition, fairness and food justice is resolved in sustainability discourses, matter, because they may either visualise or obscure *how* justice is compromised and *what* is existentially at stake: fairness in sustaining people and the environment.

A.2.6 Soil and Food Security

Food justice and food security are both fundamental issues of economical ethics. While food justice is often discussed in the context of fair trade relations and concerns ethical intra-actions among humans, food security is also a matter of the soil and embraces ethical intra-actions within nature.

In the context of the warning that ‘the nation that destroys its soil destroys itself’ (App. B.1.1: AS023_01), *Asda* and its partner organisation *LEAF* (*Linking Environment and Farming*) are very clear about the need to treat soils differently: ‘On a global scale we are starting to feel the pinch of climate change and the pressures of food security. Effective soil management is of premium importance and we hope that this brochure will inspire many farmers to reflect on utilising this most valuable resource.’ The report goes on to illustrate the urgency with alarming environmental facts: ‘According to UN figures, to date an area big enough to feed Europe (300 million hectares - about 10 times the size of the UK) has been so severely

degraded that it can no longer produce food.’ This quote clearly expresses the severity of the issue, and unlike in other parts of *Asda’s* sustainability website, the ongoing soil degradation materialises as a mark of ‘anxiety’.

But one might ask what, according to *Asda* and *LEAF*, are the reasons for the degradation? The short answer is: soil degradation is mainly framed as a problem of soil compaction and a matter of farmer’s best practices. This is illustrated by a quote on soil drainage from their ‘Simply Sustainable Water’ report:

‘Recent Environment Agency research showed that during the winter, 70% of maize stubble fields had poor soil conditions leading to runoff. One way to minimise this could be to undertake deeper cultivations post-harvest i.e. chisel plough, therefore loosening any compaction and increasing permeability’ (App. B.1.1: AS022_01).

Unicorn’s warning that ‘people in towns and cities could have very empty stomachs’ (App. B.1.2: UN027) if there won’t be major changes soon, resonates with *Asda’s* anxiety about land degradation but it comes along with different practices to solve the issue. They remind of the importance of responding

‘to peak oil and natural gas. The price of a barrel of oil has trebled over the last few years, the cost of nitrogen fertiliser rose by 30% last year and the vulnerability of gas imports has been shown recently in the dispute between Russia and the Ukraine. If we are to ensure food supplies, local sourcing of organic produce will have to become more widespread as sooner or later there will be a “tipping point”. This will be when increases in oil price or disruptions in supply will render the alternatives inoperable’ (App. B.1.2: UN027; emphasis original).

Local sourcing of organic produce is at the heart of *Unicorn’s ideal* way of providing food. In fact, they still sell a lot of international produce but with *Glebelands*, who produce in Stockport and Sale, they have put a model into practice that they would like to see universalised. The distance to *Unicorn* in Chorlton is less than five miles. The need for producing organically is connected with an attention for processes of metabolism:

‘The Glebelands/Unicorn model could be described as an experiment to discover how urban food production, distribution and retailing systems can be structured and operate in order to minimise environmental impact and ensure food security. The application of organic methods, a co-operative structure and minimising the distance between producer and consumer are key aspects of sustainable food supply. However, the structure of food chains needs to be further transformed to adopt a *circular or closed loop metabolism* - where external inputs as well as outputs in the form of solid and liquid waste and air pollution are minimised. At Glebelands: food waste from Unicorn is collected to be composted on site; crates used to transport the produce are reused; and some of the products are sold in biodegradable bags, salads are sold loose.’

The reference to ‘a circular or closed loop metabolism’ is an important aspect of sustainability which was already raised by Marx in *Capital*, vol. 3 (1981; see also Foster 1999), in which he addresses that ‘[d]espite all of its scientific and technological development in the area of

agriculture, capitalism was unable to maintain those conditions necessary for the recycling of the constituent elements of the soil.’ (Foster 1999: 380). Marx’s concept of social-ecological metabolism implies that lasting soil fertility requires that the nutrients taken from the soil and brought to the city will be returned to the countryside in a closed loop.

Synthetic fertilisers which were developed in the 1840s do not address this problem as they use energy from fossil fuels to revive soils which are otherwise in a bad condition. This is, for example, due to the use of pesticides which kill the microbial life of the soil. As *Unicorn* elucidate for the contemporary context, this became a problem when peak oil set in and prices for fertilisers rose. While the argument would actually deserve a deeper analysis, the main problem in short is that current agricultural and metabolic practices don’t sufficiently assure soil fertility – as *Unicorn* and *Asda* state unanimously. Soil which is no longer vibrant (from the agentic forces of earthworms and many other species), is no longer fertile and productive by itself, it can only be productive with the help of fertilisers. As soon as humanity really runs short of fossil fuels, we will run short of food.

The *Glebeland-Unicorn* experiment aims at returning nutrients back to the soil to close the metabolic rift that turns ‘normal’ agricultural practices into an existential threat. The use of a compost toilet in the *Unicorn Land Project* (App. B.1.2: UN005), for example, addresses a metabolic issue that is not resolved by returning food waste alone. Acknowledging that the ‘geographies of shit’ (Jewitt 2011) matter, involves taking responsibility for returning the nutrients in our excrements back to the soil.

A.3 Conclusion

My analysis aimed at tracing patterns of material-discursive practices around sustainability within and across two foodscapes. That is, I have tried to map boundary-drawing practices which frame ‘sustainability’ in certain ways and transduce meaning into respective material practices. Some framings rather emerge as marks of ‘anxiety’, others as ‘pleasure’. While framings driven by ‘anxiety’ mark unsustainable practices as an existential threat, framings driven by ‘pleasure’ emphasise that even the slightest change matters, and they mark practices as ‘sustainable’ through the prospect of continuous improvement. The purpose of this analysis is to find out how the different material-discursive practices of ‘sustainability’ are entangled with carnist, ovo-lactist, or vegan food practices. How do material-discursive practices of food and sustainability *problematis*e or *normalise* each other, and how do they, thereby, co-constitute and materialise each other performatively?

It turned out that there is a considerable overlap of sustainability-related themes which are picked upon equally at *Asda* and *Unicorn*. As well as commonalities in terms of what is addressed, there is overlap in how these issues are addressed and which narrative logics are applied. In both foodscapes, various framings of sustainability are used situationally. I have found similarities in the ways they present ethical and sustainable practices as compatible with competitive pricing. Both are emphasising their long-term commitment with suppliers. By means of these framings, they express care for their customers and suppliers and suggest that their economic practices are socially sound and thus in line with sustainability. These are the situations in which economic practices of the foodscapes are marked with ‘pleasure’ as they are depicted as improving and sustaining lives and/or the environment. Furthermore, both businesses acknowledge climate change and soil degradation as existential threats to food security. Here, bad practices of soil management, for example, are marked with ‘anxiety’.

Not surprisingly, there are also major differences. While *Asda* focuses on increasing the efficiency of their economic practices for the benefit of the environment, their customers, their suppliers, and their own business, *Unicorn*’s business model as a co-operative relies on a range of organic, preferably local, direct, and fair trade relations. These differences have some meaningful as well as practical consequences.

