

# Sustainable Eating: Mainstreaming Plant-Based Diets In Developed Economies

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Michael B. Beverland<sup>1,2</sup>

## Abstract

Livestock production has an enormous impact on climate change emissions, resource use, habitat loss, and the availability of staples for consumers in developing countries. Despite this, macromarketers have paid little attention to environmentally sustainable diets. Although researchers in health studies have identified the need to mainstream plant-based diets, they downplay the socio-cultural meanings associated with meat and vegetable consumption. We propose the challenge of change in eating habits reflects a classic agency-structure tension and draw on Kurt Lewin's force-field theory to examine five forces for/against the mainstreaming of sustainable diets (human health, environmental sustainability, morality, identity, and institutional factors). Policy solutions are identified with particular attention paid to expanding the size of the health vegetarian segment.

## Keywords

sustainability, vegetarianism, nutrition, food security, development, animal rights, macromarketing

Food consumption is an environmentally significant behavior, accounting for 20-30 percent of Western greenhouse gases (Tobler, Visschers, and Siegrist 2011, p. 674). In particular, the production of meat and animal-based protein (particularly from ruminants) for human consumption has significant direct and indirect impacts on climate change emissions and other environmental concerns (Stuart 2009; Thøgersen 2010). The United Nations (in 2006) estimated that livestock production is responsible for 18 percent of greenhouse gas emissions (carbon dioxide, methane, and nitrous oxide)—more than any other human enterprise excepting energy production (Saxena 2011, p. 48). However, The World Watch Institute suggests this figure wildly underestimates the true environmental impact of livestock production. Once emissions from respiration and land use are taken into account, livestock production potentially accounts for as much as 50 per cent of all greenhouse gas emissions. This finding led the report's authors to suggest a shift to plant-based diets represents the only pragmatic solution to reducing anthropogenic climate change emissions (June 2013).

Some ecologists identify reducing animal-based protein consumption as *the* most important sustainability issue (Carlsson-Kanyama and Gonzalez 2009). For example:

Some scientific developments, government regulation, or market corrections may provide a temporary reprieve, but there is going to be an inevitable collision between the increasing demands of the growing population and the capacity of the ecosystem to sustain injuries while still being forced to meet greater and greater human needs. Although reducing the consumption of animal products will not solve all the problems that have been caused by the various factors within the last few decades, it is one step that can be easily

taken and will have a positive effect more quickly than other possible options. For this reason, drastically reducing the consumption of animal-based foods has to be a necessary first step in any environmental movement to preserve the planetary resources for the coming generation (Saxena 2011, pp. 10-11).

However, few authors have proposed plant-based diets as a means of addressing climate change (Carlsson-Kanyama and Gonzalez 2009; Tobler, Visschers, and Siegrist 2011). Even activist groups downplay diet. For example, although the World Wildlife Fund (WWF) identify "food" as important in their Footprint Challenge (weighting it at 27 percent) and the Greenpeace program identifies reducing meat consumption as being the single biggest personal change one can make to reduce climate change, both place greater emphasis on sourcing and packaging than on changing the content of what one consumes (with the WWF calling a fully plant-based diet "a personal choice").

This position is true of macromarketing and consumer/marketing researchers more generally. Although the link between consumption practices and sustainability is the focus of many macromarketers (Varey 2012), to date, diet has been left out

<sup>1</sup>School of Management, University of Bath, Bath, UK

<sup>2</sup>School of Economics, Finance, and Marketing, RMIT University, Victoria, Australia

## Corresponding Author:

Michael B. Beverland, School of Management, University of Bath, The Avenue, Claverton Down, Bath, Avon, BA2 7AY, UK.

Email: m.b.beverland@bath.ac.uk

this equation. Likewise, although macromarketers have long focused on food production systems, and independently, issues of sustainability, rarely have they connected the two. Of those that have, the focus has been on alternative forms of food production (versus industrial agriculture) such as organics, practices labeled “slow,” and community supported agriculture (CSA) (Connolly and Prothero 2008; Cronin, McCarthy, and Collins 2014; Portwood-Stacer 2012; Thompson and Coskuner-Balli 2007). For example, despite acknowledging reductions in meat consumption will have the largest impact on the environment, Thøgersen (2010) focused on the structural barriers to organic production (which he noted may paradoxically do more harm). Prothero et al. (2011) left out diet in their discussion on the future of sustainability research. And, despite impassioned, sincere, and authentic calls for changes in marketing systems to lessen our impact on the environment, such pleas ignore dietary practices (Varey 2010).

Building on Kilbourne’s (2010) call for fresh approaches to sustainability, Boje’s (2004) “vegetarian capitalism” and Crane’s (2000) call for a moralized critical view of sustainability issues this article aims to make diet a macromarketing concern. A macromarketing lens on diet is important for two reasons. First, our dietary practices have implications for sustainability (the subject of this article and special issue), marketing and development, ethics and quality of life, market systems, and marketing theory. Second, nutritional and health researchers view consumers primary as rational agents (Fiddes 1995; Gaard 2002; Schösler, De Boer, and Boersema 2012), stressing the need for better information on the health benefits of plant-based diets as the key mechanism of change (Lea, Crawford and Worsley 2006a & 2006b; Lea and Worsley 2001, 2002; Saxena 2011). Although macromarketers do not deny the value of rational appeals, they are also sensitive to the socio-cultural structures that inhabit the effectiveness of such strategies. Such sensitivity is particularly important when it comes to transforming eating practices because they are bound up with rituals, individual, political and collective identity projects, and social practices (Fiddes 1991, 1994; Johnston, Szabo, and Rodney 2011; Kleine and Hubbert 1993; Rozin et al. 2012; Warde 2005).

This article has three aims. First, we review the available evidence on the enablers and barriers to the mainstream adoption of plant-based<sup>1</sup> diets in developed (or Western) economies. The focus on developed economies is deliberate. Their wealth has meant that consuming or rejecting animal-based protein is actually a choice rather than a necessity (Fiddes 1991; Spencer 2000). Second, as Stuart (2009) identifies, countries with a high standard of living have higher levels of animal-based protein consumption. Therefore, reductions here will have the greatest environmental impact. Third, such reductions are also necessary for moral leadership vis-à-vis stemming growth in animal-based protein consumption in developing economies (Stuart 2009). As Schaefer and Crane (2005) argue, given the impact of these countries on climate change, they have the greater moral responsibility for limiting consumption levels. The World Watch Institute for example estimates that a 25

percent reduction in meat consumption would be enough to meet United Nations greenhouse gas targets (June 2013).

In so doing, we first synthesize a fragmented literature, drawing on studies from nutrition, health, sustainability, consumption, gender studies, anthropology, marketing, and sociology. Second, drawing on this review, we identify strategies for encouraging change in consumers’ dietary practices, focusing in particular on reducing the consumption of animal-based protein in favor of plant-based diets. In so doing, we suggest strategies to grow the size of the “health vegetarian segment” as research indicates this group is likely to be crucial to the mainstream adoption of plant-based diets in developed countries. Third, in achieving the first two aims, we bring diet into the macromarketing fold.

