



Less Meat Initiatives: An Initial Exploration of a Diet-focused Social Innovation in Transitions to a More Sustainable Regime of Meat Provisioning

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Abstract. Meat production and consumption as currently configured in developed countries is seen by a growing number of actors as compromising food system sustainability, with the situation likely to worsen as globally meat consumption is predicted to double by 2050. This article undertakes an initial investigation of less meat initiatives (LMIs), which have recently emerged to encourage a reduction in meat eating at a number of different sites and scales. Prominent examples include Meat Free Mondays and Meatless Mondays, which have originated in the UK and the US respectively. Drawing on the socio-technical transitions literature, the article conceptualizes the notion of eating less meat as a predominantly civic-based social innovation, focused on diet, with LMIs representing socially innovative niche projects that have the potential to facilitate a transition towards a more sustainable regime of meat provisioning. Initial empirical evidence derived from primary and secondary sources is used to examine the ‘diffusion’ of LMIs, both in the UK and internationally. A key conclusion is that although LMIs are both replicating and scaling-up they are not translating the idea of eating less meat in any significant way into the mainstream, principally because their demands are too radical. A further conclusion is that while commercial organizations, the media and the state continue to promote high and unsustainable levels of meat consumption, the ability of LMIs to facilitate the diffusion of an innovative social practice – eating less meat – is likely to be limited. Nevertheless, LMIs do have the potential for raising awareness of and fostering debate about meat eating and the arguments for reducing overall levels of meat consumption.

Introduction

The recent controversy in the UK over the ‘contamination’ with horse meat of processed meals purportedly made from beef is the latest in a long line of scandals of meat provisioning, with the outbreak of bovine spongiform encephalopathy (BSE) in cattle and the contamination of ground beef with the bacteria *Escherichia coli* rep-

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resenting other crisis episodes in the UK and US respectively. Such events speak to the idea that meat is a particularly controversial food, albeit periodically.¹ This article explores a new way in which meat is being (re-)politicized that has only recently begun to receive attention from agri-food scholars (Bakker and Dagevos, 2012; Vinnari and Tapio, 2012; Lombardini and Lankoski, 2013; Vanhonacker et al., 2013; Sage, 2014), associated with a series of intersectional concerns about the current configuration of meat provisioning in the developed world. Increasing numbers of actors have identified livestock production as a major contributor to climate change through greenhouse gas emissions, and an inefficient use of natural resources (Steinfeld et al., 2006). Alongside these environmental concerns excessive levels of meat eating have been associated with various chronic diseases. Although meat consumption levels vary between countries in the developed world, overall it is in excess of 220 gr. per person per day, leading health experts to recommend a decrease by more than half (McMichael et al., 2007). Meanwhile meat production, particularly in its most intensive forms, has long been the target of animal rights and welfare groups. Taken together, these meat consumption and production impacts have been conceptualized by some commentators as a 'meat crisis' (D'Silva and Webster, 2010), which is likely to worsen as meat consumption is predicted to double globally in a business as usual scenario by 2050 (Steinfeld et al., 2006). As such, a reduction in the consumption of meat has been highlighted as likely to have the most significant and immediate impact on making diets more sustainable (Garnett et al., 2013), i.e. socially just, environmentally benign,² and economically sound.

This recommendation, however, ignores a number of highly significant counter tendencies. First, there is a growing recognition that different meats and different meat production systems vary substantially in terms of their environmental impacts: for example, in relation to their feed conversion ratios, or whether animals have been fattened on imported concentrates or are grass fed (Hamerschlag, 2011). Likewise, changes in breeding practices, including the use of genetic modification and the development of new technologies such as in vitro meat, might help to reduce the environmental impacts of meat production (Beddington, 2010), thereby lessening the imperative to eat less meat. Second, meat retains a potent symbolic status in western culinary and nutritional culture (Fiddes, 1991), suggesting that directives to reduce the amount of meat consumed are likely to face some, if not considerable, resistance from individual meat eaters. Third, and perhaps most significant, are the institutional barriers associated with the considerable economic capital tied up in the meat and livestock industry (D'Silva and Tansey, 1999). This is demonstrated very powerfully in Robinson Simon's (2013) recent analysis of 'the rigged economics' of the US meat and dairy industry. The 'meatonic' system, Robinson Simon argues, encourages both an overproduction and overconsumption of animal foods – for example, through the high levels of public subsidy to livestock agriculture and the undue influence of the livestock industry on the regulation of the food system.

Nevertheless, steps are being taken to address the apparent excess of meat production and consumption. This article focuses on one of them, 'less meat initiatives' (LMIs). LMIs are organized and formalized efforts that are attempting to mobilize action to reduce meat eating at a number of different sites and scales. Prominent examples include Meat Free Mondays and Meatless Mondays, which have originated in the UK and the US respectively and are having an influence beyond their original geographical contexts, and the Belgium town of Ghent's pioneering weekly meat-free day. Although a recent phenomenon, LMIs are growing in number, are

attracting increasing media attention and have characteristics that distinguish them from more established initiatives that organize to eliminate meat and other animal products from the diet, such as vegetarianism and veganism (Maurer, 2002; Morris and Kirwan, 2006).

Drawing on primary and secondary information sources, the aim of this article is to undertake an initial investigation of LMIs in order to explore their potential to contribute to a transition towards a more sustainable system of meat provisioning. In framing the rationale for our task in this way, we draw on a particular branch of the socio-technical transitions literature, namely strategic niche management (SNM) (Schot and Geels, 2008), which has been mobilized increasingly to explore various means of effecting governance' of transitions to greater sustainability. More specifically, the concept of 'grass-roots innovations' enables a focus on the development of social innovations within civil society contexts (Seyfang and Haxeltine, 2012). The article argues that this approach can be employed to conceptualize the notion of eating less meat as a predominantly civic-based social innovation, focused on diet, with LMIs representing socially innovative niche projects that may facilitate a transition towards a more sustainable regime of meat provisioning. The remainder of the article is structured as follows. The next section discusses the sustainability transitions literature and a particular dimension of this that focuses on the growth and diffusion of innovative niches and their projects into wider society. After describing briefly the methods employed to produce information about LMIs, the article then utilizes aspects of the empirical evidence to elaborate how eating less meat can be framed as a social innovation, with LMIs as innovative niche projects. Drawing on other parts of the empirical material the diffusion of LMIs, both in the UK and internationally, are then explored in terms of their 'replication', 'scaling-up' and 'translation' of the ideas underpinning these niche projects. In concluding, the article argues that although there is evidence for the first two dimensions of diffusion, LMIs do not appear to be contributing in any significant way to the translation of the idea of eating less meat into the mainstream, because their demands are too radical. However, in spite of the conflicts and contestations associated with this social innovation, the article suggests that LMIs do have a useful role to play in raising awareness of and fostering debate about meat eating and the arguments for reducing overall levels of meat consumption. Further, in particular spatially delimited sites such as schools and other institutions, LMIs can also provide an introduction to the *practices* of eating less meat. Finally, suggestions are made for further research into this significant sustainability challenge.

Socio-technical Regimes, Green Niches and Grass-roots Social Innovations

Debate about how to improve the sustainability of modern industrial societies has led to a growing interest in how such transitions can be governed in practice. In this respect, the work of Geels and Schot (2007), amongst others (e.g. Rip and Kemp, 1998; Wiskerke, 2003; Geels, 2005; Lawhon and Murphy, 2011), provides a useful starting point in helping to understand the complexity of governance' of transitions to greater sustainability, through developing the notions of a multilevel perspective (MLP) and socio-technical transitions (STT). In this approach, transitions are defined as being changes from one socio-technical regime to another, involving different actors aligning their interests in order to stabilize their activities within a particular regime of operation. The notion of socio-technical highlights that a regime is a com-

plex assemblage of both technical artefacts and social relations (Smith, 2007). Geels and Schot (2007) identify three key elements within the MLP: the socio-technical landscape, the socio-technical regime, and niche innovations. Within the context of this article, the *socio-technical landscape* represents pressures that are exogenous to the specific context of meat provisioning and yet have an influence on it – for example, concerns about climate change and resource use. Not all of these pressures may be focused directly on meat provisioning, and yet are increasingly creating an imperative for change. The *socio-technical regime* of meat provisioning can be thought of as being the existing mode of operation, or status quo, which includes how issues are framed, normalised practices, and the way in which the regime is embedded within particular institutions and governance mechanisms (as illustrated by Robinson Simon, 2013). This constellation has stabilized over time, making it difficult for new modes of organization, such as diets based on lower levels of meat eating, to develop and bring about change. The third element, *niche innovations*, can be understood as small-scale initiatives that at present may not be putting pressure directly on the socio-technical regime to change, and yet have the potential to do so. They are usually developed from the bottom up rather than being imposed from the top down, and they are the likely source of ‘revolutionary’ change as opposed to the ‘incremental and path dependent’ changes taking place *within* the regime (Smith, 2007).