Asda’s focus on efficiency frames sustainability in *relative* terms. Practices are marked as satisfactory, i.e. ‘sustainable’, as soon as they promise only the slightest improvement from the unsustainable status quo as a baseline. A language of continuous getting ‘better’ and ‘greener’ supports this framing which resonates perfectly with the imaginary of a thriving business within the capitalist growth paradigm. While relative improvement is crucial, growth and expansion of businesses are not regarded as ecological or social threats in absolute terms. Claiming that everybody can profit and save money while saving the environment, the efficiency framing also enables to make the oxymoron of ethically sound practices despite of cheap prices more plausible: ‘Reducing carbon also means saving money, and all these actions add up to help us save millions of pounds, which we can then pass onto our customers’ (App. B.1.1: AS007_00).

Framing sustainability only or predominantly in terms of efficiency is, for a number of reasons, highly problematic for our material basis of existence. In the first instance, I would take the environmental concerns about climate change and soil degradation seriously. This raises the question why passing millions of pounds to their customers should be considered as ‘sustainable’, if that same money could be directly invested in mitigating or adapting to climate change or reviving neglected soils? Although it is acknowledged that our long-term conditions for existence are still in danger, and although *Asda* keep iterating the need and

their aim to get ‘better’, they appropriate the money from efficiency gains for competitive pricing. Implicitly, it seems that with getting ‘better’, the ‘job’ is regarded as done.

The continuous prospect of relative improvements is particularly relevant in the context of animal agriculture. Improving animal husbandry, necessarily means maintaining it; but efficiency gains are, as a matter of principle, subject to physical boundaries. When nutritional energy is converted from feed crops into milk or flesh, losses of nutritional energy are inevitable because animals move, breathe, and keep their bodies warm. This process can be relatively improved, but conversion losses, the actual reason for animal agriculture’s high impact on the environment (higher land, water, and energy use), can only be circumvented by not raising animals. This is, by the way, precisely what the rising in-vitro meat industry is trying to do. The easiest way of eating more sustainably, however, is eating plants directly. As a consequence, there are physical limits to *Asda’s* claim of making their animal production ‘better’. The framing of sustainability of positive as a mark of pleasure necessary to obscure the fact that there are physical limits to improving efficiency so that efficiency alone will never – by the laws of physics – become truly sustainable (it can get less bad but only to a certain extent).

The efficiency paradigm marks animal agricultural practices as ‘sustainable’ through relative improvements. Measuring, monitoring, and technological improvements reinforces the legitimacy of the practice itself. Thereby, the fact gets obscured that efficiency gains are subject to physical limits. Ironically, the efficiency paradigm is often legitimised with the need for higher productivity in face of global population growth – the possibility of abandoning animal husbandry instead of improving it, remains unconsidered, although crossing the boundary of conversion losses would raise productivity to an extent that efficiency gains could never reach.

Rendering the practice itself as non-negotiable intersects also with the question of consumer choice. Food waste, for example, is regarded as compromising food security. It is addressed as an issue of consumer awareness but also as an issue of donating surplus goods to food banks etc. Despite animal agriculture’s conversion losses, dairy and meat production are not addressed as a *waste* of nutritional energy. The everyday normality of dairy and meat production and consumption in combination with the paradigm of improving practices with technology rather than switching to alternative practices, misses out a lot of chances for actual sustainability through absolute reductions.

In principle, the issue of sustainability is in many ways an existential threat to both *Asda* and *Unicorn*; it can destroy harvests; destroy consumer trust; question core economic practices; raise prices of land, resources, and products; challenge established practices of transport;

disclose unfair trade relations; reduce or ruin profits – (un)sustainability can rupture the entire social, political, and economic foundation on which a business may rely. Sustaining one's existence by transforming the environment (e.g. cultivating the land) actually means to 'do' *economy*, in the original sense of the term as sustaining one's household – the capacity to do so on long-term can be considered as *economic sustainability*. Enabling *everyone*, not just a few, to sustain their lives in a sound environment on long-term is *social sustainability* (usually commentators mean *all humans* but it is also possible to include nonhumans into the realm of 'the social').

The three pillars of sustainability are entangled in meaning and matter. Disregarding any of the three pillars causes the whole concept to collapse. Therefore, companies are so keen to show on their websites that they engage with all of these aspects. They donate money or food (social), save water, reduce waste and GHG emissions (ecological), and stress their long-term commitment with their suppliers (economic). This alleged building of sustainability is not safe at all because it obscures the simple fact that *all* their practices need to be socially, ecologically, and economically sound.

Calling animal agriculture 'sustainable' because of 'sustained business relations' with the dairy and meat industry simply fails to attend to the ecological impact of both industries. Efficiency gains can only reduce their impact to a humble degree – when that degree is reached both industries will still have a destructive environmental impact. With rhetorical moves companies bend the pan-ecological focus of 'sustainability' nonetheless; they bend it to an extent that the core meaning of the term is distorted and translated into a nearly(!) empty signifier of 'sustaining one's economic relations', and it is transduced into maintaining these practices. The material-discursive transfer is successful when these practices discursively pass as 'sustainable' and can be maintained materially with impunity regardless of their destructive ecological impact which is blended out and externalised. The 'pleasure' of sustained commitment seems to help keeping any existential 'anxieties' at bay.

Appendix B: Interpretive Material-Discursive Analyses (Coding)

B.1 Websites and Corporate Social Responsibility Documents

B.1.1 Asda

- AS001_00 (n.d.) Online Food Shopping - ASDA Groceries. Available at: <https://groceries.asda.com/> (accessed 19 December 2016).
- AS002_00 (n.d.) Social buzz about Asda. Available at: <http://your.asda.com/social-buzz> (accessed 19 December 2016).
- AS002_03 (n.d.) Social buzz about Asda - Instagram-Foto von Amanda [REDACTED] • 5. Jan 2017 um 20:55 Uhr. Available at: <https://www.instagram.com/p/BO5ZgF-AZJZ/> (accessed 20 January 2017).
- AS003_00 (n.d.) About Asda. Available at: http://your.asda.com/about-asda?cmpid=ghs-_-otc-yourasda-_-groceries-dsk-_-globalfooter-aboutasda-_-globalnav&utm_source=groceries-dsk&utm_medium=ghs&utm_term=globalnav&utm_content=globalfooter-aboutasda&utm_campaign=otc-yourasda (accessed 19 December 2016).
- AS004_00 (n.d.) Asda Sustainability. Available at: <https://sustainability.asda.com/sustainability-at-asda> (accessed 19 December 2016).
- AS005_00 (n.d.) Asda and British farming | Asda Sustainability. Available at: <https://sustainability.asda.com/asda-and-british-farming> (accessed 20 December 2016).
- AS006_00 (n.d.) Our approach | Asda Sustainability. Available at: <https://sustainability.asda.com/about> (accessed 10 February 2017).
- AS007_00 (n.d.) Our operations | Asda Sustainability. Available at: <https://sustainability.asda.com/our-operations> (accessed 10 February 2017).
- AS008_00 (n.d.) Energy | Asda Sustainability. Available at: <https://sustainability.asda.com/energy> (accessed 10 February 2017).
- AS009_00 (n.d.) Waste | Asda Sustainability. Available at: <https://sustainability.asda.com/waste> (accessed 10 February 2017).
- AS010_00 (n.d.) Operational | Asda Sustainability. Available at: <https://sustainability.asda.com/operational-0> (accessed 10 February 2017).
- AS011_00 (n.d.) Food waste | Asda Sustainability. Available at: <https://sustainability.asda.com/food-waste> (accessed 10 February 2017).
- AS011_01 (2016) Food for thought - Asda Sustainability. Available at: <https://www.youtube.com/watch?v=qkWO2yH5Nrk> (accessed 10 February 2017).
- AS012_00 (n.d.) Love Food Hate Waste | Asda Sustainability. Available at: <https://sustainability.asda.com/love-food-hate-waste> (accessed 10 February 2017).
- AS012_01 (2015) Love Food Hate Waste Event - Asda Sustainability. Available at: <https://www.youtube.com/watch?v=h3uzCgPsbMY> (accessed 10 February 2017).
- AS013_00 (n.d.) It's a date | Asda Sustainability. Available at: <https://sustainability.asda.com/its-date> (accessed 10 February 2017).
- AS014_00 (n.d.) Product donations | Asda Sustainability. Available at: <https://sustainability.asda.com/product-donations> (accessed 10 February 2017).
- AS015_00 (n.d.) Reducing food waste in store | Asda Sustainability. Available at: <https://sustainability.asda.com/reducing-food-waste-store-0> (accessed 10 February 2017).