### *Mainstreaming Sustainable (Plant-Based) Diets in Developed Economies*

The shift from a meat-based diet to a plant-based one represents a change from one socio-technical system to another (Shove, Pantzar, and Watson 2012; see also Fiddes 1994). As a result, we draw on Kurt Lewin’s force-field analysis to frame our analysis of enablers and barriers to the adoption of sustainable diets. Despite being criticized by many authors, Burnes’ (2004) review identified that force-field theory underpinned the majority of subsequent change models (contrary to their authors’ explicitly anti-Lewinian stance) and underpinned a participatory action-research approach—an important methodological tool for transforming consumer practices (Ozanne and Saatcioglu 2008).

As Thøgersen (2010) notes, there are significant structural challenges to changing dietary behavior. Lewin (1997) provided a framework for analyzing social contexts with a particular focus on forces framing change. His theory identifies the social structures and psychological structures that *frame* our behaviors and may act as subconscious barriers to lasting shifts in practice (Burnes 2004). The term “frame” is borrowed from Goffman (1974, p. 21) to denote a “schemata of interpretation” that enables individuals “to locate, perceive, identify, and label” occurrences within their life space and the world at large. For Lewin (1997), a “field” is akin to a person’s life world including their desires, goals, values, and anxieties. Frames organize experience and guide action (Bateson 1987). Placed within a social context, these frames act as barriers to changes in practice even in the face of significant threats to survival or evidence suggesting time-honored ways are no longer effective.

Drawing on practice theory and consumer culture theory, we suggest that the tension between enablers of and barriers to change reflects problems of agency versus structure (Arnould and Thompson 2005; Shove, Pantzar, and Watson 2012). This view is reinforced by a review of the diverse and fragmented literature related to plant-based diets and the reported experiences of scientists and advocates seeking to change consumer dietary practices (e.g., Campbell and Campbell 2006; Campbell and Jacobson 2013). Studies that identify the downside of diets based on animal protein and the need for change

often frame the consumer as rational agents. This becomes clear when one considers that the vast majority of policy advice flowing from these studies focuses on raising awareness through information provision campaigns (Fiddes 1994; Lea, Crawford, and Worsley 2006a, 2006b; Lea and Worsley 2001, 2002; Ruby 2012). As a result, many authors seem genuinely perplexed as to why the adoption of plant-based diets in developed economies is not higher. For example, Saxena (2011, p. 225) contends,

The arguments in favor of vegetarianism are so strong that one wonders why the number of vegetarians in the United States and developed countries is only 3 per cent. [...] The simplest reason for the small number of vegetarians is a lack of knowledge and information. [...] Food, particularly animal-based food, is just too familiar and plentiful to deserve serious consideration. The amount of water needed to produce a pound of beef will surprise almost everyone . . . .

However, consumption is much more than a rational choice on behalf of individual agents (Arnould and Thompson 2005). Even studies demonstrating the economic rationality of plant-based diets also find that consumers place a value on the taste and status of meat that trumps concerns about cost (Lusk and Norwood 2009). Choices about what to eat also occur in a postmodern context involving multiple identity roles, fluid traditions, relationships, and the decentering of modernist authorities (including science) (Firat and Venkatesh 1995). Food consumption in particular is structured in many ways, including by culture, class, gender, and other institutions, such as the medical profession, the press, governments and marketers (Adams 2010; Fiddes 1994; Gaard 2002). As a number of nutritional experts as well as professional ethicists writing on animal rights identify, if the case for change only involved considerations of health, plant-based diets would be the norm in the West (Campbell and Jacobson 2013; Francione and Charlton 2013; Rowlands 2013).

Choices around food reflect social values that may have little to do with principles of nutrition (Fiddes 1991, p. 14). Food is more than just fuel (McDonagh and Prothero 2005)—what we eat is a powerful signifier of who we are and who we would like to be (Cronin, McCarthy, and Collins 2014; Fiddes 1994; Fox and Ward 2008; Jabs, Sobal, and Devine 2000). Meat consumption represents “more than just a meal, it represents a way of life” (Fiddes 1991, p. 45). As Jabs, Sobal, and Devine (2000, p. 386) identify, the decision to switch diets does not just involve considerations of “ingestive practices”. Research identifies that adopting more sustainable lifestyles (including diet) requires addressing structural rigidities and overcoming the arguments of those with an investment in the status quo (Alexander and Ussher 2012; Connolly and Prothero 2008; Strengers 2011; Thøgersen 2010).

### *Forces Effecting the Adoption of Sustainable Diets*

Based on a review of the available literature we identify five forces that shape the environment influencing the adoption of

sustainable diets in the West: human health, environmental sustainability, morality, identity, and institutional factors. Consistent with Lewin’s (1997) field analysis, the fluidity of post-modernity (Firat and Venkatesh 1995), and the experience of leading nutrition researchers (Campbell and Campbell 2006; Campbell and Jacobson 2013), these five forces overlap (Lea, Crawford, and Worsley 2006a). Consistent with Lewin’s (1997) approach when grouped together these forces for or against change often represent *gestalts*, that is, they reflect consistent self-reinforcing systems (Fiddes 1991). For this reason we use the term “enabler of/barrier to” change to account for the fact that every enabler may also be a barrier since consumers may face contradictory information, a lack of awareness, or embedded assumptions that work hinder change.

### *Human Health*

The first enabler of/barrier to the mainstream adoption of plant-based diets relates to personal health (Lappé 1991; Lea, Crawford, and Worsley 2006a, 2006b; Sabate 2003). Animal-based protein is not necessary for human survival or flourishing (Barkas 1975; Pollan 2011), and large-scale nutritional studies have shown that such consumption is detrimental (Campbell and Campbell 2006; Campbell and Jacobson 2013). Health has been identified as the central reason given by vegetarians for reducing or ceasing meat consumption (Ruby 2012) and represents the main reason driving greater acceptance of vegetarian diets among omnivores and the increased incidence of vegetarianism in Western economies (Fox and Ward 2008; Jabs, Devine, and Sobal 1998; Spencer 2000). With some qualifications, the evidence on the health effects of plant-based diets (including lacto-vegetarian and vegan diets) is unequivocal (Campbell and Campbell 2006; Campbell and Jacobson 2013; Carlsson-Kanyama and Gonzalez 2009). An optimal diet (for all age groups (Barkas 1975)) has fewer calories and is rich in plant products (Saxena 2011, p. 123). Lea and Worsley (2002, p. 37) argue that

Compared with meat-centred diets, plant-based diets contain less saturated fat, animal protein and cholesterol, and are higher in folate, fibre, antioxidants, phytochemicals and carotenoids. People who choose not to eat any meat have lower mean body mass, lower total plasma cholesterol concentrations, and substantially lower mortality from ischaemic heart disease. All-cause mortality rates are also lower. For example, the Oxford Vegetarian Study found that the ratio for all-cause mortality for vegetarians compared with meat eaters was 0.80, after adjusting for smoking, social class and body mass index.

Such results have led to the governments of the Australia, Canada, and the United States to identify plant-based diets (vegetarian and vegan) as safe and healthy for all age groups as well as calling for increases in vegetable and fruit and decreases in animal-based proteins (e.g., see National Health and Medical Research Council 2013).