The relationship between niches and regimes is key to understanding the nature of transitions to greater sustainability, notwithstanding that pressures may also be exerted on an existing regime from the landscape level. In this respect, the notion of ‘transition’ to a different socio-technical regime is helpful, as well as a recognition that it is highly contingent on a range of processes and constituent parts, not least the ‘multilevel dynamics’ that are likely to be involved (Wiskerke, 2003). In practice, the outcome of the interaction between a given regime and niche innovations is dependent upon the relative strength and stability of each. For example, how much pressure is the existing regime under to become more sustainable? How well developed is the niche, and how much financial, institutional and political support does it have? Unless niches secure this support, they are likely to have little impact (Smith, 2007). This signals the role of power and the politics of transitions, issues that Lawhon and Murphy (2011) argue have been given insufficient attention in transition research, but which can be understood through a language-based approach, i.e. the discourses mobilized by actors as they seek to effect or block change.

A number of further perceived weaknesses have been identified in the STT approach, including an overemphasis on technological artefacts as agents of change, rather than examining the social context and behavioural response that results from the pressures for change. The framework has also been criticized for failing to address the spatialities of transition and for focusing on those actors who are responsible for developing policy changes, rather than on those who may be directly affected by them or actually need to implement them in their daily lives in order to make the transition towards a more sustainable lifestyle (Lawhon and Murphy, 2011). In response, Seyfang and Smith (2007, p. 585) introduce the concept of ‘grass-roots innovations’, which they define as ‘networks of activists and organisations... experimenting with social innovations’ in order to develop innovative niche-based approaches that offer a more sustainable alternative to the mainstream. The inclusion of the *social* dimension is distinctive, which Seyfang and Haxeltine (2012, p. 382) argue ‘provides a conceptual framework for examining the role of a civic society in the emergence and governance’ of transitions to greater sustainability. Although

some authors express concern about the ‘fuzziness’ of the term *social innovation* (e.g. Bock, 2012; Neumeier, 2012), there is a broad consensus that it involves new forms of organization both at institutional and personal levels. Key to such transformations is the development of ‘green niches’, described by Seyfang and Smith (2007, p. 589) as ‘sustainability experiments in society in which participation is widespread and the focus is on social learning’.

Building on this perspective, the article argues that the idea of eating less meat can be conceptualized as a social innovation with LMIs as green niche projects based on this innovation. Such projects have the potential to bring about change or transformation in the dominant regime of meat provisioning, to make it more sustainable. Further, this article utilizes a particular branch of the socio-technical transitions literature, namely strategic niche management (SNM) (Schot and Geels, 2008), which is concerned with understanding how innovations, with the potential to contribute to sustainable development, can become established and lead to change in the overarching regime (Kemp et al., 1998). In their application of SNM to the analysis of the Transition Town movement, Seyfang and Haxeltine (2012, p. 384) argue that it is important to realize that grass-roots innovations are distinctive from the technological, market-based innovations more usually associated with the SNM literature. In this respect, the innovation is intent on ‘developing new ideas and practices; experimenting with new systems of provision; enabling people to express “alternative” green and progressive values; and the tangible achievement of sustainability improvements, albeit on a small scale’. This is highly pertinent to the examination of LMIs, as elaborated in the following section. In seeking to understand how such niche projects can facilitate the diffusion of innovative socio-technical practices, the literature suggests that it can be achieved through one or more of the following ways: by *replication* of the project or initiative involved; through growing it in terms of *scale* by attracting more participants; or by *translating* the key ideas underpinning the niche into mainstream thinking (Seyfang and Haxeltine, 2012, p. 384). Here, the focus is on the extent to which individual LMI projects are being replicated (both geographically and institutionally), the evidence for up-scaling of these projects through the enrolment of more participants, and the translation of the eating less meat idea into mainstream settings, such as by its promotion by mainstream actors.

In considering the challenges faced by LMIs as they diffuse and seek to effect changes in the regime, the analysis also draws on Smith’s (2006) proposition that innovative socio-technical niches need to combine ‘radical’ and ‘reforming’ characteristics. In other words, niches must be both at radical odds with the incumbent socio-technical regime and demonstrate some compatibility with that regime, even though such compatibility blunts the innovative potential of the niche (Smith, 2006). In practice, this implies that there must be niche elements that can be appropriated easily by the mainstream, leading towards mildly more sustainable reforms. Meanwhile, the more radical practices of the niche can and will continue to be pursued by committed actors within a renewed niche who remain advocates for more radical systems innovations. In the following section we discuss the operationalization of this conceptual framework through the use of a number of methods.

Methods

The data discussed in the subsequent sections of the article were derived from a combination of secondary and primary research strategies. In the first instance, the

aim was to try to scope the range of LMIs both nationally and internationally. In order to do this, an online 'snowballing' approach was taken to the identification of LMIs between mid-May and mid-June 2011, starting with the websites of high profile LMIs that were widely discussed in the media at that time, such as Meatless Monday in the US and Meat Free Mondays in the UK. From these websites, it was possible to identify the websites of other LMIs with which they had connections but also organizations who were in some way engaged in or interested in the development of initiatives to eat less meat. This process continued until no further leads were found. In addition, a Google search was undertaken to produce further data that may have been missed by the above approach. The choice of Google as a search engine is justified by previous studies that have established search engine accuracy (Thelwall, 2008; Weaver and Bimber 2008). It is acknowledged, however, that 'any search engine provides access to only a portion of the Web' (Bryman, 2012, p. 655). A variety of search terms were employed, including 'less meat', 'meatless', 'meat less' and 'meat reduction and climate change'. This search revealed little new data, which in itself was a helpful confirmation of the approach taken. The procedures were repeated in the same period in 2013, in order to ascertain whether LMIs were still in operation, how they had developed and whether new initiatives had emerged. This revealed only very limited changes to the picture established in 2011. For example, two additional activities based in the UK were identified and an evolution in some existing LMIs, e.g. the London-based Dulwich vegan and vegetarian societies' meat-free day identified in 2011 had been incorporated into the London vegan societies' meat-free day in 2013. In a small number of other cases an LMI identified in 2011 was no longer active, e.g. the UK's Vegetarian Society no longer carried a link to MFM and the proposal to implement meat-free menus in the UK's National Health Service had made no further progress. All relevant information from LMI websites was downloaded into a Word document to enable thematic analysis of the text. It is acknowledged that this type of approach is limited to those LMIs with a web presence and that communicate in English. At the very least it has been possible to identify the *presence* of an LMI in countries that are not English speaking (e.g. Brazil), because reference is made to them by LMIs located in an English-speaking context. A detailed understanding, however, of these LMIs has not been possible through this methodological approach.