AS016_00 (2015) Asda and FareShare - Asda Sustainability. Available at: <https://www.youtube.com/watch?v=S0IjUyjrzbk> (accessed 10 February 2017).

AS017_00 (n.d.) We love wonky veg | Asda Sustainability. Available at: <https://sustainability.asda.com/we-love-wonky-veg-0> (accessed 10 February 2017).

AS018_00 (n.d.) All shapes and sizes | Asda Sustainability. Available at: <https://sustainability.asda.com/all-shapes-and-sizes> (accessed 10 February 2017).

AS019_00 (n.d.) Packaging | Asda Sustainability. Available at: <https://sustainability.asda.com/packaging> (accessed 10 February 2017).

AS020_00 (n.d.) Transport | Asda Sustainability. Available at: <https://sustainability.asda.com/transport> (accessed 10 February 2017).

AS021_00 (n.d.) Water | Asda Sustainability. Available at: <https://sustainability.asda.com/water> (accessed 10 February 2017).

AS021_01 (n.d.) Climate Resilience Campaign A5 brochure WEB.pdf. Available at: <https://sustainability.asda.com/sites/default/files/Climate%20Resilience%20Campaign%20A5%20brochure%20WEB.pdf> (accessed 10 February 2017).

AS022_00 (n.d.) Sustainable water | Asda Sustainability. Available at: <https://sustainability.asda.com/sustainable-water> (accessed 10 February 2017).

AS022_01 (n.d.) Simply Sustainable Water. Available at: <https://sustainability.asda.com/sites/default/files/SSW.pdf> (accessed 10 February 2017).

AS023_00 (n.d.) Sustainable soil | Asda Sustainability. Available at: <https://sustainability.asda.com/sustainable-soil> (accessed 10 February 2017).

AS023_01 (n.d.) LEAF-Simply_Sustainable_Soils.pdf. Available at: https://sustainability.asda.com/sites/default/files/LEAF-Simply_Sustainable_Soils.pdf (accessed 10 February 2017).

AS024_00 (n.d.) Action on compaction | Asda Sustainability. Available at: <https://sustainability.asda.com/action-compaction> (accessed 10 February 2017).

AS025_00 (n.d.) Animal welfare | Asda Sustainability. Available at: <https://sustainability.asda.com/animal-welfare> (accessed 10 February 2017).

AS025_01 (n.d.) Animal welfare policy.pdf. Available at: <https://sustainability.asda.com/sites/default/files/Animal%20welfare%20policy.pdf> (accessed 10 February 2017).

AS026_00 (n.d.) FarmLink schemes | Asda Sustainability. Available at: <https://sustainability.asda.com/farmlink-schemes> (accessed 10 February 2017).

AS027_00 (n.d.) Sustainable fish | Asda Sustainability. Available at: <https://sustainability.asda.com/sustainable-fish> (accessed 10 February 2017).

AS027_01 (n.d.) Asda Wild Fisheries Annual Review 2013.xls - 16_32_43_454_Asda_Wild_Fisheries_Annual_Review_2013_final.pdf. Available at: http://your.asda.com/system/dragonfly/production/2014/07/04/16_32_43_454_Asda_Wild_Fisheries_Annual_Review_2013_final.pdf (accessed 10 February 2017).

AS027_02 (n.d.) Seafood policy.pdf. Available at: <https://sustainability.asda.com/sites/default/files/Seafood%20policy.pdf> (accessed 10 February 2017).

AS028_00 (n.d.) Sustainable palm oil | Asda Sustainability. Available at: <https://sustainability.asda.com/sustainable-palm-oil> (accessed 10 February 2017).

AS028_01 (n.d.) Palm oil policy.pdf. Available at: <https://sustainability.asda.com/sites/default/files/Palm%20oil%20policy.pdf> (accessed 10 February 2017).

AS029_00 (n.d.) Certified products | Asda Sustainability. Available at: <https://sustainability.asda.com/certified-products> (accessed 10 February 2017).

AS030_00 (n.d.) Soya | Asda Sustainability. Available at: <https://sustainability.asda.com/soya> (accessed 10 February 2017).

AS031_00 (n.d.) Local sourcing | Asda Sustainability. Available at: <https://sustainability.asda.com/local-sourcing> (accessed 10 February 2017).

- AS031_01 (n.d.) Welsh Dairy is cream of the crop | Asda Sustainability. Available at: <https://sustainability.asda.com/welsh-dairy-cream-crop> (accessed 21 June 2017).
- AS032_00 (n.d.) Green is Normal_ASDA_SustainabilityStudy_Spreads WEB.pdf. Available at: https://sustainability.asda.com/sites/default/files/Green%20is%20Normal_ASDA_SustainabilityStudy_Spreads%20WEB.pdf (accessed 4 May 2017).
- AS033_00 (2014) Laura Babbs: I'm a contender for the '2degrees Top 25 Under 25' 2014. Available at: <https://www.2degreesnetwork.com/groups/2degrees-community/resources/laura-babbs-im-contender-2degrees-top-25-under-25-2014/> (accessed 4 May 2017).
- AS034_00 (n.d.) TheEatwellPlate.pdf. Available at: <https://sustainability.asda.com/sites/default/files/TheEatwellPlate.pdf> (accessed 10 June 2017).
- AS035_00 (n.d.) WhatsInSeason.pdf. Available at: <https://sustainability.asda.com/sites/default/files/WhatsInSeason.pdf> (accessed 10 June 2017).
- AS036_00 (n.d.) Eight_Ways_To_Healthier_Eating.pdf. Available at: https://sustainability.asda.com/sites/default/files/Eight_Ways_To_Healthier_Eating.pdf (accessed 10 June 2017).
- AS037_00 (n.d.) Know your food finding out about dairy foods 5-7.pdf. Available at: <https://sustainability.asda.com/sites/default/files/Know%20your%20food%20finding%20out%20about%20dairy%20foods%205-7.pdf> (accessed 10 June 2017).
- AS038_00 (n.d.) Know your food fruit vegetables 5-11.pdf. Available at: <https://sustainability.asda.com/sites/default/files/Know%20your%20food%20fruit%20vegetables%205-11.pdf> (accessed 10 June 2017).
- AS039_00 (n.d.) Food_Waste_Information_Sheet.pdf. Available at: https://sustainability.asda.com/sites/default/files/Food_Waste_Information_Sheet.pdf (accessed 10 June 2017).
- AS040_00 (n.d.) Anti_Waste_Charter.pdf. Available at: https://sustainability.asda.com/sites/default/files/Anti_Waste_Charter.pdf (accessed 10 June 2017).
- AS041_00 (n.d.) Asda sustainability strategy set to deliver £800 million in savings by 2020. Available at: <http://your.asda.com/press-centre/asda-sustainability-strategy-set-to-deliver-800-million-in-savings-by-2020> (accessed 19 July 2017).
- AS042_00 (n.d.) Women in agriculture | Asda Sustainability. Available at: <https://sustainability.asda.com/women-agriculture> (accessed 12 February 2018).
- AS042_01 (n.d.) Ladies In Beef | Female beef farmers who care passionately about British beef. Available at: <http://www.ladiesinbeef.org.uk/> (accessed 12 February 2018).