Assuming a balanced plant-based diet and ongoing access to such foods, people are less likely to suffer from noncommunicable

chronic diseases (such as heart disease, diabetes, cancer, and neurodegenerative diseases such as Alzheimer and Parkinson disease) and live longer than those on meat-based diets (Campbell and Jacobson 2013; Jabs, Devine, and Sobal 1998). These chronic diseases account for the majority of premature deaths and disability in developed economies (up to 70 percent in the U.S. alone) and are becoming serious problems for developing economies such as China, India, Mexico, and Brazil among many others (Delpench 2009). These diseases are in effect life-style diseases. Obesity, for example, is itself a cause of morbidity has become a global epidemic, the result of excessive consumption of high calorie, energy dense food including meat (Saxena 2011, p. 10). Saxena estimates that the incidence of chronic diseases can be reduced by 30-40 percent with a proper combination of diet and exercise.

Such health concerns are already leading to decreased consumption of animal-based protein among some Western consumers (Bittman 2012). However, health concerns just as often act as barriers to dietary change. While the health benefits of a well-balanced plant-based diet (including vegan diets) are recognized by at least three national governments and supported by nutrition science, omnivores still identify concerns about the nutritional value of a vegetarian diet (Lea and Worsley 2002). Although there are many examples, the association of meat and high quality protein and milk and strong bones are among the most common. According to many nutritional researchers and advocates for plant-based diets, consumers associate meat with protein (Campbell and Campbell 2006), a view promoted by marketers and the medical profession. Even international aid agencies, such as the U.S. Agency for International Development, have promoted increased meat consumption. Proponents believe that a lack of protein rather than sustained lack of food and access to it per se was responsible for malnutrition among the world's poorest people. This has led many university researchers to focus on solving the "protein gap" in the developing world. Others have promoted meat as providing "high quality" protein vis-à-vis plant sources (defined as the "ability of food protein to provide the right kinds and amounts of amino acids to make new proteins" (Campbell and Jacobson 2006, p. 30).

Despite scientific evidence to the contrary, consumers also associate milk, particularly cow's milk, with a number of health benefits including strong bones (provided via calcium), childhood health, and the provision of many necessary vitamins. This has resulted in subsidies for milk production and historically in some nations, such as the UK and New Zealand, free milk programs in schools (Campbell and Campbell 2006). However, meta-analyses of nutrition studies identify a well balanced plant-based diet provides all of our protein needs, essential minerals and vitamins, and other requirements for healthy living including for childhood growth (Saxena 2011). Importantly, in developed and fast developing countries, an affluent diet high in meat consumption and saturated fats contains far too much protein, most of which passes unused through the urinary tract (Barkas 1975; Saxena 2011; Spencer 2000).

One further barrier to health-driven dietary change is the general confusion experienced by consumers in relation to health claims. For example, one review of research on milk consumption found that milk is promoted as necessary for weight loss, healthy skin, and good bone health, but also that milk can increase weight and cause acne. Ironically, the incidence of osteoporosis is highest in countries that consume the most milk (Butler 2006). As Campbell and Campbell (2006), Fiddes (1994), and Gaard (2002) recognize, the reductionist focus of much nutrition and medical research creates confusion. Announcements of the health benefits of particular minerals or other components in animal-based products often lead to calls for fortification or increased consumption, while downplaying the dangers associated with animal-based protein or ignoring plant-based alternatives that provide the same benefit (Campbell and Jacobson 2013).

### *Environmental Sustainability*

The link between diet and environmental sustainability is central to this article. As sustainability concerns increase, plant-based diets are seen as a way to reduce pollution, climate change, and species loss without reductions in lifestyles (Lappé 1991; Pollan 2011; Spencer 2000). Farming vegetables, cereals, legumes have the lowest carbon emissions (Carlsson-Kanyama and Gonzalez 2009). Stuart's (2006, p. 446) conclusion to his history of vegetarianism makes the link plain: "The equation is simple: if we ate less unsustainably produced meat we would destroy fewer forests, use less water, emit fewer greenhouse gases and conserve the world's resources for future generations." The weight of evidence surrounding meat production led Salonen and Helne (2012) to identify the mainstreaming of plant-based diets as essential for sustainability. Although humans need food to survive the environmental impact of different foods varies even when the caloric content of the food produced is equal (Carlsson-Kanyama and Gonzalez 2009; Lusk and Norwood 2009; Ruby 2012; Saxena 2011; Spencer 2000). As Francione (2004, p. 116) puts it:

Respected environmental scientists have pointed out the tremendous inefficiencies and resulting costs to our planet of agriculture. For example, animals consume more protein than they produce. For every kilogram of animal protein produced, animals consume an acreage of almost 6 kilograms . . . of plant protein from grains and forage.

The production of meat for consumption has a number of direct and indirect impacts on the natural environment (Salonen and Helne 2012). As mentioned above, meat production directly accounts for between 18 and 50 percent of climate change emissions as well as producing substantial amounts of untreated waste (often at rates higher than can be absorbed through manure use), the pollution of ground water, land degradation, deforestation, loss of wildlife habitat, and insecticide use (and run off) to control animal based diseases or diseases resulting from intensive farming practices (Saxena 2011; Stuart

2009). Economists have estimated that meat production is the most resource-intensive of all food production, even before environmental externalities are taken into account (Lusk and Norwood 2009).

The mainstream adoption of plant-based diets is believed to result in less land use, lower pesticide use, and decreases in other negative environmental externalities (Lusk and Norwood 2009). The production of food also requires water—at least 70 percent of global fresh water stocks are used for growing food (Saxena 2011, p. 71)—with animal-based products requiring as much as ten times more water than plant crops (Stuart 2009), and omnivorous diets requiring at least five to ten times more (Saxena 2011, p. 113). The Environmental Protection Agency in the U.S. estimates livestock consumes half of the country's potable water each year, while the excrement they produce contaminates much of the water supply and is rarely harvested for further use (June 2013). These results take on particular importance when one considers projections of human population growth, against estimates of the planet's carrying capacity and our ability to keep up with the demand for food (Delpenck 2009). These concerns have driven Microsoft founder Bill Gates to call for decreased meat consumption and invest in the development of meat-replacements.

Although studies reveal that self-identified vegetarians see the adoption of a plant-based diet as part of a shift towards a more sustainable lifestyle rather than just solely for personal health reasons (Fox and Ward 2008; Gaard 2002), research suggests most consumers do not view diet as an important sustainability behavior. Consumers do not view reduced meat consumption as environmentally relevant. They rate it as the least environmentally friendly action despite recognizing the health and economic benefits (Tobler, Visschers, and Siegrist 2011). Salonen and Helne (2012) found that even when consumers understand the personal feasibility of switching to a plant-based diet, they do not view such a choice as important for sustainability or climate change—a belief often reinforced by the consumer advice provided by advocacy organizations.

Part of this challenge lies in how sustainability messages are framed. Although sustainability-motivated changes in other aspects of our lifestyle are framed in terms of reducing *unnecessary* consumption, materialism, and waste, we cannot live without food (Tobler, Visschers, and Siegrist 2011). The emergence of supermarkets in the post-World War II period resulted in marketing practices that broke the indexical connection between meat and animals (Fiddes 1991; Spencer 2000), a process known as deanimalization. Deanimalization means that awareness of death is removed from food consumption (Peck 2010), and may help account for why few western consumers see meat eating as an environmentally relevant act (Tobler, Visschers, and Siegrist 2011). As the following guilt ridden passage from an ecologist consuming a pre-packaged tuna salad demonstrates, deanimalization influences how we frame environmental challenges.