In addition to this secondary research, primary research was undertaken into the most high-profile initiative in the UK: Meat Free Mondays (MFM). It is also the LMI that is referred to most frequently by LMIs based in other countries. The research approach involved an online questionnaire survey of 48 MFM participants recruited via the MFM's Facebook page, with support from the MFM campaign manager who posted a link to the questionnaire. This approach generated an 'availability sample' as respondents were self-selecting and limited to those who regularly use the Internet (Cloeke et al., 2004). In addition, 14 semi-structured interviews were conducted with people closely linked to or involved in MFM, forming a 'judgemental sample', including two MFM representatives, a catering company involved in delivering MFM in schools, two UK Members of Parliament, and students from universities in the UK and Hong Kong, where MFM projects have been implemented. Finally, to gain an understanding of how MFM is being portrayed in the media, 95 articles from UK-based regional and national newspapers containing the phrase 'Meat Free Monday' were identified for analysis, from the database Lexis Nexis.

Less Meat Initiatives as Socially Innovative Niche Projects

In this section, by drawing on aspects of the empirical evidence, we elaborate how the idea of eating less meat can be framed as a social innovation with LMIs as innovative niche projects. The idea of eating *no* meat is an ancient one, albeit more recently promulgated by the modern vegetarian and vegan movements (Maurer, 2002). Notwithstanding the US wartime initiative of Meatless Monday (MLM), the concept of eating *less* meat in order to make meat provisioning more sustainable has come to prominence only since the turn of the century. One of the first LMIs to be established, in 2003, is Meatless Monday. It is a US-based project of the not-for-profit Monday Campaigns, in association with the Johns Hopkins Bloomberg School of Public Health and its Center for a Livable Future. Described as a 'public health awareness programme' and endorsed by 20 Schools of Public Health, Meatless Monday aims to reduce the risk of preventable diseases in the American population by reducing the consumption of saturated fat, while at the same time reducing carbon footprints and saving resources like fresh water and fossil fuel. The initiative provides information and recipes for healthy, environmentally friendly, meat-free meals. The most prominent LMI in the UK is Meat Free Monday, established in 2009 by the former Beatle Paul McCartney and his family. Based in London, the primary aim of this not-for-profit initiative is 'to raise awareness of the environmental impact of meat eating and encourage people to meaningfully reduce their greenhouse gas emissions by having at least one meat-free day every week' (McCartney, 2009). In addition to these two national level awareness-raising and information-providing LMIs, individual towns and cities such as San Francisco, Ghent, Cape Town and Sao Paulo have instituted meat-free days (MFDs), typically at the behest of the town or city council, but with the support of a range of other organizations in the non-governmental, public (e.g. hospitals and schools) and private sectors (e.g. restaurants). These examples demonstrate how LMI projects of this type enrol actors from different parts of society into the meat reduction agenda.

LMIs typically take the form of MFDs with Monday being the preferred day of action.³ This temporality has been explained in historical terms, as successful US-based campaigns during the First and Second World Wars to encourage less meat consumption were organised on a Monday, along with 'wheatless Wednesdays' (Foodwise, 2013a). Another reason for the Monday focus is that for many this is the beginning of the working week and the start of a weekly routine, which the Monday Campaigns has demonstrated 'positively affect[s] a range of healthy behaviors' (Monday Campaigns, 2013). Another, less prominent type of LMI project is the meat-free menus offered by both public and commercial institutions. For example, the Sustainable Development Unit of the UK's National Health Service proposed, as part of its carbon-reduction strategy, that meat-free menus should be introduced into hospitals in 2009. At the time of writing, this remains a proposal and is indicative of the barriers that exist to this social innovation, which are discussed below.

The websites of LMI projects typically feature lists of organizations that have endorsed the initiative, amongst which environmental, animal rights/welfare, and diet-based NGOs feature strongly. Alongside this support from the non-governmental sector, celebrity endorsements of some LMIs such as MFM and MLM are very pronounced. For example, TV presenter Oprah Winfrey is reported as playing a key role in raising public awareness of MLM in the US (Scott-Thomas, 2011). These connections between LMIs and other organizations and individuals are part of the process of their legitimization, which is also evidenced in the discursive connections

that LMIs make to past campaigns that have encouraged a reduction in a particular aspect of consumption. The wartime meat-reduction campaigns have already been mentioned, but the San Francisco based MFD provides a further illustration. This LMI has been initiated by the city's Board of Supervisors, which formally recognizes the city's Vegetarian Society's 'Meat Out' day:

'The idea for the Great American Meat Out is based on The Great American Smoke Out of years ago, encouraging smokers to go without smoking one day. 'Now we encourage people to go without meat one day in hopes they will kick the 'meat habit' and replace it with good food and good health' (Lee, 2011).

An explicit connection is made between 'meat out' and 'smoke out', to help make the former both more familiar, i.e. this sort of action has been taken before so there is nothing to fear, and more meaningful, i.e. it is for a good cause, benefitting the participant (the smoker/meat-eater) and others (the second-hand smoker/societal and environmental health).

LMIs comprise, therefore, networks of people, most of which originate within the civic sphere. They are intent on developing new ways of engaging with meat, and in particular reducing the total amount that is eaten. In doing so they are non-conformist since they contest the dominant diet, which has meat at its centre, in Europe and North America and, increasingly, other 'westernized' countries, arguing that dietary practices with respect to animal proteins need to be thought about and carried out differently. The focus is on changing the perceptions, attitudes and practices of those involved, both at an LMI level and, more broadly, within the meat-provisioning regime, thereby highlighting the social nature of this innovation (Neumeier, 2012). Enabling the expression of alternative, green and progressive values is another feature of social innovations and in the case of LMIs this is revealed in the main arguments they advance for reducing meat consumption. Four are particularly prominent. First, the assertion is made that it will benefit the *global* environment with the dominant discourse here being the relationship between meat production–consumption and climate change. Reference within this context is often made to the 2006 FAO *Livestock's Long Shadow* report (Steinfeld et al., 2006), which is concerned with the resource-use implications (especially for water, land and fossil fuels), deforestation and climate change of escalating levels of meat production. Meat Free Mondays, for example, states that 'We're not asking you to give up meat completely, we're encouraging you to do your bit to *help protect our planet*. By joining together in having one meat-free day each week *we'll be making great steps towards reducing the environmental problems associated with the meat industry*' (<<http://www.meatfreemondays.com>>, emphasis added). Likewise, in the case of the animal rights NGO Animal Aid's Meat Free Monday campaign, the emphasis is placed on the environmental possibilities of meat reduction with comparison being made to road transport: 'If everyone in the UK adopted Meat-Free Monday, it would result in greater carbon savings than taking five million cars off the road' (Animal Aid, 2011).

Second, it is claimed that reducing meat consumption is good for your health, with a number of LMIs stressing that in countries such as Australia, Canada and the UK we eat more meat than is good for us, leading to higher levels of some forms of cancer, heart disease, obesity and diabetes. Australia's Meatless Monday initiative highlights the health arguments of eating less meat, as well as the climate benefits:

'MFMs is a campaign encouraging Australians to go meat free for one day a week, for the good of their health and the good of their planet... It has long dominated our dinner plates and taken centre stage in the very idea of being Australian. The problem is, our love of meat has begun to take a big toll on both our health and the health of our planet... That's where we come in. MFMs is a fun, positive and powerful way to raise awareness about the personal health and environmental benefits of reducing our meat consumption' (Foodwise, 2013b).

Third, LMIs argue that animal suffering will be reduced and/or animal welfare will be improved either through reducing the amount of meat consumed (and, by implication, requiring fewer animals be slaughtered) or through eating less meat that is of a higher quality in terms of its production practices. In the case of PETA's (People for the Ethical Treatment of Animals) promotion of a meat-free day, reducing animal suffering is given particular prominence: 'Intensive farming and the transporting and slaughter of animals cause animals fear, pain and stress... By reducing our meat... consumption, we can decrease the number of animals who endure traumatic experiences' (PETA Education, 2013).

The fourth argument mobilized by LMIs concerns the alleviation of world hunger, linked to the quantity of plant protein fed to animals (rather than directly to humans) and the relatively poor conversion ratio of plant to animal protein. For example, in launching its Meat-free Day campaign the city of Cape Town highlights the 'intensely energy intensive' nature of beef farming:

'as is demonstrated by the fact that it takes the equivalent of a seven-minute shower each day over six months to produce just 500 grams of beef. According to the United Nations, every day a billion people go to bed hungry, whilst the Western world diverts a third of the world's grain harvest to feed livestock' (City of Capetown, 2013).