B.1.2 Unicorn Grocery

- UN001 (n.d.) Unicorn Grocery. Home/index. Available at: <http://www.unicorn-grocery.coop/index.php> (accessed 19 December 2016).
- UN002 (n.d.) Unicorn Grocery - Who we are. Available at: <http://www.unicorn-grocery.coop/who.php> (accessed 19 December 2016).
- UN003 (n.d.) Our History - Unicorn Grocery. Available at: <http://www.unicorn-grocery.coop/history.php> (accessed 19 December 2016).
- UN004 (n.d.) Food and Flora: Farming, Land Use & Biodiversity. Available at: http://www.unicorn-grocery.coop/news_item.php?id=452 (accessed 19 December 2016).
- UN005 (n.d.) Unicorn Grocery Land Project. Available at: http://www.unicorn-grocery.coop/land_project.php (accessed 19 December 2016).
- UN006 (n.d.) Unicorn Grocery - Ethics and Principles. Available at: <http://www.unicorn-grocery.coop/principles.php> (accessed 19 December 2016).
- UN007 (n.d.) Palm Statement 2016. Available at: <http://www.unicorn-grocery.coop/pdfs/Palm%20Statement%202016.pdf> (accessed 19 December 2016).
- UN008 (n.d.) Unicorn Grocery News. Available at: <http://www.unicorn-grocery.coop/news.php> (accessed 25 January 2017).

- UN009 (n.d.) Photos - Past & Present. Available at: <http://www.unicorn-grocery.coop/gallery.php> (accessed 25 January 2017).
- UN010 (n.d.) GROW A GROCERY – A guide to starting and growing a wholefood co-operative. Manchester. Available at: <http://www.unicorn-grocery.coop/grow-a-grocery/Grow%20a%20Grocery.pdf> (accessed 25 January 2017).
- UN011 (n.d.) The Unicorn Grocery Cartoon. Available at: <http://www.unicorn-grocery.coop/cartoon.php> (accessed 25 January 2017).
- UN012 (n.d.) Organic Fruit and Veg. Available at: <http://www.unicorn-grocery.coop/fruit&veg.php> (accessed 25 January 2017).
- UN013 (n.d.) Organic Deli and Bread. Available at: <http://www.unicorn-grocery.coop/deli.php> (accessed 25 January 2017).
- UN014 (n.d.) Chilled Food. Available at: <http://www.unicorn-grocery.coop/chilled-food.php> (accessed 25 January 2017).
- UN015 (n.d.) Organic beer, organic cider and organic wine. Available at: <http://www.unicorn-grocery.coop/alcohol.php> (accessed 26 January 2017).
- UN016 (n.d.) Organic & Fairtrade Teas, Coffee & Juices. Available at: <http://www.unicorn-grocery.coop/drinks.php> (accessed 26 January 2017).
- UN017 (n.d.) Ethical Household & Bodycare Products. Available at: <http://www.unicorn-grocery.coop/household.php> (accessed 26 January 2017).
- UN018 (n.d.) Organic and ethical general grocery products. Available at: <http://www.unicorn-grocery.coop/generalgrocery.php> (accessed 26 January 2017).
- UN019 (n.d.) Unicorn Bags. Available at: <http://www.unicorn-grocery.coop/bags.php> (accessed 26 January 2017).
- UN020 (n.d.) Unicorn Grocery Fair Tax Mark. Available at: <http://www.unicorn-grocery.coop/fair-tax-mark.php> (accessed 26 January 2017).
- UN021 (n.d.) Unicorn Grocery - Project Support. Available at: <http://www.unicorn-grocery.coop/projectsupport.php> (accessed 26 January 2017).
- UN022 (n.d.) CELUCT. Available at: <http://www.unicorn-grocery.coop/others/celuct.php> (accessed 26 January 2017).
- UN023 (n.d.) Carbon Tax & Trees. Available at: <http://www.unicorn-grocery.coop/carbon.php> (accessed 26 January 2017).
- UN024 (n.d.) What is a co-operative? Available at: <http://www.unicorn-grocery.coop/co-op.php> (accessed 26 January 2017).
- UN025 (n.d.) Organic Fruit and Vegetable Growers in the North-west. Available at: <http://www.unicorn-grocery.coop/growers.php> (accessed 27 January 2017).
- UN026 (n.d.) Nicholas Watts - Vine House Farm - organic grower Lincolnshire. Available at: http://www.unicorn-grocery.coop/others/nicholas_watts.php (accessed 27 January 2017).
- UN027 (n.d.) The Glebelands - Unicorn Model. Available at: http://www.unicorn-grocery.coop/glebelands_model.php (accessed 27 January 2017).
- UN028 (n.d.) Our Living Roof. Available at: http://www.unicorn-grocery.coop/living_roof.php (accessed 27 January 2017).
- UN029 (n.d.) Unicorn Grocery News. Available at: <http://www.unicorn-grocery.coop/news.php> (accessed 6 March 2017).

B.1.3 Tolhurst Organic

- TOL01 (n.d.) Tolhurst Organic - Our Carbon Footprint. Available at: <http://www.tolhurstorganic.co.uk/about-us/our-carbon-footprint/> (accessed 8 August 2017).
- TOL02 (n.d.) What is Stockfree Organic? Available at: <http://www.tolhurstorganic.co.uk/about-us/what-is-stockfree-organic/> (accessed 16 August 2018).

B.2 List of Tags

B.2.1 Asda

AS001_00 Online Food Shopping - ASDA Groceries

apple, vulnerable - careful packing
better (Christmas)
Brie, extra special Cornish
Christmas - extra special food
Family
Friends
generosity and Christmas (Asda: be our guest)
prices, low - save money
Salmon, extra special smoked
Union Jack (British)

AS002_00 Social buzz about Asda

Bean & Nacho Burgers, vegetarian
curlyfries, vegan
dairy/milk
free from – dairy
free from – gluten
gingerbread - free from gluten
meat free
Rump Steaks – British
Rump Steaks - Valentines Day, hearts
Vegan

AS002_03 Social buzz about Asda - Instagram-Foto von Amanda, 5. Jan 2017 um 20:55 Uhr

ASDA - NO contract with Slimming World
Beef & Three Bean Chili - ASDA Slimzone
Cottage Pie - ASDA Slimzone
Iceland Meals - contract with Slimming World
Slimming World
Turkey Bolognese - ASDA Slimzone
Vegetable Arrabiata - ASDA Slimzone

AS003_00 About Asda

Seedling - Soil - Hands - Care [image]

Sustainability

AS004_00 Asda Sustainability

apple, green

Asda-british farmer-relation

Asda-people-relation

better (business)