I looked at the remnants of a small lunch multiplying around me and looked around guiltily, hoping none of my students walked

by during this moment of indiscretion. I moved to extract the food from these layers of cardboard, plastic, and aluminum. Visions of overflowing landfills danced through my head and feeling a sneaky avarice I loaded the salad onto the cracker and took a bite. It was tasty. It was quite good, but there was something hidden in that bite so disguised and camouflaged that I almost missed it. I had been focused on the failures of western civilization in generating unprecedented waste. But I had forgotten something even more fundamental. Buried forgotten in all that packaging, was a life, hidden, unattended, unacknowledged and even unrecognizable—a being processed from all its rich biological complexity, to the simple categories of taste, color, and texture. During my hurried lunch, nothing of the lived life smashed into that processed can bubbled into my consciousness; nothing reminded me that an animated creature had died to make my meal (Peck 2010, p. 105).

As Peter Singer (1990) identifies, our language for animal products actively works to cut the indexical connection between the object consumed and the source. For example, we eat pork (not pig); beef (not bull), “catch” or “land” fish (rather than “kill”), wear leather made from hide (not skin), and eat a carcass, not a corpse (Stibbe 2012, p. 23). As Stibbe (2012) identifies in *Animals Erased*, much of the language used in debates about sustainability is unavoidably framed in anthropocentric terms, once again obscuring the impact of the production of animal-base protein being consumed. Since calls for green marketing or green business ethics are framed anthropocentrically, our focus tends to be on developing market solutions to human problems which paradoxically obscures the relationship between what or who we eat and sustainability concerns (Crane 2000; Schaefer and Crane 2005).

### Morality

The moral arguments for plant-based diets have a long history. In a macromarketing context, three moral arguments are relevant: stewardship, poverty and development, and animal rights and welfare. In regards to stewardship, definitions of sustainability are framed in terms of what this generation owes the next (e.g., Gordon, Carrigan, and Hastings 2011, p.143; Speth 2008, p. x). For example, the World Commission on Environment and Development (1987, p. 27) defined sustainability as: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Such definitions have been adopted by macromarketing researchers and imply a responsibility for environmental stewardship on behalf of the present population for future generations (Crane 2000; McDonagh and Prothero 1997; Prothero et al. 2011; Prothero and Fitchett 2000; Varey 2010, 2012).

In regards to the second moral argument, a number of authors have identified the impact dietary decisions have on food availability for the world's poorest people. Indeed, the food crisis of 2007-2008 was partly driven by an increased demand for meat in the developing world (see Stuart 2009 for review). Recent concerns over population growth and limits to

the Earth's carrying capacity, as well as the ongoing problem of undernourishment amongst the world's poorest people, have lead many to draw attention to the benefits of a widespread switch to a plant-based diet (Brown 2012; Lappé 1991; Stuart 2006). These arguments are framed in equity and social justice terms and alert us to the profound impact our dietary choices have on the less wealthy. Although the majority of poor consumers in less developed countries do not have access to adequate nutrition, demand for meat in the developed world, and the fast increasing demand for animal protein in developing economies has resulted in more demand for animal feed, resulting in an increase in prices of basic commodities such as cereals and pulses (Brown 2012; Lusk and Norwood 2009). And, industrial farming practices can also remove the land needed for subsistence farming. For example, shrimp farms (responding to demand in the United States) in South East Asia have removed access to land and water for poor rice farmers, while demand for certain types of meat in arid environments (e.g., demand for goat meat in the Arabian Peninsula) can denude the land, further depriving the poor of basic necessities (Saxena 2011).

Finally, moral arguments for plant-based diets are increasingly being driven by concern for animal welfare (Lea, Crawford, and Worsley 2006a). These moral arguments take many forms and range from concern about species loss and habitat destruction, the cruelty of industrial agriculture, animals rights (Francione and Charlton 2013; Regan 2004), utilitarian "do the least harm" animal welfare arguments (Singer 1990), the emerging science of animal consciousness and emotions (Bekoff 2013), and a range of religious arguments drawn from (among others) Buddhist, Christian, and Hindu beliefs (Pollan 2011; Rowlands 2013; Saxena 2011; Spencer 2000; Stuart 2009). As a force for change, arguments concerning animal rights and welfare are gaining increased potency with the recent high profile *Cambridge Declaration of Animal Consciousness* (Low 2012) and the attribution by the Indian government of "non human personhood" status to cetaceans. Animal rights and welfare campaigns highlighting the cruelty of factory farming have been held responsible for increases in vegetarianism, especially among younger consumers (Fiddes 1995; Lusk and Norwood 2009; Spencer 2000).

Ethical vegetarians and vegans often deploy these arguments. However these consumers have little influence on the diffusion of plant-based diets (Fox and Ward 2008; Ruby 2012). Despite this, concern with animal welfare is rising and consumers and advocacy organizations are drawing on these narratives when making consumption decisions (Marcus 2011). As Özçaglar-Toulouse (2009) identifies, an increasingly "responsible consumer" in developed economies is more likely to make consumption choices based on a range of moral, social justice, and equity considerations.

### Identity Motives

Consumption in developed economies is much more an expression of one's identity than about satisfying basic needs. Arguably, nowhere is this more obvious than with meat, even though

animal based proteins are neither necessary for our survival and can be detrimental to our health (Campbell and Jacobson 2013). Consumption practices, including consumption of animal-based products, reflect a range of identity issues, such as class, race, gender, and culture (Shove, Pantzar, and Watson 2012). This section examines how identity and related food practices act as an enabler to or barrier against the adoption of sustainable diets. What we eat is intimately tied up with a range of identity motives, including notions of humanity, masculinity, power, wealth, and cultural tradition. Likewise, plant-based diets also carry identity "baggage" including notions of deviance, weakness, femininity, and poverty. These identity motives structure our dietary practices, frame how we receive contrary information, and acting as barriers to behavior change.

In his analysis of the enduring symbolic power of meat eating, Fiddes (1991) locates dietary choices within a range of dualisms, including gender (men vs. women), control (culture vs. nature), anthropocentrism (humans vs. animals), race (Europeans vs. non Europeans) and class (upper/middle vs. lower class). Such dualisms imply the superiority of the former over the latter and do much to structure practice, status, and identity (McDonagh and Prothero 1997). A number of authors have identified the symbolic value of meat consumption with notions of power, distinction, control, and wealth, whereas those eating plant-based diets have historically been seen in oppositional terms—deviant, weak, and poor (Adams 2010; Gaard 2002; Stevens, Kearney, and Maclaran 2013).

Several authors have argued that meat eating is intimately tied to what makes us human – for a long time it was believed that we were the only omnivorous primate – and have stated that hunting and consuming meat enabled us to exert control over nature (Barkas 1975; Fiddes 1991, 1994; Pollan 2011). This belief was particularly prevalent in Western economies where nature was historically viewed as something dangerous that needed to be controlled (Fiddes 1991) (the recent popular idealization of "unspoiled" nature as a form of emancipation from everyday life suggests this is changing (Canniford and Shankar 2013)). Ruby's (2012) review of studies on the motivation to eat meat identifies "humans are meant to eat meat" (a point reinforced by Australian beef advertisements featuring actor Sam Neil playfully highlighting the relationship between eating meat and brain development) as an enduring barrier to the adoption of plant-based diets, and even adequate consumption of vegetables and fruit per se (Lea, Crawford, and Worsley 2006b).