In spite of a broadly common agenda, it is clear that the principal arguments are not given equal emphasis across LMIs, reflecting the interests of the organization that has established the LMI (e.g. an animal NGO is more likely to emphasize the animal welfare gains of eating less meat) and the sociocultural and political contexts in which it is operating (e.g. in the US the health arguments of MLM are probably perceived to resonate more strongly than those concerning climate change, although this particular LMI has its roots in public health).

Another aspect to consider is *who* is being encouraged to act, i.e. to be enrolled into specific LMI projects. This is not always made explicit, and needs to be interpreted in relation to the nature of the LMI organizer(s) and the discourses employed. The primary actor emphasized is the citizen, albeit identified at different scales, i.e. the citizen of a city, nation state or the globe. For example, in promoting MFM in schools, PETA refers to this as 'an exciting cross-curricular global citizenship project' (PETA Education, 2013). Meanwhile, MFM itself asserts that 'the best hope for change lies in average people becoming more aware of the true costs of industrial meat production and taking action themselves' (<<http://www.meatfreemondays.com>>). The consumer is a subjectivity that also features in LMI discourse, e.g. as purchasers of a company's meat-free foods to satisfy their own desires, as in the case of the promotion of MFM by Goodlife Foods. That the consumer is the subject of interest is also evident in the fact that although the message is on reducing the amount of meat that is consumed, this is quite often framed in terms of providing more menu

options, or even greater choice, as well as being an aspiration rather than an imposition. Such notions fit very clearly into the prevailing discourse of consumerism. At times a hybrid subjectivity of the consumer–citizen (Johnston, 2008) appears to be the target of mobilization, when participants are urged to purchase meat-free foods to satisfy themselves but also to achieve wider socioecological benefits, i.e. improvements for the environment, animals and human welfare. In the case of some LMIs, individuals (either as consumers and/or citizens) are left to act alone albeit encouraged and supported by the campaign, e.g. MLM Canada and Australia, and Cape Town’s meat-free day. Meanwhile, in other LMIs, food provisioning institutions and organizations are enrolled by the initiative to assist participants in making meat-free choices, e.g. Ghent’s meat-free Thursday involves the provision of meat-free menus by restaurants, shops and hospitals. In such cases the emphasis is clearly *collective* local-level action that includes individuals and organizations working together to facilitate a reduction in meat consumption. This is captured in the US MLM’s aim to create ‘a broad-based, grassroots movement that spans all borders and demographic groups’ (Meatless Monday, 2013).

Since the ultimate aim of the LMI green niche is to enable a transition to greater sustainability within the meat-provisioning regime, it can be understood as predominantly ‘strategic’ in character concerned with realizing ‘diffusion’ benefits that value the niche as a means to an end. However, appeals to the personal health benefits of reducing meat consumption within some LMI projects signal that it also has a ‘simple’ quality in the terms of Seyfang and Smith (2007), i.e. focused on ‘intrinsic’ benefits that value the niche for its own sake and are not seeking regime change. In adopting a social innovations approach to the conceptualization and analysis of LMIs, we recognize that niches on their own will not lead to regime change, but that they are sites where ideas can be developed as to what can be done differently; furthermore, that they will have little impact unless they are supported in some way, either financially, institutionally or in terms of policy (Kemp et al., 1998; Seyfang and Haxeltine, 2012).

The Diffusion of Less Meat Initiatives

Having made the case for understanding the idea of eating less meat as a social innovation with LMIs as niche projects that express alternative, green values and that seek to encourage new attitudes, perceptions and practices in relation to meat consumption both individually and institutionally, the article moves on to examine the diffusion of this niche and the politics of this process. As the literature suggests, this can be achieved through one or more of the following: replication, scaling up, and translation, each of which is now considered in turn. We draw on both the primary and secondary sources of information analysed in order to provide evidence for each of these dimensions of diffusion.

Replication

There is clear evidence to suggest that LMIs are being replicated, with the web-based research revealing activity in many countries, including within Europe (UK, France, Belgium, Finland, Spain, Germany, Croatia), North and South America (US, Canada, Brazil), South Africa, the Middle East (Israel), Asia (Singapore, Taiwan, Hong Kong

and Japan) and Australia. However, this may be an underestimation of the spatial reach of LMIs as the MLM initiative claims it has now been implemented in 23 countries. We interpret replication as taking place both through *adoption* of an LMI project, entailing its implementation within specific institutions and the reshaping of their practices and procedures, and also through the *promotion* of an LMI project. Examples of *adoption* include the proposal to implement MFMs in the catering outlets of the UK's House of Commons, and the actual implementation of MFMs in schools, colleges and universities across the UK. In 2010, for example, it was reported that three Oxford University colleges 'have made meat free meals the default Monday option for students' (Griffin, 2010). An MFM representative claimed in interview that it is 'active in schools all over the country', with Preston Manor School in Wembley, London providing a detailed account of its engagement with MFM on its own website. The primary research on MFM suggests that replication is more likely to occur when institutions 'opt in' to an LMI project and take ownership of the notion of reducing the amount of meat in the diet, rather than this being imposed from above (see section on translation below). In schools, for example, the young people involved in MFM have been seen as more willing to do this on the grounds of trying something new, as well as feeling part of something exciting and in which they have a say. MLM in the US also claims to have been adopted widely by schools, colleges, universities, restaurants, and hospitals across the country and these are listed on the website of this LMI. Although, as the theory of social innovations suggests, the majority of actors involved in establishing LMIs are from within civil society; food companies – manufacturers, caterers and restaurants – also feature in the adoption of LMIs.

LMIs are also *promoted* by a wide range of organizations. While it is acknowledged that this is not the same as implementing a meat-reduction project in a specific institutional or individual context, promotional activities can be seen as a form of replication as they take the meat-reduction agenda beyond the organizations that have actually initiated an LMI project. Some of the organizations that are promoting an LMI are concerned with animal rights, e.g. Animal Aid and PETA both promote MFM. Others are mobilizing for dietary change that involves the reduction or elimination of animal foods. In the case of the latter, national vegetarian (e.g. France, Singapore, UK) and vegan societies (e.g. the US-based 'Meatout' organization is associated with Tel Aviv University's Meat Free Day) appear to be playing an influential role, although they are by no means the only actors. As such, the less meat agenda should not be interpreted as driven wholly by vegetarian and vegan interests. Environmental NGOs, including the Young People's Trust for the Environment, Friends of the Earth UK and Earthsave Canada also feature as promoters of LMIs. The majority of organizations that promote LMIs are within the non-governmental sector. However, commercial promotion of an LMI project is also evident albeit to a relatively limited extent, e.g. Goodlife Foods and Linda McCartney Foods, both manufacturers of meat-free products, promote MFM.

Scaling Up

The presence of LMIs in multiple locations across the globe and in diverse institutions within any one country provides one indication of the diffusion of this social innovation. It is also necessary to establish the extent and nature of participation in these LMIs in order to assess the degree of 'scaling up'.

Although the information is preliminary, LMIs in both the UK and the US are attracting growing numbers of participants with social media playing a crucial role in this process. The main focus of communication for MFM is through its website, as well as through Facebook and Twitter. The survey of its Facebook members revealed that over two-thirds had first heard about MFM through social media and, once involved with MFM, nearly all of their communication with fellow participants was via the Internet. In terms of the numbers of participants, reporting on his blog in July 2009, *The Guardian* newspaper's ethical living and environmental journalist Leo Hickman commented 'I see that [MFM's] Facebook page has more than 3,600 followers', suggesting that a process of scaling up is underway. However, Hickman goes on to reflect 'but is anyone out there really giving up their bacon sarnies on Monday mornings?' (Hickman, 2009); the implication being that scaling up is not necessarily indicative of changes being made to the diets of individuals. Evidence from the US appears to be a little more conclusive. A 2011 online poll revealed that 50.22% of 2,000 American adults in a nationally representative sample were aware of MLM, and up from 30% awareness six months before that (Scott-Thomas, 2011). In response to the survey results, the initiative stated on its website: 'This is astonishing given that the campaign has no paid media or even pro bono advertising typical of public service campaigns.' Instead, it is claimed that awareness is being driven by viral Internet campaigns and the participation of key organizations, such as the catering company Sodexo,⁴ and influential individuals in the media, including Oprah Winfrey. The poll also revealed that among those who said they were aware of the MLM initiative, 27% claimed that it had influenced their decision to cut back on meat, suggesting that the LMI is already attracting a not insignificant number of participants.

