UNIVERSITY OF
GLOUCESTERSHIRE

This is a peer-reviewed, post-print (final draft post-refereeing) version of the following published document and is licensed under Creative Commons: Attribution-Noncommercial-Share Alike 4.0 license:

Jones, Peter ORCID logoORCID: https://orcid.org/0000-0002-9566-9393 (2023) UK Retailers and Plant-Based Alternatives to Meat and Dairy Products. Athens Journal of Business and Economics, 9 (2). pp. 207-220. doi:10.30958/ajbe/v9i2

Official URL: http://www.athensjournals.gr/ajbe/v9i2
DOI: 10.30958/ajbe/v9i2
EPrint URI: https://eprints.glos.ac.uk/id/eprint/11277

Disclaimer

The University of Gloucestershire has obtained warranties from all depositors as to their title in the material deposited and as to their right to deposit such material.

The University of Gloucestershire makes no representation or warranties of commercial utility, title, or fitness for a particular purpose or any other warranty, express or implied in respect of any material deposited.

The University of Gloucestershire makes no representation that the use of the materials will not infringe any patent, copyright, trademark or other property or proprietary rights.

The University of Gloucestershire accepts no liability for any infringement of intellectual property rights in any material deposited but will remove such material from public view pending investigation in the event of an allegation of any such infringement.

PLEASE SCROLL DOWN FOR TEXT.

UK Retailers and Plant-Based Alternatives to Meat and Dairy Products

Plant-based alternatives to meat and dairy products are one of the fastest growing sectors within the food industry, and in the US some commentators have claimed that plant-based products are a key driver of sales growth for food retailers. This paper looks to explore if, why, and how, the leading food retailers in the UK were introducing plant-based alternatives to meat and dairy products to their retail offer. The paper reveals that the leading food retailers in the UK have highlighted plant-based alternatives to meat and dairy produce within their retail offer, and that a range of such products are available within their stores. Further, the retailers claimed to be introducing plant-based alternatives to meat and dairy products as part of their response to consumer demand and to health and environmental concerns. A number of illustrations demonstrate how plant-based alternatives to meat and dairy products are presented within stores

Keywords: plant-based alternatives, sustainability, leading food retailers, UK

Introduction

Plant-based food is one of the fastest growing sectors within the food industry. Deloitte (2019), for example, argued, that the *'global meat and dairy sector is currently going through an unprecedented level of competition and disruption, driven by the growth of viable plant-based alternatives across many categories'*, that *'gone are the days when plant-based alternative products were for the niche consumer and warranted limited shelf space'*, and that *'companies across the spectrum are now investing heavily in acquiring and creating new products and brands which will appeal to the surging consumer demand for plant-based products.'*

Within the US, the Good Food Institute (2022) has claimed that *'plant-based products are a key driver of sales growth at grocery retailers nationwide'*, and more specifically reported that *'retail sales data released April 6, 2021, shows that grocery sales of plant-based foods that directly replace animal products have grown 27 percent in the past year to $7 billion.'* With this in mind, this exploratory paper looks to explore if, why, and how, the leading food retailers in the UK were introducing plant-based alternatives to meat and dairy products into their retail offer. The paper includes an outline of the characteristics of plant-based foods, a brief literature review, an exploration of if, why, and how, the leading food retailers in the UK were introducing plant-based alternatives to meat and dairy products to their retail offer, and discusses some of the paper's findings and offers some reflections on the role of plant-based alternatives in promoting a transition to a more sustainable future.

Plant-Based Food

While recent years have witnessed an increase in the availability, and the popularity, of plant-based food, it is not a new phenomenon. Indeed, plant-based diets can be traced back before recorded history, in that early humans eat an exclusively plant-based diet before they began to hunt, transport, and prepare animals for consumption. However, the term plant-based seems to have been coined in 1980, and plant-based foods are generally classified into fruits, vegetables, legumes, grains, nuts and seeds. However, defining plant-based food is not straightforward and the term plant-based is often used in association with the terms, vegetarian, vegan, and flexitarian. and in some ways, consumers' understandings of the meaning of the term plant-based are evolving.