Britain, Green Index 2016

British

British farming

Climate resilience

cows and calf (together!) [image]

customers

Energy usage

Energy usage, monitored - saving £2M/year

farmer (same person as shepherd) and cattle

Food Waste

protecting environment - saving money

sheep

shepherd

Sustainability = reducing environmental impact

AS005_00 Asda and British farming | Asda Sustainability

Arla (co-operative)

Arla's 'farmer owned' marque

Asda (pork) sausages

Asda (pork) sausages 100% British sources from June 2016

assessing feed intake for improved genetic selection

beef

beef supply by ABP since the mid-1960s

commitment, long-term contract

co-operative (Arla)

dairy/milk

efficiency

fresh pork - non-fresh/processed pork

from 80% to 100% british milk

improve beef farms' performance with new technologies

improve lamb production's performance

increasing the proportion of UK sourced fresh pork to 80% British pork

Lamb

lamb feed efficiency trial

long standing relationship with Dunbia (lamb)
long-term commitment
major supply chains
National Pig Association [Orwell's Animal Farm? ;-)]
pioneering the use of calving monitors to improve animal welfare
pioneering the use of Video Image Analysis for assessing the market value of carcasses
pork
regular farmer meetings (Asda and ABP)
renewing supply contract with Dunbia (lamb)
superior genetics in beef farming (by Cogent)
working with Arla for over 10 years
your favorite products

AS006_00 Our approach | Asda Sustainability

90% of environmental impact lies within the supply chain
100% renewable energy (goal)
Asda hates waste
Asda proud to divert 98.9% of their waste away from landfill
being green - part of everyday life (customers)
build world-class supplier base
carbon footprint reduction
everyday experts
everyday experts panel
fewer road miles
products that sustain people and the environment
protecting environment - saving money
SSE - make businesses more efficient
SSE - share best practice
Suppliers
Sustain & Save Exchange (SSE)
Sustain & Save Exchange (SSE) (Asda facilitating supplier intra-actions)
want to lead more sustainable lifestyles (customers)
zero waste (goal)

AS007_00 Our operations | Asda Sustainability

better (ways to act)
changing transportation of goods
greener (ways to act)
improving our packaging
minimising environmental impact
reducing our energy and water use
reduction in greenhouse gas emissions

Sustainability
tackling waste

AS008_00 Energy | Asda Sustainability

dairy/milk
efficiency
female Asda staff presenting a fridge with milk bottles and dairy products [image]
performance
solar panels
target to use 30% renewable energy by 2020
target to use 100% renewable energy

AS009_00 Waste | Asda Sustainability

caring about food waste (Asda and customers)
donating clothes and food
Food Waste
Performance
reducing food waste (at Asda, suppliers, and customers)
reuse, recycle, redistribute or recover
we hate waste (value, close to our heart)

AS010_00 Operational | Asda Sustainability

[circular economy/metabolic cycles; see corn, cows, and sheep in the background; image]
using cooking oil from restaurants and rotisseries to make biofuels

AS011_00 Food waste | Asda Sustainability

caring about food waste (Asda and customers)
carrot (wonky veg) [image]
efficiency
Efficient Consumer Response (ECR) - initiatives to tackle the biggest issues affecting the food and grocery supply chain, incl food waste
reducing food and drink waste by 20% within 10 years (WRAP and Asda)
reducing GHG emissions of food and drink by 20% within 10 years (WRAP and Asda)
supporting WRAP's Love Food, Hate Waste campaign
Sustainable Business Director
wonky veg

AS011_01 Food for thought - Asda Sustainability [VIDEO]

85% of customers want Asda to help them reduce food waste in their home
Asda customer checking use by date on milk bottle
Asda staff putting milk bottles into shelves

Beef

customers looking at plastic wrapped beef steaks - Asda manager talking about their strategy to tackle food waste

dairy/milk

Efficient Consumer Response (ECR) - initiatives to tackle the biggest issues affecting the food and grocery supply chain, incl food waste

Food Waste

redistributing surplus food stock to charities - ceating 3m meals for those most in need

reducing food waste (at Asda, suppliers, and customers)

reducing prices on the day of use by (e.g. beef)

strawberries wrapped in plastic

AS012_00 Love Food Hate Waste | Asda Sustainability

£60 can be saved by a family of four reducing food waste

Love Food Hate Waste

AS012_01 Love Food Hate Waste Event - Asda Sustainability [VIDEO]

5 a day, I'm trying to eat 5 portions of fruit and veg every day [printed on a card]

Asda teaching customers how to reduce food waste

Babbs: 'average family wastes 360 a month on food'

Food Waste

Love Food Hate Waste

Sustainability Manager, Laura Babbs

AS013_00 It's a date | Asda Sustainability

reducing and extending best before days flexibly (seasonal)

removing best before dates from apples and onions

AS014_00 Product donations | Asda Sustainability

FareShare

redistributing surplus food stock to charities - ceating 3m meals for those most in need

AS015_00 Reducing food waste in store | Asda Sustainability

reducing food waste (at Asda)

AS016_00 Asda and FareShare - Asda Sustainability [VIDEO]

FareShare

redistributing surplus food stock to charities - ceating 3m meals for those most in need

AS017_00 We love wonky veg | Asda Sustainability

30% cheaper (wonky veg)

Asda asking customers what they thought about wonky veg

wonky veg

AS018_00 All shapes and sizes | Asda Sustainability

wonky veg

AS019_00 Packaging | Asda Sustainability

changing vinegar bottles from glass to plastic - saving 250 tonnes of packaging

dairy/milk

doubling meat's shelf life by innovative packaging

efficiency

'Extra Special' beef in plastic package [image]

improving the re-sealable packaging for cheddar cheese

meat

reducing packaging on 'Chosen By You' and 'Butcher's Selection' meat

reducing plastic in water bottles by 6% (lightest water bottle on the market) [distinction]

AS020_00 Transport | Asda Sustainability

3-6% fuel efficiency benefit (ecolution trucks)

ecolution trucks

efficiency

target to reduce transport emissions by 60% (2005 baseline)

transport efficiency

AS021_00 Water | Asda Sustainability

climate change

climate change - temperature, precipitation and flood risk

efficiency

saved 27,000m3 of water in 2015 (Asda working with suppliers)

understanding climate change's impact on water availability and our business

water efficiency

we understand that the majority of our water footprint is in our supply base (working with our farmers and growers)

AS021_01 Climate Resilience Campaign A5 brochure WEB.pdf [REPORT]

95% of fresh produce will be affected by climate change [what does that even mean?]