Translation

In this section we explore how and the extent to which the key idea underpinning the LMI niche – eating less meat – is being translated into mainstream thinking. This is a more challenging dimension of diffusion to evidence and requires interpretation of a range of secondary sources, including media commentary. Important here is a consideration of the ways in which the idea of eating less meat is being contested as this will reveal the barriers to its translation. Meat eating comprises an important dimension of recently published reports by mainstream actors such as the FAO (Steinfeld et al., 2006), the UK government's advisor on sustainability issues the Sustainable Development Commission (SDC, 2009), and financial organizations such as the Deutsche Bank (Deutsche Bank Research, 2009). This demonstrates that at the very least there is a debate taking place about eating less meat in an increasing number of arenas. Further, recent market research has claimed that meat sales in Europe and North America have slowed considerably and that there is a 'growing trend towards meat-free or meat-reduced diets' (FoodAndDrinkEurope.com, 2011). A Mintel survey of 2,000 US adults reported that 39% of participants claimed to be eating less beef in 2013 than in 2012 (Taylor, 2014). A variety of reasons for this shift are identified, including health, environmental, animal welfare and financial, reasons that are advanced by the LMIs themselves. While FoodAndDrinkEurope.com (2011) argues that government public health initiatives that encourage citizens to reduce their salt intake or increase their consumption of fruit and vegetables 'have all impacted meat consumption', it also suggests (but provides no supporting evi-

dence) that LMIs, identified within the report as ‘celebrity-led campaigns’, are also contributing to the reduction in meat eating. Such claims about broad changes in meat consumption provide an early indication of the translation of the idea of eating less meat into the mainstream.

The 2011 poll (on awareness of MLM and associated dietary change) referred to in the previous section is reported by an organization that represents the meat processing industry and the report goes on to say: ‘Commenting on the MLM initiative’s potential impact on the meat industry, communications director of the Animal Agriculture Alliance Sarah Hubbart said it is “*something to watch*” but added that 97% of Americans choose to include meat, milk and eggs as part of their diet’ (Scott-Thomas, 2011). This suggests that economic actors within the mainstream meat-provisioning system in the US, while aware of LMIs, are not unduly perturbed by their emergence. In the UK, however, parts of the farming industry, particularly those associated with the livestock sector, have contested LMIs. For example, Rees Roberts, Chairman of Meat Promotion Wales, July 2009, is reported by the BBC to have argued that: ‘We’ve had celebrities calling for meat-free Mondays and even a town in Belgian trying to ban meat one day a week. The more extreme elements go further, accusing livestock farmers and meat eaters of killing the planet and heaping all the woes of climate change onto our shoulders’ (Hickman, 2009).

Likewise, a Welsh MP and Liberal Democrat rural affairs spokesperson condemned the NHS’s proposal to introduce meat-free menus on the grounds ‘that it would deal a “significant blow” to the livestock industry and have limited environmental benefits’ (MeatInfo.co.uk, 2009). That livestock farmers and their representatives should express concern about LMIs is perhaps to be anticipated, although as the coordinator of the Cape Town’s meat-free day points out, eating less meat can provide opportunities for the producers of welfare-friendly meat as the initiative: ‘[It] encourages everyone to eat less but better meat – preferably free range meat products. Eliminating meat from your diet for one day a week will result in a saving... That saving can be used to buy healthier and more humane free-range meat’ (Pollack, 2010).

Similarly, in its promotion of MFMs the Young People’s Trust for the Environment (YPTE) asserts that a reduction in meat intake need not have negative consequences for farmers:

‘After all, our population is rising, so the demand will still be there, even if we all do eat less. But hopefully we can reduce our reliance on large scale industrial farming systems and instead give our support to the farmers who are operating on a less industrial scale. If we all eat less meat, but choose better quality meat when we do buy it, rather than cheap imported meat, we will be supporting our own farmers and helping to promote good animal welfare’ (YPTE, 2013).

Both of these quotes suggest that the relationship between the agendas of LMIs and meat producers is not as straightforward as some meat industry commentators suggest.

This contrasts with the sometimes vehement resistance to LMIs that has been evident in both local and national government contexts in the UK. The most widely reported case of local level contestation occurred in Brighton, Sussex, a town on the coast of Southern England that is popularly known for its ‘alternative’ culture and the first parliamentary constituency in the UK to elect a Green Party member of par-

liament (MP) following its local electoral success. In its 2011 election manifesto, the Green Party pledged to introduce MFMs in all of the town council's catering outlets. A pilot MFM project was implemented in selected council departments, but proved to be so unpopular with the refuse collectors based in a particular city council depot that it was abandoned almost immediately. One national newspaper reported how a protest had been 'staged by "disgusted" workers when their canteen had removed bacon butties and lamb chops from the menu' (Daily Mail Reporter, 2011). The town's council viewed the failed pilot as 'disappointing', but said that it would 'work to communicate the benefits better and work more closely with the workforce in any future plans' (Daily Mail Reporter, 2011), suggesting that a MFD may yet materialize within council premises.

Elsewhere, the efforts of other town councils have also failed to implement an LMI, both in the UK (e.g. MFM at Manchester City Council) and in Espoo, Finland, for example, where the focus was school meals (*Helsingin Sanomat*, 2010). Again, this provides evidence of the problems of translation that this diet-focused social innovation is encountering. Alexis Rowell, a councillor and leader of a sustainability task-force group from Camden Borough Council in London, attempted in 2009 to 'put less but better meat' (*Hampstead and Highgate Express*, 2013) on the menus in the council's canteens. An earlier attempt to provide meat-free menus had been 'laughed off in the borough' according to the local press, blocked by Conservative councillors. Although the campaign was reinvigorated by the NHS's announcement in January 2009 that it planned to reduce the amount of meat on its hospital menus,⁵ it was immediately criticized by Conservative councillor Martin Davis, head of the borough's health strategy, who is reported to have said that:

'My opposition to this comes from the fact that I want people to have choice. I don't want us to say what people can and can't do. There should be meat options and non-meat options so if people want they can choose to not eat meat for environmental reasons' (*Hampstead and Highgate Express*, 2009).

The initiative was subsequently abandoned by the council (Alexis Rowell, former Liberal Democrat councillor at Camden Borough Council, personal communication, 10 March 2014).

Although most of the instances of resistance to LMIs by mainstream actors are evident in the context of local government, attempts to encourage less meat eating in the UK's national parliament have also been challenged, providing further evidence of the barriers to translation. Here, three MPs (Green, Labour and Liberal Democrat) attempted to introduce MFM into the House of Commons catering facilities. Having made their request to the Director and Head of Catering and Retail Services in the Houses of Commons and Lords respectively, they received a negative email response in October 2010 from the former who said: 'I fear that it would be deeply divisive and disruptive to enforce an eating regime – even for one day – that denied our customers the opportunity to eat meat if they so choose.' The Green Party MP – Caroline Lucas – subsequently provided written evidence, including the email from the Director of Catering and Retail Services, to the Administration Committee of the House of Commons requesting that the Committee consider two proposals to help reduce the carbon footprint of the catering department. One of the proposals was the introduction of MFM with the argument made by Lucas that 'Parliament could send a powerful message and set a great example by designating one day a week as meat-free' (House of Commons Catering and Retail Services, 2011). Further steps

were taken by John Leech MP (Liberal Democrats) to try to implement MFM in all cafeterias in the Houses of Parliament by tabling an early day motion (EDM) on 6 September 2010. The EDM was signed by 33 MPs, of which the majority were from the Labour Party, eight from the Liberal Democrats and two from other minority parties. No Conservative Party MPs were signatories (House of Commons Early Day Motion, 2010). The EDM was unsuccessful. More recently, in the period leading up to the September 2013 general election in Germany, it was reported that the Green Party's proposal to institute a 'veggie day', in which canteens would be obliged to offer only vegetarian meals on one day of every week, had contributed to a slump in the polls and limited the Party's chances of electoral success (Connolly, 2013).