While there is no single accepted definition of the term vegetarian, it is usually used to describe a person who does not eat meat, poultry, fish or shellfish, or any of the by-products of animal slaughter, while lacto-ovo-vegetarians include dairy products and eggs in their diet. A vegan does not eat any products of animal origin, and vegans do not eat any dairy products and eggs, and many of them do not eat honey, as well as avoiding animal-derived materials such as gelatine or vitamin D3 supplements. The term flexitarian is often used to describe people who still consume meat and dairy products, but are looking to reduce their consumption levels.

The British Standards Institute (2020), suggested that *'many foods are labelled as 100% plant-based without a consensus on how that label should be used.'* Further, in an attempt to enable consumers to make informed choices, the British Institute established some simple criteria to define 100% plant-based food. Here the key components are that 100% plant-based foods *'contain no ingredients from animals'*, but that they can contain *'ingredients of neither plant nor animal origin, such as water or salt'*, and that the term applies *'solely to ingredients, and not to production and/or manufacturing processes'* (British Standards Institute 2020b).

While it is difficult to measure the total size of the market for plant-based food a number of estimates suggest that it is growing rapidly. Bloomberg Intelligence (2021), for example, reported that global sales of plant based dairy and meat alternatives reached $29.4 billion in 2020, and that the market could increase to $162 billion by 2030. Putting this figure into wider perspective, this would constitute only 5% of the total food market. Within Europe, Statista (2021) reported that during the period October 2019 to September 2020, sales of plant-based meat substitutes grew by 76% in Germany, 52% in Austria, 36% in the UK and 32% in Spain, though the corresponding figures for France and Italy were much lower at 9% and 1% respectively.

A number of forces are seen to be important in driving this market growth. On the demand side, the growth in plant-based foods has been driven by human health considerations, principally fears that the regular presence of red meat and processed meat in the diets poses major health risks, a range of environmental concerns including, climate change, the pollution of watercourses, deforestation, and animal welfare issues, focused on the way animals are treated in modern intensive agricultural production systems. On the supply side manufacturers have extended both the range of ingredients and the product range of plant-based foods, to offer consumers more choice and new flavours.

Literature Review

Research on how food retailers have addressed plant-based alternatives to meat and dairy produce, and looked to incorporate them into their product ranges has been limited, but a number of themes, including, marketing strategies and consumer shopping patterns in store, customers' and retailers' perceptions of plant-based foods, and the overall nutritional quality of plant-based food and the nutritional quality of specific plant-based foods can be identified. As such this review provides an academic context and a set of reference for the paper. However, the work on plant-based food within retailing is fragmented and it currently lacks a coherent framework.

Gravely and Fraser (2018) examined the role of supermarkets in plant-based protein consumption in Canada, and more specifically they explored the contrasts between the supermarket's strategies for retailing plant-based products, and the consumer strategies when shopping for these products. The findings reveal that the supermarkets are simultaneously enabling and limiting consumers when it comes to alternative protein consumption by increasing the availability of plant-based options, but assuming basic strategies when it comes to marketing these products in-store. Further, the authors put forward a number of tactics which could facilitate greater uptake of plant-based protein products, including positioning plant-based meat and dairy substitutes on the same shelves as other meat and dairy products and devoting more resources to plant-based product promotions. The authors concluded that *'efforts to increase society's consumption of alternative protein products would greatly benefit from better understanding the supermarket's role in mediating this transition'* (Gravely and Fraser 2018).

In demonstrating how plant-based shopping, cooking and eating practices are enabled and shaped by material reconfigurations in Gothenburg, Sweden, Fuentes and Fuentes (2021) claimed that '*even though plant-based diets are increasingly common, and starting to become normalized, retail environments such as supermarkets are still usually organized according to a meat-based way of eating.'* Further, Fuentes and Fuentes (2021) argued that *'opting for a plant-based diet requires consumers to develop a plant-based mode of shopping in a socio-material landscape shaped and organized by a meat-based diet.'* Trewern et al. (2021) reported that retailers were experimenting with different approaches to positioning vegan/vegetarian ranges and alternative meat products, both in store and online, and that while some were placed all these products next to each other, others segregated them in order to cater for both sets of customers.