580 stores, 180,000 staff, 18m customers per week (Asda)

acknowledging this century will see changes in climate we have to deal with

aiming to bolster Asda's resilience to the risks of climate change

Asda being proud to take a lead

climate change

Climate resilience

enduring and heartfelt commitment to sustainability

extreme weather events disrupting, communities, infrastructure and businesses right across Britain [scale?]
flooding caused severe problems across the UK in 2014
helping farmers to adapt to a changing climate
involved with the Cambridge Institute for Sustainable Leadership
mission to be Britain's most trusted retailer
natural catastrophes reaching an all time high in 2011 [natural? cultural?]
promising to deliver low cost every day
Sustainable Business Director
Sustain & Save Exchange (SSE) (Asda facilitating supplier intra-actions)
understanding how our fresh produce and processed food lines will be affected by climate change

AS022_00 Sustainable water | Asda Sustainability

420 cows at Billockby Farms (Asda supplier)
Beef
cows drinking 90 -190 litres of water per day - water use big cost factor
dairy manager John Kirkbride at Billockby Farms
dairy/milk
efficiency
grant ca. £10k from Broads Local Action Group for investing water management [EU involved; public subsidies!]
water efficiency
water vital for producing all types of food, from milk to melons, beef to bread

AS022_01 Simply Sustainable Water [REPORT]

dairy manager John Kirkbride at Billockby Farms
dairy/milk
efficiency
soil fertility
soil structure degradation (can occur through over grazing and over cultivation)

AS023_00 Sustainable soil | Asda Sustainability

earthworms, living organisms and plant residues
soil compaction
soil drainage
soil fertility
soil structure

AS023_01 LEAF-Simply Sustainable Soils.pdf [REPORT]

aerobic soil is essential - waterlogged anaerobic soil is not good
balancing economic prosperity, environmental sensitivity and social gain
beef
climate change

destroying self - destroying soil
destroying soil - destroying self
earthworms, living organisms and plant residues
farmer Mike Powley and cattle [image]
globally starting to feel the pinch of climate change and the pressures of food security
highly productive farming systems for growing global population
importance not to mark the soil with the weight of the tractor
integrated farm management [as opposed to conventional or organic]
lime [Kalk], phosphate and potash - nutrients for healthy soil
poor aeration leads to a build-up of carbon dioxide and methane
poor, medium or good soil with clods or without [image]
problematising erosion of top soil
productivity
soil degradation rate
tractor ploughing a field [compacted soil] [image]
unsustainable agriculture

AS024_00 Action on compaction | Asda Sustainability

100-strong beef herd
Beef
BeefLink farmer Mike Powley
Cows
farmyard manure (increasing fertility)
increasing soil fertility
soil compaction

AS025_00 Animal welfare | Asda Sustainability

animal welfare
Five Freedoms - aspects of animal welfare [formalised in the UK in 1979]
no animal testing for cleaning products since 2015
no animal testing for cosmetics since 2009
stunning meat [weird way of saying stunning animals]

AS025_01 Animal welfare policy.pdf [REPORT]

animal welfare
Five Freedoms - aspects of animal welfare [formalised in the UK in 1979]
no animal testing for cleaning products since 2015
no animal testing for cosmetics since 2009
stunning meat [weird way of saying stunning animals]

AS026_00 FarmLink schemes | Asda Sustainability

[yet to be coded]

AS027_00 Sustainable fish | Asda Sustainability

[yet to be coded]

AS027_01 Asda Wild Fisheries Annual Review 2013 [REPORT]

[yet to be coded]

AS027_02 Seafood policy.pdf [REPORT]

[yet to be coded]

AS028_00 Sustainable palm oil | Asda Sustainability

[yet to be coded]

AS028_01 Palm oil policy.pdf [REPORT]

[yet to be coded]

AS029_00 Certified products | Asda Sustainability

fair-trade

[GMO missing in the description of organic products]

Organic

AS030_00 Soya | Asda Sustainability

animal feed

Brazilian Amazon

dairy/milk

deforestation

deforestation in the Amazon

egg

majority of soya sourced from countries other than Brazil

meat

meat in processed foods

of the soya coming from Brazil 75% of that is certified (RTRS)

Roundtable on Responsible Soy (RTRS)

Soy

Soya

Tofu

AS031_00 Local sourcing | Asda Sustainability

food miles

local food

local suppliers provide regional meats, cheeses, yoghurts, sausages, pickles, ice cream, cakes, and beer

making sure a healthy, great tasting meal doesn't cost the earth

supporting local businesses
Tomlinson's Dairies supplying Welsh milk and cream
working with local suppliers

AS031_01 Welsh Dairy is cream of the crop | Asda Sustainability

Tomlinson's Dairies supplying Welsh milk and cream
Welsh milk and cream - produced and packaged in the country - in all of our Welsh stores

AS032_00 Green is Normal_ASDA_SustainabilityStudy_Spreads WEB.pdf [REPORT]

Asda's CEO, Andy Clarke, on sustainability
Efficiency
everyday experts
green
normal
Sustainability
sustainability is good business sense
sustainability isn't about reinventing the wheel - it's just what we do

AS033_00 Laura Babbs: I'm a contender for the '2degrees Top 25 Under 25' 2014

challenging the status quo
change
individuals making a small change
Laura Babbs, 2degrees network [climate change]
Responsibility
sustainable business
the spark that makes people want change

AS034_00 TheEatwellPlate.pdf [REPORT]

Balance
bread, rice, potatoes, pasta (starchy foods)
eat well
food groups
Fruit and vegetables
high fat/sugar foods and drinks
meat, fish, eggs, beans (sources of protein)
milk and dairy foods
soya drink [in picture of the food group 'milk and dairy foods']

AS035_00 WhatsInSeason.pdf [REPORT]

Fruit and vegetables
Seasonal

AS036_00 Eight_Ways_To_Healthier_Eating.pdf [REPORT]

eat lots of fruit and vegetables

eat more fish

omega 3

talking fish [speech bubble; image]

AS037_00 Know your food finding out about dairy foods 5-7.pdf [REPORT]

Butter

Calcium

Cheddar

cheese tasting

children's normal growth

Cows

Cream

good to eat cheese regularly

[lactism]

milk - a healthy sports drink

milk [as baseline - soy drink as the 'odd' alternative]

milk production (cow-calf)

mouse [image; drawn]

nutritional benefits

osteoporosis - 'weak bones' in later life

school children

smelling – tasting

soya milk (if available)

soya milk - this is the odd one out

teachers

[veganism]

Where food comes from

where milk comes from

AS038_00 Know your food fruit vegetables 5-11.pdf [REPORT]

[yet to be coded!!!!]

AS039_00 Food_Waste_Information_Sheet.pdf [REPORT]

Beef

Food Waste

Meat

Roast

AS040_00 Anti_Waste_Charter.pdf [REPORT]

Food Waste

greenhouse gas emissions
improve the environment
lots of different ways to reduce food waste
reduction in greenhouse gas emissions

B.2.2 Unicorn Grocery

UN001 Unicorn Grocery. Home/index

co-operative (Unicorn)
organic
South Manchester customer base
Spain, extreme rainfalls
Spain, lemon shortage
Wholesome

UN002 Unicorn Grocery - Who we are.

affordable cooking
choice (consumers)
competitive pricing
cooking from scratch
direct purchasing
donating 5% of wage costs
Ethical principle at the core of the business
expanding deli-counter
expanding selection of environmentally friendly baby products, cosmetic and household goods
fair tax member
fair-trade
Feeding Manchester (hub for sustainable food)
Glebeland, pioneering urban market garden project
good value meals
helping customers to make informed shopping choices
local sourcing
offsetting environmental impact of the business
one of the largest and most successful wholefood outlets in the UK
organic
problematising tax escaping companies
Soil Association's 'Best Independent Retailer' in 2016
tree planting scheme with a carbon tax
unbeatable range of affordable, fresh and wholesome food
Workers and their vegetables (images)
workers co-operative

workers created Unicorn

UN003 Our History - Unicorn Grocery

big retailers, demoralised staff
big retailers, high transport miles
big retailers, low prices - confusing consumers about the true production costs
big retailers, orthodoxy of multiples
big retailers, out of town storage
big retailers, supplier frustration
co-operative (Unicorn)
democratic employee owned businesses
employee participation
female worker and boy [image]
rooftop pond
running a business which can turn ideas into reality (politics of the possible)
solar panels
Unicorn proud
vision of putting 'people before profit'
wildlife garden

UN004 Food and Flora: Farming, Land Use & Biodiversity

Ethical Consumer
farmer, campaigner working to secure a food system beyond profit
industrial agriculture, biggest threat to biodiversity
Moss Brook Growers
Soil Association
Trees for Life (bringing back Scotland's native wildlife)
Vine House Farm

UN005 Unicorn Grocery Land Project

compost toilet
Glazebury-Unicorn 14 miles (local production)
hedging, rich habitat for birds and small mammals
letting land recover [temporal factor]
solar powered irrigation system
three middle aged male farmers, tractor, soil and crops (image)

UN006 Unicorn Grocery - Ethics and Principles.