Discussion and Conclusions

This article has undertaken an initial examination of LMIs, a recent development that seeks to effect dietary change as a means of contributing to a transition to a more sustainable regime of meat provisioning. The field of agri-food studies has been rather slow to engage with the wider debate about eating less meat and so one of the contributions of this article has been to extend this engagement through analysis of LMIs and their international development. The application of aspects of the STT literature to the examination of LMIs is also novel and, in turn, enables important questions to be raised about the less meat agenda. The article has argued that the new engagements with meat that LMIs are attempting to foster, notably the idea that eating less meat is desirable environmentally, socially and economically, can be understood as socially innovative in the terms of STT. Through activities and projects that arise mostly within civil society, LMIs are mobilizing to change the perceptions, attitudes and practices towards the consumption of meat, both at the level of individual participants but also within institutions in the meat provisioning regime. Further, LMIs express alternative, green and progressive values through the arguments that they make about why less meat should be eaten, emphasizing the benefits to the global environment, animal welfare, human health and social justice.

The major concern of the article has been to examine LMIs through the lens of the STT literature rather than to scrutinize an aspect of that literature using LMIs as the empirical vehicle for doing so. Nevertheless, by utilizing this literature to explore LMIs the article has extended its empirical scope to incorporate issues of dietary practice, which to date has been neglected in this body of work even though it is beginning to be actively and productively utilized in other food provisioning contexts (e.g. Smith, 2006, 2007; Kirwan et al., 2013). Likewise, related scholarship that argues for a focus on civil society lead food provisioning activities from the perspective of 'civic food networks' (CFN) has been similarly neglectful of diet, it being notable by its omission from the list of characteristics of CFNs discussed by Renting et al. (2012), similarly in those concerning alternative food networks (Maye and Kirwan, 2010). This is the case in spite of occasional calls by agri-food scholars to incorporate diet into analysis of these distinctive forms of food provisioning (e.g. Weatherell et al., 2003; Morris and Kirwan, 2006, 2007) and the recognition of a need to develop thinking on sustainable diets within policy debate (e.g. SDC, 2009).

The main conclusion of the article is that although the initial empirical evidence presented herein suggests that LMIs are both replicating and scaling up, they do not appear to be contributing in any significant way to the translation of the idea of eating less meat into the mainstream. LMIs are being implemented, particularly in a

number of *public* places and sites such as individual schools, universities, town and city authorities and to a lesser extent in businesses. However, there is compelling evidence that considerable resistance exists to these innovative niche projects and the idea that they are trying to advance, as illustrated by the case of the attempt to introduce a meat-free day into the local authority canteens within Brighton and Hove and the catering outlets of the UK's House of Parliament. The process of translating the idea of eating less meat into mainstream settings is clearly highly contested, reflecting the more general point about the politics of transitions having 'uneven consequences for different stakeholders' (Lawhon and Murphy, 2011, p. 364). Discursively, this is apparent in all of the cases of resistance to LMIs where there is pronounced use of a language of 'imposition' and 'enforcement', 'bans' and 'denial', and most prominently of all the removal of choice. This is in stark opposition to LMI discourses of 'encouragement', 'empowerment', 'aspiration', 'fun' and, paradoxically, greater choice. The politics of diffusing the idea of eating less meat is also party political since the evidence demonstrates that LMI supporters are more likely to be from the political left, centre or green, and detractors from the political right. Ghent's city council, for example, was able to implement the city's MFD when under control of a Liberal-Labour coalition. That the party-political landscape matters when steps are taken by public bodies to implement an LMI supports Smith's (2006) assertion of the need to consider the relationship between an innovative niche and the existing mainstream regime when trying to analyse the progress of the former.

In understanding the politics of the transition to a more sustainable meat provisioning regime it is helpful to return to Smith's (2006) propositions about the character of innovative niches as either radical and/or reforming. LMIs are demanding the eating of *less* meat, making these niches much more 'reformist' in character when compared with the 'no meat' and 'no animal food' positions of the vegetarian and vegan movements respectively. However, niches, so Smith suggests, must combine successfully reformist and radical characteristics to make progress. The radical character of LMIs, it is suggested, has two closely interrelated dimensions. First, their emphasis on 'less' meat eating is a direct and unwelcome challenge to political-economic interests within the meat provisioning regime. It is also fundamentally at odds with dominant economic thinking and discourse that emphasizes 'more' or growth. Second, the perception among the actors who contest LMIs is that they represent an unacceptable form of social control, particularly when a meat-free day is viewed as an imposition and denial of choice (Lombardini and Lankoski, 2013). Removing choice is fundamentally antithetical to the neo-liberal market economies that operate in the contexts in which the evidence for contestation is particularly pronounced, e.g. in the UK. It is argued, therefore, that LMIs are actually far too radical in character to enable the translation of the idea of eating less meat into mainstream settings.

A further conclusion of this article is that while commercial organizations, the media and the state continue to promote high and unsustainable levels of meat consumption (Robinson Simon, 2013), the ability of the LMI niche to facilitate effectively the diffusion of an innovative social practice – eating less meat – is likely to be limited. Indeed, both the SDC, in their work on sustainable diets (2009), and the recently launched 'Eating Better' campaign (2013) in its promotion of 'eating less and better' meat, argue that the UK government has paid insufficient attention in policy to dietary change (and reducing the consumption of both meat and dairy products in particular) as a low cost contribution to reducing climate change

impacts, while at the same time accepting that the notion of eating less meat is a sensitive issue for politicians and the food and farming industry. And yet, it is this sensitivity, together with the fact that eating less meat is a new idea for most that suggests that LMIs need to be recognized as having an important role in raising awareness of and fostering debate about meat eating and the arguments for reducing overall levels of meat consumption. Furthermore, when implemented in specific sites such as schools and universities LMIs can help to familiarize their constituent communities with the *practices* of eating less meat, which includes of course eating more plant-based foods (Lombardini and Lankoski, 2013). What follows in terms of recommendations for future research is that attention needs to be given to the structural barriers and opportunities surrounding the meat-reduction agenda, e.g. in the form of policy and regulation as Vinnari (2008) and Robinson Simon (2013) begin to outline in their discussion about taxes on animal products and the modification of the agricultural subsidy regime to disincentivize unsustainable forms of livestock production. Research also needs to attend to the ways in which individuals and their meat-eating practices are being influenced through their engagement with LMIs. As Smith (2007) argues, niches and the mainstream regime are in a dialectical relationship, developments in each will be carried out with reference to the other, implying that any further work on LMIs must necessarily be conducted in relation to the mainstream meat provisioning regime.

Future research might also consider the engagement of LMIs with food producers and, in so doing, respond to another aspect of SNM that is concerned with a number of 'niche processes', including 'building social networks' (Seyfang and Haxeltine, 2012). For the most part it appears that LMIs have not engaged producers or involved building relationships between LMI participants and producers. Exceptions do exist, e.g. the acknowledgement of the role of more humane meat eating by Cape Town's MFD, but they are just this, exceptions within the broader landscape of efforts that are concerned, first and foremost, with reducing meat consumption rather than tackling production. In seeking to better engage producers in their activities, LMIs may need to consider making more of an attempt to differentiate within the category of 'meat', because as one of the major arguments for reducing meat consumption concerns resource use, some forms of meat production may actually compare quite favourably with other forms of protein production. This could be an opportunity for local producers of 'greener' and animal welfare friendly meat, not to mention the horticulture industry, and finds support, for example, in the US-based Environmental Working Group's argument to eat 'less, greener and healthier meat' (Hamerschlag, 2011, p. 19). In turn, this suggests that research needs to explore how new engagements with meat could be made in different, more compelling and inclusive ways than is currently being asserted by LMIs with their focus simply on 'less'.