Beacom et al. (2021), explored plant-based consumption and the motivations for it, in an online survey of over 400 plant-based and non-plant-based consumers in the UK and the Republic of Ireland. The authors' found that the primary motivations driving the respondents' consumption of plant-based food were sustainability, health and animal welfare, while barriers to consumption for non-plant-based consumers were not seeing a need to change their diet and taste. In conclusion, Beacom et al. (2021) suggested that in order to increase consumer satisfaction and frequency of purchase of plant-based foods, producers and marketers should adopt a market-oriented approach, that labelling on plant-based foods should include clear product information as well as information on the products' sustainability credentials, improvements to the sensory qualities of products, and that appropriate pricing and promotional strategies should be used to increase visibility.

Kopplin and Rausch (2021) looked to investigate the determinants of German consumers' attitudes towards plant-based foods and whether their dietary behaviour is of relevance for the attitude towards plant-based food substitutes. The study revealed that concerns for animal welfare had the largest effect on customers' discretionary behaviour, whereas environmental concerns and health consciousness did not impact dietary behaviour. That said the 1,400 respondents included in the investigation primarily consisted of female students and young professionals in the twenties, and the authors emphasized that the findings of their study need to be interpreted carefully.

Alessandrini et al. (2021) surveyed the nutritional quality of over 200 plant-based meat products available in 14 retailers in the UK. The author's results revealed that most plant-based alternative meat products had a more favourable nutrient profile than their meat counterparts, but that salt content of in plant-based meat products was high, and that manufacturers could improve the nutritional quality of these products by reducing their salt content. Tonheim et al. (2022) looked to assess ad compare the macronutrient and salt content in plant-based meat and dairy substitutes available in three online Norwegian grocery stores, which represented retailers holding the majority of the total grocery market share in Norway. The results indicated that while the plant-based meat and dairy products on the Norwegian market varied in their nutritional composition, these products contained lower levels of saturated fats, that meat substitutes contained higher levels of fibre, and that milk and dairy substitutes contained less protein.

Zhang et al. (2020) conducted a survey of plant-based milk alternatives in Australian supermarkets and selected

niche food retailers. Their results suggested that there was substantial variability in the nutritional content of plant-based milk alternatives compared with cow's milk, supporting previous works from other geographical locations, and they recommended prudent consumer selection to avoid potential issues with the reduced nutrient intake associated with substitution of cow's milk. Clegg et al. (2021) compared the nutritional content of plant-based alternatives to milk, yogurt and cheese with their dairy equivalents and the impact on nutritional intake when they are substituted into UK diets. The findings suggested that alternative plant-based dairy products may be useful as practical replacements for dairy products, but cannot be considered nutritional replacements. Curtain and Grafenauer (2019) profiled and compared plant-based meat substitutes with equivalent meat products in four supermarkets in Sydney, Australia, and revealed that plant-based options were generally lower in total and saturated fat and higher in carbohydrate, sugars, and dietary fibre compared with meat.

In two studies based in the UK and Italy, Rondoni et al. (2021a and 2021b) investigated how both the egg industry, retailers, and consumers perceived plant-based eggs. Results from the first study (Rondoni et al. 2021a) suggested that manufacturers and retailers were sceptical that plant-based eggs replicated all eggs' nutrients and functionalities, and that there were uncertainties about to label and name plant-based eggs, which had important marketing implications. The second study (Rondoni et al. 2021b) looked to elicit associations of consumers to three types of plant-based eggs, and the participants evaluated health, animal welfare and sustainability as the most important attributes of plant-based eggs.

Frame of Reference and Method of Enquiry

This paper looks to explore three simple research questions, namely, if, why, and how, the leading food retailers in the UK had introduced plant-based alternatives to meat and dairy products. To that end, the leading ten UK food retailers, by turnover, as identified by Retail Economic (2022), namely Tesco, Sainsbury's, Asda, Morrisons, Aldi, Co-op, Lidl, Marks and Spencer, Waitrose, and Iceland, were selected for study. Tesco, founded in 1919, is the UK's largest retailer, with some 3,400 stores and over 310,000 employees and it trades from hypermarket, superstore, and convenience store formats and increasingly online. Sainsbury's, Marks and Spencer, Morrisons and the Co-operative were founded in the nineteenth century while Aldi and Lidl, both German based discount retailers, who opened their first stores in the UK in 1990 and 1994 respectively, are relative newcomers to the UK's retail environment. Asda was founded in 1949, Waitrose, founded in 1901, is the food retail division of the John Lewis Partnership, while Iceland, which specialises in the sale of frozen food and prepared meals and vegetables, was founded in 1970. Taken together the ten companies dominate the food retailing market within UK, accounting for over 90% of all food sales.