1% of wage costs encouraging co-operation in the UK
4% of wage costs mitigating global inequalities
aiming to trade goods of non-animal origin
avoidance of animal derivatives

corn and carrot inside fist (image, saying 'occupy our food supply')
equal opportunity, anti-discrimination in recruiting
Ethical principle at the core of the business
fair-trade
figuring out least destructive way of packaging ('there's no 'good' option')
generating a market (enacting)
man in front of Unicorn holding a banner: 'occupy our food supply' [image]
positioning towards palm oil (in their products)
researching effects of palm oil - rainforest destruction
self-employment, control over working environment (responsibilities and rewards)
Social values at the core of the business
sustainable trade (sustainable world environment and economy)
world trade disadvantaging poorer nations
world trade injustices corrupting people's health and lives

UN007 Palm Statement 2016 [REPORT]

almost impossible to ban palm oil completely (margarine, biscuits, and pastries)
bears, threatened
being concerned about enormous social and environmental impact
certifications [individual business] vs. changing standard industry practice [global economy]
choices, looking for palm free
contributing to pressure up the supply chain, consumers (possibility)
contributing to pressure up the supply chain, suppliers (possibility)
contributing to pressure up the supply chain, Unicorn, as well as encouraging individuals toward responsible consumption [choices]
contributing to pressure up the supply chain, Unicorn (possibility)
deforestation
destroying indigenous peoples' ways of life
displacing indigenous people
effective[ness] - boycott less, pressure on supply chain more
[efficiency] - palm oil's high yield per hectare
enacting sustainable policies [precondition for tackling deforestation]
encouraging responsible sourcing of palm derivatives (e.g. household cleaners)
encouraging suppliers to adopt stricter palm oil certifications
extensive research preceding Unicorn's positioning on palm oil
fairly traded palm oil encouraged (but supply sadly limited)
fairly traded - smallholder palm growing
fair-trade
habitat loss
ideally local supply and alternatives to palm
orangutans, threatened
organic

organic certification ensuring segregated, traceable supply
palm oil
rainforest destruction
recently deforested land vs. not recently (better) (temporal dimension)
Roundtable on Sustainable Palm Oil (RSPO)
threatening wildlife species
tigers, threatened

UN008 Unicorn Grocery News

climate change (heated polytunnel vs. transport emissions)
European vegetable shortage [25th Jan 17]
Glebeland-Unicorn-Customer connection, turning vision into reality
growing amazing veg
growing a sustainable business
grow your own grocery co-operative
Kindling Trust's FarmStart, training up new organic growers
local sourcing
local Stockport Tomatoes
loved seeing where our tomatoes are coming from [visibility]
problematising fuel use in heated polytunnel (tomatoes)
seasonal availability of vegetables/fruit
Tesco driving down prices for consumers at cost of farmers and factories
Tesco manager/CEO with cigar [symbol of big capitalists; cartoon]
thriving hub for urban agriculture (partnership: council, Kindling, Glebeland, and community growing groups [and Unicorn])
Woodbank Park, Stockport [see Land Army]

UN009 Photos - Past & Present

bees made from paper decorating the vegetable area
co-operate or die (co-operatives fortnight - events) [mutual aid, Kropotkin]
co-operate or die (printed on female worker's t-shirt)
father and son choosing fruit [temporal dimension + caring&masculinity]
food sovereignty (information event)
free bike repairs [mobility]
laughing fruit and veg (bananas, apples, oranges, red peppers, broccoli, onions) in the kids area
living roof
mapping where in the UK suppliers come from
playing woman and child in the kids area [temporal dimension + caring]
stop betting on hunger - event with World Development Movement
traditionally pressed apple juice - kids and adults welcome
visiting school kids tasting apples

UN010 GROW A GROCERY – A guide to starting and growing a wholefood co-operative [REPORT]

big retailers, control 80% of the UK grocery market

choices, restricted by the march of the multiples [big retailers]

co-operative (Unicorn)

customers

customer trust

exploitative, cheap, industrially-produced food continues to rule

growth AND shrinkage (with the least possible adverse effects on staff and the business)

grow your own grocery co-operative

norm - supermarket norm - Unicorn alternative

revolutionaries (Unicorn)

stopping people to drive across the country to shop at Unicorn

UN011 The Unicorn Grocery Cartoon

Egg

Hen

monotony in 1970s (egg and mayonnaise in the salad)

relative abundance in 18th century (vegan salad ingredients)

vegan abundance in Chorlton 2004 (various ingredients, internet, and creativity) - 'the world in your kitchen'

UN012 Organic Fruit and Veg.

avoiding rubbish - advantage of unpacked

being careful which growers we buy from

choice, largest of fruit and veg in the North West

favouring [normalising] 'direct relationships' which maintain freshness and human contact

good quality, fairly priced organic produce

organic

organic, in conversion

organic produce prepacked in conventional businesses - 15-20% price penalty

outperforming at times the prices of conventional produce

outperforming the organic range of big supermarkets in price, availability, range and quality

problematising carbon impact of air freight (not any at Unicorn!)

problematising supermarket food miles

problematising unequal power relations within the food system

regionally produced

seasonal

seeing and smelling - advantage of unpacked

strong relationships with UK farmers and European producer groups

supporting growers at the bottom of the food system chain

UN013 Organic Deli and Bread.

bring in your own container to the deli - 15p off [avoiding packaging]

UN014 Chilled Food.

coconut and soya desserts
dairy free ice cream
lupin based products
sausages, burgers and fillets
seitan
tempeh
tofu (considerable range)

UN015 Organic beer, organic cider and organic wine.

animal products
biodiversity - organic vineyards
many people [customers] not knowing that animal products used for clarifying wine and beers
organic
soil, health [quality] - organic vineyards
vegan
vegan and organic wine and beer
vegan pride

UN016 Organic & Fairtrade Teas, Coffee & Juices.

Coffee
co-operating improves access to land and quality of life (Zapatistas)
Demeter-certified juices
Ethiopian coffee from the Oromia Coffee Farmers Cooperative Union
fair price
keeping competitive whilst still promoting our ethics
Kitchen Garden Organics linking small producers in South Africa and buyers in Europe
Organic
quality organic products direct from the growers at a Fair price
red star on coffee packaging [socialist economic practices] (Zapatistas)
resisting to government, developed autonomous society (Zapatistas)
safeguarding their culture organising education, health, land through direct forms of democracy (Zapatistas)
supporting the Zapatista movement
tea

UN017 Ethical Household & Bodycare Products.