Meat consumption has historically been associated with masculinity (Stevens, Kearney, and Maclaran 2013; Stuart 2006; Tobbler, Visschers, and Siegrist 2011). This view is reinforced by the still popular view that hunting animals was an integral part of our development and history. In so-called "hunter-gatherer" societies, men typically engaged in the highly risky act of hunting, whereas women gathered the plant-based foods that formed the basis of most prehistoric human diets<sup>2</sup> (Fiddes 1994; Spencer 2000). A recent experimental study found support for the contention that meat is masculine and is intimately related to notions of status, hunting, evolution and power (Rozin et al. 2012). Everyday sayings, such as "red

blooded males” where red meat is a particularly potent symbol of masculine virility (Gaard 2012), and “real men don’t eat quiche” (Fiddes 1991), reflect these ideas. Meat preparation was one of the few domestic household activities where men played a significant role. Men often supervised the purchase of meat, helped prepare it, and, acting out their provider role as “head of the table,” carved a joint of meat and served it to guests (Adams 2010). As a result it is perhaps no surprise that estimates suggest vegetarianism is more widespread among females in the West (Ruby 2012)<sup>3</sup>.

Meat consumption has also been linked with notions of power (and even violence (Gaard 2002), strength and virility (Tobler, Visschers, and Siegrist 2011, p.680) especially in the West where the highest status cuts of meat are typically muscle tissue (Stuart 2009). “Consuming animal muscle tissue is a potent statement of our supreme power” (Fiddes 1991, p. 2). Meat is seen as expression of wealth and therefore class and status (Barkas 1975; Cronin, McCarthy, and Collins 2014; Rozin et al. 2012; Ruby 2012; Schösler, Boer, and Boersema 2012). Nutritionists even go so far to identify a diet high in animal-based proteins as the “diet of affluence” (Campbell and Campbell 2006). Moreover, the consumption of meat remains related to perceptions of economic development. For example, historical studies of vegetarianism identify that meat consumption was rare among the majority of Western populations at the turn of the 20th century. Rising living standards enabled the normalization of meat consumption and gave rise to the narrative that this dietary practice represented not only improved wealth but better nutrition (Spencer 2000).

Meat is often representative of ethnic identity or tradition and can therefore be difficult to change (Brown 2012; Fiddes 1991). Studies have shown that meat eating is associated with patriotism in countries with large farming traditions (Ruby 2012), and where farming remains a romanticized form of national identity, concern with farmer welfare trumps environmental concerns among voters (Lusk and Norwood 2009). The use of cultural messaging of this type is popular among marketers and farming organizations. For example, in response to government calls to reduce meat consumption in the UK, the National Farmers Union claimed that meat production was an essential part of the English heritage and character. The Australian Livestock Marketing Board regularly links Australia Day celebrations with the consumption of meat (usually lambasting those abstaining as unpatriotic “wowsers”). Their 2014 campaign ridiculed primary school age vegans as un-Australian and missing out on the tradition of their ancestors.

Eating meat is part of omnivorous consumers’ meal practices. Simply identifying the virtues of a plant-based diet is not enough to shift behavior (Lea, Crawford, and Worsley 2006b), partly because our practices are embedded in a range of assumptions including those listed above (Shove, Pantzar, and Watson 2012; Warde 2005). Research suggests that one barrier to the mainstream adoption of plant-based diets concerns meal practices, both in the ways in which we structure a “proper meal” and in the lack of a framework for shifting from meal-based to plant-based diets in general (Ruby 2012). Boyle’s

(2011) findings suggest people are beginning to make the connection between sustainability and diet, but lack the necessary practices to make such a change. Despite the view that ethical eating habits are the preserve of the middle class elite, research suggests less affluent consumers are interested in sustainable diets (Johnston, Szabo, and Rodney 2011; Spencer 2000). However, less affluent consumers often lack the opportunity and “cultural repertoire” essential to the adoption of cultural innovations (Johnston, Szabo and Rodney 2011).

The preparation and consumption of a meal involves ritual and routine (Cronin, McCarthy, and Collins 2014; Kleine and Hubbert 1993; Schösler, Boer, and Boersema 2012; Warde 2005). As Marshall (2005, p. 76) states, the “way we do meals is constrained by what we recognize as a meal,” such as the British idea of a “proper meal” consisting of a meat centerpiece with vegetables and grains playing a supporting role. Reducing meat consumption involves removing or adjusting existing practices and acquiring new ones including meal composition, as well as the obvious need to deal with new ingredients and new cooking skills (Boyle 2011; Kleine and Hubbert 1993; Ruby 2012; Tobler, Visschers, and Siegrist 2011; Warde 2005). In regards to the latter, vegetarian (and especially vegan) diets need to be carefully balanced to ensure one does not replace meat-based meals with less nutritious food such as dishes high in dairy or vegetarian junk food (Marcus 2011; Saxena 2011). This issue is particularly important for consumers seeking to lose weight through a plant-based diet, a benefit promoted by many vegetarian organizations (Jabs, Devine, and Sobal 1998; Saxena 2011).

The acquisition of a new set of skills and food repertoire is critical also for maintaining one’s commitment to a plant-based diet (Ruby 2012). Plant-based diets are still “novel” for the majority of consumers (Lea and Worsley 2011, 2002) and although popular innovations like “Meatless Monday” are playing a role, a danger exists that a lack of nutritional knowledge may result in replacing meat-based meals with vegetarian food that is less nutritious (Saxena 2011). Research also reveals that many consumers perceive there to be a general lack of vegetarian options available to them (Lea, Crawford, and Worsley 2006a, 2006b), which may be reinforced by the fact that until recently channels exclusively dedicated to plant-based diets have existed outside of the mainstream. Although this situation is quickly changing in the West (June 2013), the perception remains).

Eating is also a social activity. Being a vegetarian can be alienating and people must accommodate their choices or vice versa (Pollan 2011). As Kleine and Hubbert’s (1993) examination of new vegetarians demonstrates, a shift in diet means not just changing the products consumed but also adopting new social practices. These social practices include accommodating non-vegetarians and choosing restaurants for social occasions. Jabs, Sobal and Devine (2000) identify that adopting a plant-based diet results in a re-writing of social relations, often withdrawing from extant ties and finding support among like-minded consumers. Social support is critical for maintaining a vegetarian diet, particularly among men (Jabs, Sobal, and

Devine 1998; Lea and Worsley 2001, 2002; Ruby 2012). Vegetarians and vegans often find traditional family meals, such as Christmas or other holiday celebrations, emotionally draining, and may even limit their attendance due to a lack of understanding over what constitutes vegan or vegetarian, or because they are subject to ridicule and hostility (Ruby 2012).

Finally, since we are seeking to increase the diffusion of a new practice (Rogers 1995), how omnivores view the adherents of plant-based diets is also important for the mainstreaming of such practices. Marketers, promoters, and critics have often framed plant-based and sustainable or “ethical” diets as something for the culturally privileged (Johnston, Szabo, and Rodney 2011). Vegetarianism is often an identity statement where one becomes “a vegetarian” (or vegan), changes one’s identity, and embodies a new set of practices (Fox and Ward 2008; Jabs, Sobal, and Devine, 2000). Many critics of meat consumption frame their non-vegetarian (and even non-vegan) brethren in highly provocative terms including “murderers and cannibals” (Belk 1996, p. 122), “fascists” (Pollan 2011), and “enslavers, abusers and genocidal maniacs” which are not helpful for engaging in a more empathetic debate about eating habits (Stibbe 2012, p. 4). Although attitudes among omnivores have shifted in a positive way – vegetarians are seen as essentially “good” and motivated by “moral concerns” – and vegetarianism is increasingly popular (Gordon, Carrigan, and Hastings 2011), it is still regarded as marginal or deviant, undertaken primarily for ideological, religious, or ethical reasons (Alexander and Ussher 2012; Cronin, McCarthy, and Collins 2014; Johnston, Szabo, and Rodney 2011; Kleine and Hubbert 1993; Portwood-Stacer 2012). Attributions of weakness and femininity still remain (Boyle 2011; Ruby 2012).