Within this framework the author adopted a simple twin track approach to data collection. Firstly, an internet search, using the term 'plant-based products' and the name of each of the selected retailers, was conducted during February 2022 using Google as the search engine. Secondly, the author undertook a basic observational survey of the plant-based alternatives to meat and dairy products offered for sale in each of the selected retailers' largest stores in Cheltenham, a town with a population of some 115,000 in the South West of England. More specifically, a walk-through survey, combining structured visual observation was undertaken, and the authors recorded the plant-based items available in store, the shelf space devoted to them and any promotional and information material associated with them. The information gathered from the internet search and the store survey formed the empirical material for the paper. The author is aware of the limitations of the chosen approach, not least that it draws on internet sources and a personal observation survey conducted in a particular space and at a particular time, and in that it does not look to collect primary information from retail decision makers, suppliers or customers, but he believes it to be fit for purpose in an exploratory paper.

Findings

On their corporate website, the majority of the selected retailers highlighted their plant-based alternatives to meat and dairy products, although the number and range of the products they reported having introduced varied. Rather than describe how each of the retailers' highlighted their introduction of plant-based alternatives to meat and dairy products, the aim here is to identify a number of general themes, including strategic business commitments to health and sustainability, the retailers responses to consumer demand, the listing of plant-based products, details of own brand plant-based ranges, and issues relating to accessibility and price. These themes are often interwoven as illustrated below.

In outlining the *'Waitrose Agriculture Plan'*, the John Lewis Partnership (2022), for example, recognised the impact of climate change on food production and the need to end farming's role as a key driver of greenhouse gas emissions, and emphasised the need to *'reduce our dietary reliance on meat and embrace more plant-based alternatives.'* However, while the company argued that *'there are no clear plans for how livestock farmers can adapt to these production changes with existing business models'*, it claimed that *'Our Waitrose Agricultural Strategy will enable us to start facing a number of these challenges head-on and enable us to help create a more sustainable food system'*

(John Lewis Partnership 2022).

Tesco (2022) reported its recognition that *'plant-based food had become one of the biggest culinary trends of the last decade'*, and that *'in anticipation of growing demand, we have been undertaking significant product innovation work in the area of plant-based and alternative proteins, both in developing and launching our Own Brand ranges and offering some of the UK's leading plant-based brands.'* Further Tesco (2022a) claimed *'we want to make choosing plant-based food as easy as possible. In many of our larger stores we have colourful displays of plant-based products in the meat and prepared food aisles, offering flexitarians an immediate alternative, as well as dedicated sections exclusive to plant-based products.'* In outlining its commitment to *'grow Asda plant-based sales by 100%'* by 2023, the company claimed it would *'continually engage with and support initiatives to address the UK's nutrition and obesity challenge.'*

In addressing consumer demand, Marks and Spencer (2022) reported *'to meet the growing demand for meat alternatives, and also support customers exploring plant-based eating….. M&S is expanding its popular Plant Kitchen range with some delicious new additions all benchmarked for taste against their meaty counterparts.' The company claimed that 'our Plant Kitchen range means you'll never have to compromise on taste. Expertly developed by our chefs, every product is rigorously benchmarked so it tastes just as good or even better than its meat or dairy counterpart'* (Marks and Spencer undated).

The majority of the selected retailers listed their plant-based alternatives to meat and dairy products, sometimes combined with their listings of vegan products, and some highlighted their own brand plant-based ranges. Sainsbury's, (2022), for example, listed 781 vegan and plant-based products, and Asda (2022) listed 60 plant-based products, while Tesco (2022b) invited customers to *'discover hundreds of plant-based products.'* More specifically, Aldi (2022) advertised its own label *'Plant Menu'* products as part of its *'Vegan Range'*, with the message *'we'll show you how easy it is to make a plant-based diet tasty and exciting!'* Sainsbury's (undated) listed 31 products in its *'Plant Pioneers'* range, including *'Plant Pioneer No Duck Spring Roll'*, *'Plant Pioneer No Prawn Toast'*, *'Plant Pioneer No Steak Bake'*, and '*Plant Pioneers Chocolate & Caramel Pots*.'