Biodegradable
experimental/test animals
problematising synthetics and animals testing for household and bodycare products
radically unique social business for disadvantaged communities in the Savannah of Africa
regionally sourced

UN018 Organic and ethical general grocery products.

authentic and organic Indian sauces from Manchester

global flavours

good sustainable British food (Hodmedod's)

local sourcing

reusable Unicorn bags

trying to provide a realistic, responsible grocery option [choice, responsibility, realism]

UK grown beans, peas and quinoa (Hodmedod's)

UK grown flours

UN019 Unicorn Bags

500bn plastic bags a year global

degrading for 1,000 years in landfills [spatio-temporal dimension]

diver underwater holding a Unicorn 'shop local' bag [image]

global [environment]

more customers bring their bags in (gradual change)

problematizing one-way plastic bags

problematizing toxicity of plastic bags for soil and water

reusable Unicorn bags

sea

using energy to make plastic bags

UN020 Unicorn Grocery Fair Tax Mark

enabling the public to find out easily what companies pay in tax

Ethical Consumer managing Fair Tax Mark Ltd

making tax payments transparent

problematizing multinational corporations that choose tax havens and artificial structures to avoid tax

UN021 Unicorn Grocery - Project Support.

1% of wage costs encouraging co-operation in the UK

4% of wage costs mitigating global inequalities

5% of total wage bill (£70,000 annually) donated to projects

building food gardens in SA townships to overcome hunger and poverty

creating sustainable agro-ecological farming practices in Zimbabwe to tackle food insecurity

empowering rural communities in Burma to develop sustainable futures

generating solar energy for the benefit of people in Old Trafford

providing education and research into sustainable living and food production, low impact lifestyles and ecosystems (Middlewood Trust)

Unicorn differing from many conventional businesses (set of values)

unsustainable agriculture

UN022 CELUCT

adapting to local conditions via seed and crop diversity
assembling farmers for assessment and seed exchange
boosting soil fertility (permaculture)
creating water management systems
food sovereignty
natural resource management practices
permaculture
restoring tree cover
seed saving programmes
sustainable, agro-ecological farming practices
sustainable village-led community development
tackling food insecurity in Zimbabwe
tackling soil erosion (permaculture)
Zimbabwean farmer on field [image]

UN023 Carbon Tax & Trees

birch trees [image]
declining forest almost to the point of no return [dimension of possibility]
forest, rich in wildlife and protected for future generations [discuss if non/human generations]
normalising that the core activities of a business need to become sustainable
primeval wilderness of Scots pine, birch, rowan, aspen and juniper
problematising carbon offsetting as a real solution to climate change
problematising the image of 'unspoilt wilderness'
problematising timber logging and widespread introduction of sheep
restoring a wild forest, which is there for its own sake
restoring Caledonian forest (600 square miles)
Scotland being a deforested 'wet desert'
seedling being planted by hand [image]
self-imposing a 'carbon tax' to neutralise carbon footprint
soaking up some of the carbon dioxide we generate
transforming open hillsides into forest [trees as an agent]
Trees for Life (bringing back Scotland's native wildlife)
wildlife habitat

UN024 What is a co-operative?

co-operative (Unicorn)
encouraging other to pursue a cooperative way of working
long-term strategies
making decisions through consensus wherever possible
man [worker?] holding a banner promoting co-ops [image]
real sense of 'ownership' of the business (Unicorn members)

taking responsibility equally for the business
we are all company directors [appropriating surplus value]

UN025 Organic Fruit and Vegetable Growers in the North-west.

direct relationship with growers avoiding costs of a wholesaler
encouraging to eat seasonally - while offering a broader range throughout the year [discuss choice]
Glebelands City Growers in Sale
Glebelands in Stockport
Kindling Trust's FarmStart, training up new organic growers
Organic
organic growers in the North West [regional scale]
organic, in conversion
problematising food miles of their fruit&veg from Europe or the Southern Hemisphere
seasonal food cheaper, tastier, more nutritious and did not travel as far
Soil Association
UK produce coming directly from farms (direct relationship with growers)
working with UK farmers to increase the proportion of UK fruit & veg available [national scale]

UN026 Nicholas Watts - Vine House Farm - organic grower Lincolnshire.

Biodiversity
bird enthusiast
birds
improving wildlife habitat and biodiversity
Nicholas Watts and his daughters - Vine House Farm
Nicholas Watts' farming having a positive impact on both the local and global environment [discuss beef and lamb suet in bird feed]
problematising modern agriculture (for threatening bird populations)
Vine House Farm supplying Unicorn with courgettes, beans, sweetcorn, brassicas and potatoes
wildlife habitat

UN027 The Glebelands - Unicorn Model

circular or closed loop metabolism
cities, local organic food supply (desirable and feasible)
climate change
collecting food waste (at Unicorn) for composting (at Glebelands)
competing with cheap food from retailers [is challenging]
co-operative (Glebelands/Unicorn)
dairy/milk
direct distribution saving cost and time compared to farmers' markets and box schemes
empty stomachs (people in towns and cities possibly in the future)
ensuring food security
food miles

food security
 Food Waste
 future [space-time-possibility dimension]
 generating renewable energy
 harvesting for sale on the same day - a major advantage
 improving rainwater storage and irrigation on site
 labelling Glebelands in the Unicorn shop
 local food
 local sourcing
 local supply of less than 5 miles (Glebelands)
 Mersey Valley was once awash with market gardens [historical and possibility dimension]
 metabolic flows
 minimising distance between producer and consumer (key aspect of sustainable food supply)
 minimising environmental impact
 minimising inputs and outputs [emissions (solid and liquid waste and air pollution)]
 natural gas
 nitrogen fertiliser
 organic
 peak oil
 pioneering urban market garden project
 problematising competitive pricing
 problematising conventional agriculture by referring to increasing prices of nitrogen fertilisers
 problematising [indirectly] the media discourse on climate change
 problematising lack of support from local and central government
 problematising large supermarkets that don't pay for external social, environmental and economic costs they impose on society
 problematising the lack of local food (travelling less than 30miles)
 reminding of the urgency of tackling climate change
 responding to peak oil and natural gas
 salad sold without packaging (other foods in biodegradable bags)
 self-sufficiency
 sufficiency
 sustainable urban food supply
 transforming the structure of food chains towards sustainable metabolisms
 Unicorn selling highly nutritious foods with low or no sugar, gluten and dairy content
 Unicorn sourcing from Glebelands - sourcing by plane from California 1300 times more fuel
 Unicorn sourcing from Glebelands - sourcing from Spain would require 26 times more fuel
 Unsustainable

UN028 Our Living Roof.

20 species colonising the roof
 Biodiversity

bird (Black Redstart [image]) eating midges, gnats and other insects
bumblebee on yellow blossom [image]
first living roof of its kind in the UK
habitat creation
habitat creation for endangered species (Black Redstarts)
increased local biodiversity
insulating roof (in the winter)
living roof
living roof, plants and flowers [images]
part of Chorlton's network of green spaces
wildflowers attracting birds and insects
wildflowers were sown [interesting 'contradiction'? Opportunity to discuss nature-culture-divide]

UN029 Unicorn Grocery News [update since UN008]

Hungry Gap [food insecurity; seasonal]
Materialisation
poly tunnel
spinach
winter (season)

B.3 Example of a ‘messy map’

Messy Map, Asda (tags AS001 to AS006)



B.4 Photographs



a) Asda, Hulme, Manchester: Quality Food Retailer of the Year 2016 (source SH)



b) Unicorn: Best Food Retailer, BBC Radio 4 Food and Farming Awards 2017 (source: SH)