### *Institutional Factors*

The final enabler/barrier are institutional factors. Institutions can take many forms, including organizations, practices, and taken-for-granted beliefs (Scaraboto and Fischer 2013). Many developed economies remain significant exporters of meat and animal based products. Such industries are viewed by governments as vital to food security, economic wealth creation, job creation, and the identity of the nation. As a result, governments often support agriculture through direct economic assistance in the form of subsidies, provide funds for monopoly marketing organizations, and also protect their interests. For example, in the U.S. complaints from livestock producers have resulted in governments moderating or withdrawing statements regarding the need to reduce meat consumption or switch to a plant-based diet (Spencer 2000). More worryingly, despite being aware of the potential for harm the UK government failed to adequately warn consumers of the dangers associated with eating meat, such as Creutzfeldt-Jacob Disease, the human form of Bovine Spongiform Encephalopathy (Marcus 2011).

A number of institutional forces frame debates around sustainable diets. The first relates to economics. Economic evaluations of plant-based diets are rare, but many advocates of vegetarian diets argue such practices are cheaper for consumers

(Lusk and Norwood 2009; Salonen and Helne 2012). Payoffs for society include lower health care costs (forecast to skyrocket due to the increase in “lifestyle” diseases in the West and increasingly in developing economies), increased productivity from reductions in chronic diseases, and decreases in the so-called “externalities” associated with the production and consumption of animal protein, such as the high levels of waste (Stuart, 2009). For many developed economies, a switch away from the production of animal protein may also result in lower subsidies to the farming sector, assuming political influence, considerations of tradition, or concerns over food security can be overcome.

Lusk and Norwood (2009) identify that plant-based crops are cheaper to produce and have a clear advantage over meat at the retail level even allowing for the extra processing associated with the narrow range of commodities (corn, soy, peanuts, and wheat) they examined. Although a study of French consumers showed a negative relationship between vegetable consumption and diet costs (Darmon, Briand, and Drewnowski 2004), such studies are rare, and economic arguments surrounding diet are complex (Lusk and Norwood, 2009), especially since the environmental cost of meat production is often not taken into account (Salonen and Helne 2012). While advocates of plant-based diets point to lower costs to consumers, studies also suggest that people eat less fruit and vegetables due to the high perceived cost of such items (Lea and Worsley, 2002) and that plant-based diets are often seen as a choice for an economic elite (Fiddes 1991; Saxena 2011). Finally, given the efficiencies of industrial agriculture (producing large amounts of food from very small lots), those opposing a switch to plant-based diets hold that greater land use will result (Peters, Wilkins, and Fick 2007)<sup>4</sup>.

While complex, economic logic is particularly powerful during times of austerity, especially when one considers the potential impact of a shift to plant-based diets on healthcare costs (often one of the most significant expenditure items for governments and consumers), concerns over food wastage, and worries about the cost associated with sustainability measures. An economic logic is also central to many emerging sustainability narratives, such as access-based consumption (Bardhi and Eckhardt 2012), which offer economically “smart” alternatives to consumers seeking to balance sustainability with lifestyle. The prevalence of an economically rational argument in many developed economies suggests increased awareness of the true cost of meat production may act as an enabler for the mainstreaming of plant-based diets, particularly given the concerns about the relative inefficiency of meat production when compared to plant-based alternatives (Saxena 2011). For example, according to Lusk and Norwood (2009, p. 112)

Results reveal it is significantly more expensive to produce a pound of meat (or milk) than a pound of commodity crops [...] Obtaining a kcal of energy from the cheapest meat product (broilers) is 5 times more costly than obtaining a kcal from the most expensive plant-based product (peanuts). A similar result is true for protein. Obtaining a gram of protein from the cheapest meat



product (broilers) is 3.26 times more costly than obtaining a gram of protein from the most expensive plant-based product (peanuts).

Food security concerns are also causing some governments to reassess meat consumption. The World Health Organization identifies three aspects to food security: availability (sufficient quantities on a consistent basis), access (having the resources to acquire appropriate foods), and use (knowledge of basic nutrition including sanitation (Brown 2012). Increases in food prices are often driven by demand for agricultural feed. As a result, staples such as cereals, wheat, corn, and soy that make up much of the diet of the world's poorest people become unaffordable, increasing incidences of malnutrition and hunger. As Saxena (2011, p. 108) states, "the cereals and pulses fed to livestock contain enough energy to feed more than three billion people on a purely vegetarian diet."

The United Nations Food Program estimated that an extra 110 million people had been driven into poverty and a further 44 million added to the undernourished population due to such price increases (Saxena 2011, p. 115). In extreme cases, such shortages have triggered food riots and even played a role in political upheaval in Egypt, while several countries including China and Saudi Arabia are buying up large tracks of land abroad (often acquired compulsorily in conjunction with local governments) to ensure continued food supply. This has resulted in significant hostility, government crackdowns and human rights abuses (Brown 2012). Such concerns led the House of Commons Committee on Food Security to call on British consumers to start viewing meat consumption as a luxury or treat. The Committee based their recommendation partly on industry predictions that meat prices in the UK would double over the next five-to-seven years (Winterman 2012)).

Although food security considers issues of equity and is thus intertwined with the moral considerations covered above, it is also concerned with stability of supply. Saxena (2011) finds that while demand for food is rising, crop yields are falling in many developing economies partly due to increased costs and climate change. Waste is also a problem, with many retail practices and consumers preferences for muscle tissue contributing to the problem (June 2013; Stuart 2009). A range of economic and environmental considerations, including concerns that current agricultural practices may be endangering food safety, drives stability of supply. The shift to large-scale production has resulted in a number of unforeseen problems including the emergence of microbes and pathogens harmful to humans, such as avian flu, superbugs resistant to antibiotics regularly fed to farm animals, *E. coli*, and cancer inducing hormones (Saxena 2011). Currently, 80 percent of all antibiotics produced in the U.S. are used for livestock (June 2013, p. 6) and has resulted in antibiotic resistant "super-bugs" and an increase in drug-resistant infections and deaths. The United Nations Food and Agriculture Organization attributes 70 percent of human diseases to livestock and states that modern production practices are to blame (Diega 2013).