Notes

1. For some groups and individuals meat, and other animal foods, have always been and will remain controversial. Analysis herein is concerned with the 'conventional' food provisioning system in which eating meat is regarded as a dietary norm.
2. We include meat producing animals in this dimension of sustainability, although as discussed by Buller and Morris (2008) this positioning is by no means straightforward and agricultural animals, meat producing and otherwise, remain something of an awkward case for the discourses and practices of sustainable development.
3. Singapore has opted for 'Veggie Thursday' and Ghent's meat-free day is also on Thursday.

4. Sodexo is an institutional food provider who announced in January 2011 that it would support the 900 hospitals in its network with the materials to participate in Meatless Mondays Sodexo (2011). A few months later in April 2011 Sodexo extended this provision to more than 2,000 corporate and government client locations in North America, including Toyota, Northern Trust Bank and the US Department of the Interior (PRNewsWire, 2011).
5. A proposal that appears to have been shelved, providing further evidence of how an LMI has been 'scrapped due to unfavourable media and public reaction' (SDU, 2013).

References

- ANIMAL AID (2011) *Meat-free Monday*. Published online: <<http://www.animalaid.org.uk/h/n/CAMPAIGNS/vegetarianism//2156/>>, accessed 18 May 2011.
- BAKKER, E. and DAGEVOS, H. (2012) Reducing meat consumption in today's consumer society: questioning the citizen-consumer gap, *Journal of Agricultural and Environmental Ethics*, 25, pp. 877–894.
- BEDDINGTON, J. (2010) Food security: contributions from science to a new and greener revolution, *Philosophical Transactions of the Royal Society B*, 365, pp. 61–71.
- BOCK, B. (2012) Social innovation and sustainability: how to disentangle the buzzword and its application in the field of agriculture and rural development, *Studies in Agricultural Economics*, 114, pp. 57–63.
- BRYMAN, A. (2012) *Social Research Methods*, 4th edn. Oxford: Oxford University Press.
- BULLER, H. and MORRIS, C. (2008) Beasts of a different burden: agricultural sustainability and farm animals, in: S. SEYMOUR, R. FISH, C. WATKINS and M. STEVEN (eds) *Transdisciplinary Perspectives on Sustainable Farmland Management*. Wallingford: CABI.
- CITY OF CAPETOWN (2013) *City Launches Meat-free Day*. Published online: <<http://www.capetown.gov.za/en/Pages/CitylaunchesMeat-freeDay.aspx>>, accessed 7 July 2013.
- CLOKE, P., COOK, I., CRANG, P., GOODWIN, M., PAINTER, J. and PHILO, C. (eds) (2004) *Practising Human Geography*. London: Sage Publications.
- CONNOLLY, K. (2013) Veggie day threatens to eat Greens as party support nosedives, *The Guardian*, 14 September, p. 35.
- DAILYMAILREPORTER (2011) Binmen rebel against 'meat-free Monday' after 'green' council ditch their bacon butties, *Mail Online*, 29 July. Published online: <<http://www.dailymail.co.uk/news/article-2020041/Binmen-rebel-meat-free-Monday-green-council-ditch-bacon-butties.html>>, accessed 29 July 2011.
- DEUTSCHE BANK RESEARCH (2009) *The Global Food Equation: Food Security in an Environment of Increasing Scarcity*. Deutsche Bank Research, Frankfurt am Main, Germany.
- D'SILVA, J. and TANSEY, G. (1999) *The Meat Business: Devouring a Hungry Planet*. London: Earthscan.
- D'SILVA, J. and WEBSTER, J. (2010) *The Meat Crisis: Developing More Sustainable Production and Consumption*. London: Earthscan.
- FIDDIS, N. (1991) *Meat: A Natural Symbol*. London: Routledge.
- FOODANDDRINKEUROPE.COM (2011) *Meat-free Drive Is Impacting Consumer Markets: Euromonitor*. Published online: <<http://www.foodanddrinkeurope.com/Products-Marketing/Meat-free-drive-is-impacting-consumer-markets-Euromonitor>>, accessed 1 November 2011.
- FOODWISE (2013a) *Meat Free Mondays*. Published online: <<http://foodwise.com.au/meat-free-Mondays>>, accessed 14 May 2013.
- FOODWISE (2013b) *What Is Meat Free Monday*. Published online: <<http://foodwise.com.au/meat-free-Mondays/what-is-meat-free-monday>>, accessed 14 May 2013.
- GARNETT, T., APPLEBY, M.C., BALMFORD, A., BATEMAN, I.J., BENTON, T.G., BLOOMER, P., BURLINGAME, B., DAWKINS, M., DOLAN, L., FRASER, D., HERRERO, M., HOFFMANN, I., SMITH, P., THORNTON, P.K., TOULMIN, C., VERMEULEN, S.J. and GODFRAY, H.C.J. (2013) Sustainable intensification in agriculture: premises and policies, *Science*, 341 (6141), pp. 33–34.
- GEELS, F. (2005) Processes and patterns in transitions and system innovations: refining the co-evolutionary multi-level perspective, *Technological Forecasting and Social Change*, 72, pp. 681–696.
- GEELS, F. and SCHOT, J. (2007) Typology of sociotechnical transition pathways, *Research Policy*, 36, pp. 399–417.
- HAMPSTEAD AND HIGHGATE EXPRESS (2013) *Eco-champion Wins NHS Approval over Meat-free Menus*. Published online: <http://www.hamhigh.co.uk/news/eco_champion_wins_nhs_approval_over_meat_free_menus_1_630106>, accessed 15 May 2013.
- HAMERSCHLAG, K. (2011) *Meat Eater's Guide to Climate Change and Health*. Washington, DC: Environmental Working Group. Published online: <www.ewg.org/meateatersguide>, accessed 26 July 2011.
- HELSINGIN SANOMAT (2010) Helsinki schools could get weekly vegetarian food day, *Helsingin Sanomat*, 16 February. Published online: <<http://www.hs.fi/english/article/Helsinki+schools+could+get+weekly+vegetarian+food+day/1135252955520>>, accessed 20 May 2011.