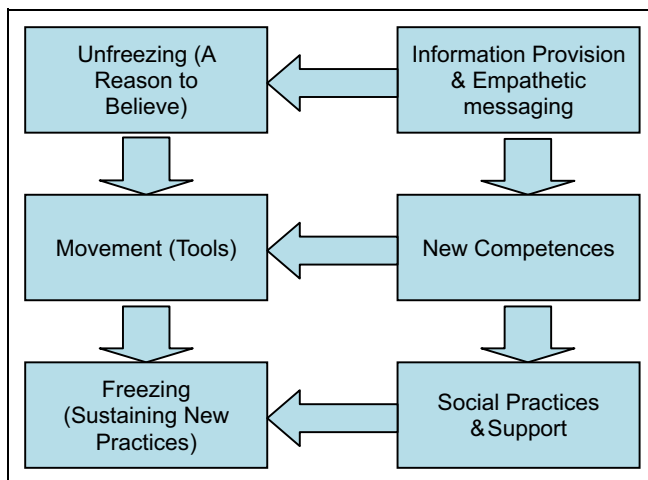
Although concerns about increased cost and the presence of antibiotics and growth hormones influence consumption,

consumers also make choices against a backdrop of contradictory information, media noise, dietary practices endorsed by governments and the medical profession, and industry advertising and public relations activities. Together, these messages associating moderate meat consumption with a healthy nutritional diet form a collective "nutritional wisdom" an institutional barrier to the adoption of plant-based diets (Fiddes 1991). Leading nutritionist T. Colin Campbell has identified a number of ways in which such wisdom is created and institutionalized. Industry and farming interests are linked with scientists receiving funding from them, technical journals relying on advertising from pharmaceutical companies, politicians accepting campaign donations, and committees setting national dietary guidelines. The last are often made-up of industry representatives and influence important stakeholders such as teachers of nutrition and school principals (Campbell and Campbell 2006). Furthermore, the preference for reductive studies of the health benefits of isolated chemicals often found in animal-based proteins results in significant consumer confusion, as with the aforementioned example of milk (Campbell and Jacobson 2013).

Finally, consumers are also influenced by the marketing practices of food providers. Although attitudes are shifting, many consumers still hold romantic images of farming, often assuming animals are kept in bucolic settings (Saxena 2011) and that small-scale family farms produce food when, in reality, the industry is often highly concentrated (June 2013)). Marketing messages also position meat in relation to health claims, associate meat and dairy consumption with childhood health, growth, masculinity and sexual potency, father-son bonding, purity, childhood nostalgia, fun, and patriotism, among many others. Marketers of animal based products have also appropriated alternative market arrangements such as sustainability, natural, slow, and organic (Thompson and Coskuner-Balli 2007).

## Discussion

The analysis above provides the basis for understanding how to mainstream plant-based diets. Taken together these forces are already playing a role in changing dietary practices mainly through increased rates of vegetarianism and/or decreases in meat consumption and demand in developed economies. Marketing or consumer studies encouraging a change in dietary practices are rare. Nutrition or health studies on the attitudes and motivations of omnivores and vegetarians stop short of specific marketing policy advice beyond calls for more information or encouraging the use of meat analogs such as *Quorn*<sup>TM</sup>. Debates around sustainability and consumption (including nutrition) tend to focus either on the need for systemic change or take an information processing perspective that ignores the important social meaning structures surrounding or dietary practices (Prothero et al. 2011; Schaefer and Crane 2005). That is, one stream focuses on information provision while ignoring context (e.g., Schösler, Boer, and Boersema 2012), while the other focuses on systemic change



**Figure 1.** Dietary change policies and practices.

while ignoring the cumulative potential that context-sensitive micro-level policies have for widespread change (Assadourian 2010; Gordon, Carrigan, and Hastings 2011; Kilbourne 2010; McDonagh and Prothero 1997; Varey 2010, 2012).

In this article we focus on mainstreaming or the widespread diffusion of plant-based diets. To this end, we propose “health vegetarians” as the ideal point of leverage. Fox and Ward (2008) identified “health vegetarians” as those consumers motivated by health and fitness concerns. Health vegetarians are seen by many as reflective of more mainstream sentiments (as opposed to moral vegetarians who cease consumption of animal products out of concern for animal rights) because of people’s desire to live more healthy lives, lose or maintain an optimal weight, and live longer (Fox and Ward 2008; Saxena 2011). That is, health vegetarians are more likely to reduce meat consumption due to self-interest. This segment represents the largest number of plant-based food consumers, is less likely to adopt a plant-based diet as an identity, ethical or political statement, and is already viewed positively by omnivores (Ruby 2012; Spencer 2000). Therefore, this segment provides a positive role model for more conservative or risk-adverse consumers, resulting in an increased likelihood of diffusion of plant-based diets (Rogers 1995).

In this section we frame policy solutions using Lewin’s three-step change process: unfreeze, movement and freezing (often mistakenly called re-freezing). The widespread adoption of a plant-based diet in the developed world represents an innovation in our eating habits. Since this process recognizes that change occurs in a structured, socio-technical system (Burnes 2004), Lewin’s theory is a useful tool for contextualizing previous research insights as presented in Figure 1. Lewin proposed that change involved three stages. First, individuals needed to be given a “reason to believe” (unfreeze). That is, they need to understand the assumptions underpinning previous practices are no longer effective and realize it is in their best interests to confront and challenge them. However, although important, without the necessary tools to manage a new social reality, individuals quickly slip back into old habits and practices. Thus, to move

consumers from one diet to the next, new tools are required. Lasting change then occurs when such practices are sustained (or frozen again as taken-for-granted assumptions).

Animal-based protein consumption still represents the dominant dietary practice in developed economies and is also viewed as the “wealthy diet” by many consumers in developing countries and therefore worthy of emulation (Saxena 2011; see also Campbell and Campbell 2006). However, meat consumption is in decline in the West and recent social innovations such as “Meatless Mondays” have gained widespread currency among consumers in several countries including the U.S., the UK, and Australasia (Scott-Thomas 2012). The ideological system underpinning meat consumption is now openly questioned, with many people challenging the idea that control or dominance over nature is desirable or even possible.

All practices including diet have three components: material, competences, and meaning (Shove, Pantzar, and Watson 2012). When the meaning underpinning certain practices starts to lose relevance, practitioners begin to question previous doings (unfreezing) and begin to search for new practices amidst a changing social order (Warde 2005). Western consumers and policy makers are beginning to question the sustainability of current eating practices. And, these arguments are gaining mainstream traction. Reducing meat intake is viewed as part of a healthy diet even among omnivores and the marketers of fast food (Marcus 2011). Some consumers are framing consumption decisions in moral and environmental terms (Özçaglar-Toulouse 2009), partly due to high profile awareness campaigns around water use, animal testing, mistreatment, species loss, and equity concerns. Likewise, intensive farming practices already exhibit little public sympathy (Fiddes 1991; Spencer 2000). Recent events such as the UK horsemeat scandal are making consumers much more aware of the costs of cheap meat, resulting in improved labeling regimes and greater attention to supply chain integrity by retailers. Finally, the daily reporting of natural disasters is typically framed in terms suggestive of a need to change our relationship to the natural environment and questions the extent to which we can truly control nature to our advantage.

Although many rightly question the assumptions underpinning the policy recommendations of nutritional studies (Fiddes 1994, 1995; Gaard 2002), we believe that information provision is useful for furthering this process. Improved awareness about the consequences of meat eating has already had an effect (Fox and Ward 2008). However, the sustainability implications of our dietary choices are rarely made clear since advocates for plant-based diets tend to focus on weight loss, health, animal rights, and to a lesser extent, economics (Marcus 2011; Saxena 2011)). Research suggests appealing to self-interest is likely to have a greater impact on the majority of the population (Lea, Crawford, and Worsley 2006a; Ruby 2012). As Saxena (2011) suggests, messages need to focus on the benefits of plant-based diets rather than the dangers of eating meat since health advantages have universal appeal.

We believe messaging should focus on three things: responsibility for personal health, well-being (as opposed to physical

health), and cosmopolitanism. Research reveals that health vegetarians view themselves as personally responsible for their health (Ruby 2012), in the same way that many consumers already adopt a personal responsibility narrative in regards to consumption behaviors (Özçaglar-Toulouse 2009). A message that stresses eating less meat as opposed to dropping it altogether (Lea and Worsley 2001, 2002) can be framed as part of a wider narrative about consumer responsibility for the environment and the notion that these decisions represent “smart” or “savvy” consumer choices (Bardhi and Eckhardt 2012; Boyle 2011).

Research also reveals that among health vegetarians, personal health concerns are integrated into a wider narrative regarding subjective well-being, with a particular emphasis on mind-body integration (Fox and Ward 2008; Jabs, Sobal, and Devine 2000). Since health vegetarians identify themselves as “global citizens” and frame their eating decision in this context (Fox and Ward 2008), marketers and policy advocates should locate dietary choices in the context of ethnic cuisines and concern or global equity. Finally, marketers seeking to influence dietary behavior should be open to dropping labels such as “vegan” or “vegetarian” (Fox and Ward 2008; see also Fiddes 1995). This strategy is reinforced by academic research proposing that non-meat alternatives are best positioned as part of an “adventurous diet” and/or as pathways to more cereal and legume based meals (Carlsson-Kanyama and Gonzalez 2009; Schösler, Boer, and Boersema 2012).

However, information provision or feedback alone will not ensure sustained behavior change (Strengers 2011). While meanings may be shifting, and the material alternatives present (i.e., plant-based food), competences are still required to ensure lasting change (Shove, Pantzar, and Watson 2012). Without the necessary practices to adopt a “green lifestyle” consumers will struggle to adopt sustainable eating behaviors (Connolly and Prothero 2008). Since health vegetarians are interested in ethnic food and influenced by high profile chefs (Fox and Ward 2008; Ruby 2012), policy makers or influencers should develop dietary advice through the recruitment of high profile chefs (some such as Jamie Oliver have already been successful at placing nutrition on the national agenda), and use the small-dish structure of many popular ethnic cuisines including Mezzé and Tapas style meals to reshape perceptions of “proper meals.”

Although nutrition researchers emphasize the importance of meat analogs or faux meat products, including the recent announcement surrounding lab-grown meat (June 2013), in providing a pathway to plant-based diets, the use of such products alone will not overcome some of the barriers covered above. For example, if meat lies at the center of a meal with vegetables as compliments (Marshall 2005), meat-analogs are unlikely to act as pathways. That said, products such as meat analogs might be useful replacements for other meat-centered occasions such as father-son interactions at sports events, or other social events. As June (2013) identifies, many organizations targeting mainstream consumers with such products are labeling them as “mock” chicken, beef, or fish in order to locate them in an existing set of practices.

Finally, research reveals that sustaining plant-based diets requires social support, particularly for young consumers and or male consumers (Salonen and Helne 2012). Although problems associated with accommodating vegetarians in eating-out situations are declining given the increased availability of plant-based alternatives in most restaurants and supermarkets, communication tools can also help in providing intellectual and emotional support. Using positive role models, particularly sports stars or those engaged in physically demanding roles, is a useful way of countering many of the identity problems associated with a plant-based diet. Many vegetarian/vegan organizations often use Olympians or professional sportspeople and adventurers in their communication efforts to counter the view the meat-based proteins are necessary for vigor (especially among young men).

Further research on the adoption of plant-based diets is required. First, research into message framing is needed to identify the basis for successful marketing campaigns. For example, although the UK government accepts National Health Service estimates that by 2015 over 50 per cent of the population will be obese, their colorful, cartoonish, and light hearted advertising campaigns have been criticized for being less hard hitting than those for smoking. Therefore, future research should examine the different impact of various cues and forms of message framing. Counter intuitive studies might also be investigated. For example, the South Korean government sponsored cooking classes to ensure the survival of the traditional Korean diet and, as a result, meat consumption did not increase as “normal” following economic development. Could plant-based diets be framed around messages emphasizing tradition, historical practice, authenticity, and holistic health?

Second, our understanding of consumer meal practices often focuses on identifying rituals and/or using those to address issues such as over-consumption or obesity. However, we understand relatively little about how meal practices lead to environmentally unsustainable behaviors and how assumptions around class, gender and wealth can be addressed or challenged. Marketing’s role in the movement stage is critical, yet we understand little about how to ensure more widespread diffusion of eating innovations among different segments. Third, the social practices associated with eating require further research. For many families for example, the choice of one member to switch diets can be disruptive, resulting in tension, and even the decline of social relations. Research could examine how families manage (or fail to manage) these disruptive practices, and investigate whether other forms of social support, such as marketer-sponsored communities, could be leveraged to sustain one’s commitment to plant-based diets.

## Conclusion

Plant-based diets have not always been regarded as a deviation from the norm. During the 18<sup>th</sup> and 19<sup>th</sup> centuries, vegetarianism occupied the moral and intellectual high ground in Europe (Stuart 2006, p. 246), while the widespread replacement of cereal based diets with meat only occurred after World War II in

the West. And, some societies have forbidden or outlawed meat use when the downstream impacts of livestock production became clear (Stuart 2009, p. 183). Our dietary choices are more than just ingestive practices. In this article, we have identified how what we eat effects a range of macromarketing issues including sustainability, quality of life, equity and development, food security, gender relations, and market systems. As such, we suggest that addressing our dietary habits in the developed world is central to concerns about sustainable living given that the strong desire by many in the developing world to emulate Western lifestyles is already generating many of the problems associated with the consumption of animal-based protein.

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### Notes

1. The term "plant-based diet" is used deliberately to shift the focus to diet rather than identity or moral values, which are often the motivation behind vegetarian or vegan diets. This is important because vegan and vegetarian diets can contain a significant amount of animal protein (vegetarian) while both can sometimes contain high fat or heavily processed "junk" foods, such as French fries and pizzas (Campbell and Jacobson 2013). Such a choice also avoids the subjectivity of the term "vegetarian." Although definitions of vegetarianism focus on abstaining from animal-based products, consumer practitioners use the term to refer to anything from refusing red meat through to fruit-only diets (Ruby 2012).
2. Meat was used primarily as a stopgap when plant-based foods were rare (Barkas 1975; Pollan 2011), so much so that it would be more accurate to refer to early societies as "gatherer-hunter".
3. Although nutritionists suggest targeting women with health information because of their traditional role as meal gatekeeper (Lea and Worsley 2002), sociological analyses suggest women viewed meat preparation as central to their role as head of the household and wife (Fiddes 1991). Although gender roles and expectations have shifted, Gaard (2000) found that wives and mothers often share the belief that men need meat.
4. Many of these concerns often assume we need to produce enough plant-based food to meet current levels of protein consumption, whereas we currently consume far more protein than we need (Campbell and Jacobson 2013).

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### Author Biography

**Michael B. Beverland** is Professor of Brand Management at the School of Management, University of Bath and Distinguished Research fellow at RMIT University, Melbourne Australia. Best known for his work on marketplace authenticity, Michael has published articles in (among others) *Design Management Review*, *Journal of Consumer Research*, *Journal of Management Studies*, *Journal of the Academy of the Marketing Science*, and *Journal of Product Innovation Management*. He switched to a vegan diet during the production of this article.