- HICKMAN, L. (2009) Farmers show little appetite for anti-meat campaigns, *Green Living Blog*. Published online <<http://www.theguardian.com/environment/ethicallivingblog/2009/jul/20/meat-free-debate>>.
- JOHNSTON, J. (2008) The citizen-consumer hybrid: ideological tensions and the case of Whole Foods Market, *Theory and Society*, 37, pp. 229–270.
- KEMP, R., SCHOT, J. and HOOGMA, R. (1998) Regime shifts to sustainability through processes of niche formation: the approach of strategic niche management, *Technology Analysis and Strategic Management*, 10, pp. 175–195.
- KIRWAN, J., ILBERY, B., MAYE, D. and CAREY, J. (2013) Grassroots social innovations and food localisation: an investigation of the Local Food programme in England, *Global Environmental Change*, 23(5), pp. 830–837.
- LAWHON, M. and MURPHY, J.T. (2011) Socio-technical regimes and sustainability transitions: insights from political ecology, *Progress in Human Geography*, 36, pp. 354–378.
- LEE, C. (CARMEN_CEBS) (2011) Mar. 20, 2011: Great American Meat Out Day recognized by SF Board of Supervisors [newsgroup article], *SFVEg* <sfveg@yahoo.com>, 23 March.
- LOMBARDINI, C. and LANKOSKI, L. (2013) Forced choice restriction in promoting sustainable food consumption: intended and unintended effects of the mandatory vegetarian day in Helsinki schools, *Journal of Consumer Policy*, 36, pp. 159–178.
- MAURER, D. (2002) *Vegetarianism: Movement or Moment?* Philadelphia: Temple University Press.
- MAYE, D. and KIRWAN, J. (2010) *Alternative Food Networks*. Published online <<http://www.isa-sociology.org/publ/sociopedia-isa/>>, accessed 5 January 2011.
- MCCARTNEY, P. (2009) *Meat Free Monday: The Facts*. Published online: <<http://www.paulmccartney.com/news-blogs/news/meat-free-monday-the-facts>>, accessed 4 September 2013.
- McMICHAEL, A.J., POWLES, J.W., BUTLER, C.D. and UAUY, R. (2007) Food, livestock production, energy, climate change and health, *The Lancet*, 370 (9594), pp. 1253–1263.
- MEATINFO.CO.UK (2009) *NHS to Cut Meat from Hospital Menus*. Published online: <http://www.meatinfo.co.uk/news/archivestory.php/aid/1550/NHS_to_cut_meat_from_hospital_menus.html>, accessed 15 May 2013.
- MEATLESS MONDAY (2013) *About Us*. Published online: <<http://www.meatlessmonday.com/about-us>>, accessed 3 July 2013.
- MONDAY CAMPAIGNS (2013) *About*. Published online: <<http://www.mondaycampaigns.org/about>>, accessed 11 September 2013.
- MORRIS, C. and KIRWAN, J. (2006) Vegetarians: uninvited, uncomfortable or special guests at the table of the alternative food economy?, *Sociologia Ruralis*, 46, pp. 192–213.
- MORRIS, C. and KIRWAN, J. (2007) Locating diet within the alternative food economy: the case of vegetarianism, in: D. MAYE, L. HOLLOWAY and M. KNEAFSEY (eds) *Alternative Food Geographies: Representation and Practice*. Oxford: Elsevier, pp. 133–145.
- NEUMEIER, S. (2012) Why do social innovations in rural development matter and should they be considered more seriously in rural development research? Proposal for a stronger focus on social innovations in rural development research, *Sociologia Ruralis*, 52, pp. 48–69.
- PETA EDUCATION (2013) *Aims of the Project*. Published online: <<http://www.petaf.org.uk/mfm-aim.asp>>, accessed 14 May 2013.
- POLLACK, M. (2010) *City Launches Meat-free Day*. Published online: <<http://www.capetown.gov.za/en/Pages/CitylaunchesMeat-freeDay.aspx>>, accessed 18 May 2011.
- PRNEWSWIRE (2011) *Sodexo More Than Triples Reach of its Meatless Monday Offer*. Published online: <<http://www.prnewswire.com/news-releases/sodexo-more-than-triples-reach-of-its-meatless-monday-offer-120055684.html>>.
- RENTING, H., SCHERMER, M. and ROSSI, A. (2012) Building food democracy: exploring civic food networks and newly emerging forms of food citizenship, *International Journal of Sociology of Agriculture and Food*, 19, pp. 289–307.
- RIP, A. and KEMP, R. (1998) Technological Change, in: S. RAYNER and E. MALONE (eds) *Human Choice and Climate Change*. Columbus, OH: Batelle Press, pp. 327–399.
- ROBINSON SIMON, D. (2013) *Meatonomics*. San Francisco, CA: Conari Press.
- SAGE, C. (2014) Making and unmaking meat: cultural boundaries, environmental thresholds and dietary transgressions, in: M. GOODMAN and C. SAGE (eds) *Food Transgressions: Making Sense of Contemporary Food Politics*. Farnham: Ashgate, pp. 205–226.
- SCHOT, J. and GEELS, F. (2008) Strategic niche management and sustainable innovation journeys: theory, findings, research agenda, and policy, *Technology Analysis and Strategic Management*, 20, pp. 537–554.
- SCOTT-THOMAS, C. (2011) *Awareness of the 'Meatless Monday' Campaign Has Reached More Than Half of Americans, According to an Online Tracking Survey Conducted by FGI Research*. Published online <<http://www.meatprocess.com/content/view/print/380189>>, accessed 21 June 2011].

- SDC (SUSTAINABLE DEVELOPMENT COMMISSION) (2009) *Setting the Table: Advice to Government on Priority Elements of Sustainable Diets*. London: SDC.
- SDU (SUSTAINABLE DEVELOPMENT UNIT) (2013) *Is the NHS Still Planning to Reduce the Amount of Meat on Hospital Menus as Proposed in the 2009 Carbon Reduction Strategy*. Published online: <<http://www.sdu.nhs.uk/resources/faqs/54/is-the-nhs-still-planning-to-reduce-the-amount-of-meat-on-hospital-menus-as-proposed-in-the-2009-carbon>>, accessed 15 May 2013.
- SEYFANG, G. and HAXELTINE, A. (2012) Growing grassroots innovations: exploring the role of community-based initiatives in governing sustainable energy transitions, *Environment and Planning C: Government and Policy*, 30, pp. 381–400.
- SEYFANG, G. and SMITH, A. (2007). Grassroots innovations for sustainable development: towards a new research and policy agenda, *Environmental Politics*, 16, pp. 584–603.
- SMITH, A. (2006) Green niches in sustainable development: the case of organic food in the United Kingdom, *Environment and Planning C: Government and Policy*, 24, pp. 439–458.
- SMITH, A. (2007) Translating sustainabilities between green niches and socio-technical regimes, *Technology Analysis and Strategic Management*, 19, pp. 427–450.
- SODEXO (2011) *Sodexo Offers Meatless Monday Option to Promote Health and Wellness*. Published online: <<http://www.sodexousa.com/us/en/newsroom/press/press11/meatlessmonday.asp>>.
- STEINFELD, H., GERBER, P., WASSENAAR, T., CASTEL, V., ROSALES, M. and HAAN, C. DE (2006) *Livestock's Long Shadow: Environmental Issues and Options*. Rome: Food and Agriculture Organization.
- TAYLOR, M. (2014) 39% of Americans are eating less meat, *Prevention*, January. Published online: <<http://www.prevention.com/food/smart-shopping/39-americans-are-eating-less-meat>>, accessed 25 April 2014.
- THELWALL, M. (2008). Quantitative comparisons of search engine results, *Journal of the American Society for Information Science and Technology*, 59(11), pp. 1702–1710.
- VANHONACKER, F., VAN LOO, E.J., GELLYNCK, X. and VERBEKE, W. (2013) Flemish consumer attitudes towards more sustainable food choices, *Appetite*, 62, pp. 7–16.
- VEGGIE THURSDAY (2013) *About Us*. Published online: <<http://www.veggiethursday.sg>>, accessed 15 April 2013.
- VINNARI, M. (2008) The future of meat consumption: expert views from Finland, *Technology Forecasting and Social Change*, 75, pp. 893–904.
- VINNARI, M. and TAPIO, P. (2012) Sustainability of diets: from concepts to governance, *Ecological Economics*, 74, pp. 46–54.
- WEATHERELL, C., TREGEAR, A. and ALLINSON, J. (2003) In search of the concerned consumer: UK public perceptions of food, farming and buying local, *Journal of Rural Studies*, 19, pp. 233–244.
- WEAVER, D.A. and BIMBER, B. (2008) Finding news stories: a comparison of searches using LexiNexis and Google News, *Journalism and Mass Communication Quarterly*, 85(3), pp. 515–530.
- WISKERKE, J. (2003) On promising niches and constraining sociotechnical regimes: the case of Dutch wheat and bread, *Environment and Planning A*, 35, pp. 429–448.
- HOUSE OF COMMONS CATERING AND RETAIL SERVICES; ADMINISTRATION COMMITTEE (2011) *Written Evidence Submitted by Caroline Lucas MP*. Published online: <<http://www.publications.parliament.uk/pa/cm201012/cmselect/cmadmin/560/560vw14.htm>>, accessed 12 May 2011.
- HOUSE OF COMMONS EARLY DAY MOTION (2010) *Meat-free Mondays Campaign*, Early Day Motion 669, 6 September. Published online: <<http://www.parliament.uk/edm/2010-12/669>>, accessed 12 May 2011.
- YPTE (YOUNG PEOPLE'S TRUST FOR THE ENVIRONMENT) (2013) *Meat-free Mondays*. Published online: <<http://www.ypte.org.uk/environmental/meat-free-Mondays/209>>, accessed 14 May 2013.