The Co-op (2021a) reported that one of the *'5 steps we've taken towards our sustainability ambitions'*, was *'cutting the price of our GRO range to make the plant-based choice more affordable'*, and more specifically, the Co-op (2021) claimed *'we don't think people should be priced out of eating plant-based. So, this year we cut the price of our vegan GRO range to match its meat and dairy counterparts. Whether you're vegan, vegetarian or just looking to introduce more plant-based foods into your diet, we want to make it easier for you to do that.'* The Co-op (2021b) also claimed that it was the company's *ambition to make our plant-based range, GRO, even more accessible to our members and customers, helping them make decisions that collectively will have an impact on the world we all share. Emissions from our operations and our own-brand products are where we have the greatest responsibility and can make the biggest difference.'* Morrisons (2021) claimed *'we continue to make plant-based products more accessible to our customers and have expanded our plant-based offer, increasing our V Taste range by 50%.'*

The store survey revealed that all ten of the selected retailers had introduced plant-based alternatives to meat and dairy products as part of their offer, and while the scale and range of plant-based products varied between retailers, they formed a small proportion of overall retail offer in all stores. Once again, rather than describing the plant-based range within each of the selected retailers' stores, the aim here is to identify a number of general themes, as illustrated below, A number of the retailers carried their own plant-based brands. Tesco's *'Plant Chef'* products, for example, included *'Roast Vegetable'* sandwiches, *'Houmous Harissa', 'Mushroom and Fettucine Pie'*, *'Mushroom Pizza'*, *'Meat Free Southern Fried Chicken'*, *'Lincolnshire-Style Cocktail Bangers'*, *'Meat Free Cottage Pie'*, *'Pistachio Mousse'*, and *'Chocolate Orange Cups.'*

In a similar vein, the Marks and Spencer's *'Plant Kitchen',* range included *'No Chicken Kiev'*, *'No Beef Burgers'*, *'Green Thai Curry'*, *'Woodfired Hot and Spicy Pizza'*, *'Chocolate and Raspberry Ripple Ice Cream'*, and *'Sticky Toffee Pudding.'* In Morrisons' *'Good To Go'* section, *'Plant Revolution'* products included *'Falafel and Spicy Houmous Wrap'* and *'No Chick Shawarma'*, while elsewhere in the store the range included *'Charred Corn and BBQ Jackfruit Pasta'*, *Butternut Coconut Curry', 'Vegetable Paella'*, *'Sweet and Sour No Chicken'*, and *'No Chick Southern Fried Chicken'*. The Sainsbury's store stocked a number of *'Plant Pioneers'* products, including *'No Chicken Kiev with Sticky Rice'*, *'Lasagne'*, *'Fishless Fingers'*, and *'Cumberland Shroomdogs.'* All own brand products prominently display their brand name, and the packaging of some the selected retailers' own brand plant-label products have a distinctive colour. The Marks' and Spencer *'Plant Kitchen'* packaging, for example, has a distinctive green/blue colour, while some of Sainsbury's individual own label *'Plant Pioneer'* products are packed on the store's shelves in small green cartons.

At the same, some stores also stocked other brands of plant-based products. Alpro's oat, soya, and coconut alternative milk drinks, for example, were stocked by most, though not all, of the selected retailers. Other proprietary plant-based brands were available in some of the selected retailers' stores. The Sainsbury's store, for example, stocked *Fry's* brand, *'Lightly Seasoned Chicken Style Strips'*, *'Smoked Hot Dogs'*; *'This'* brand's *'This Isn't Bacon Plant Based Rashers'*, *'This Isn't Pork Meat Balls'*, *'This Isn't Bacon Lardons',* and *'This Isn't Chicken Pieces'; 'Beyond Meat'* brands of *'Beyond Meat'*, *'Beyond Meatballs'*, and *'Beyond Mince'*; and the *'Garden Gourmet'* brand *'Sensational Plant-Based*

Cumberland Sausage', and *'Plant-Based Mince.'*

In some of the selected retailers' stores shelf edge labelling and occasionally more prominent signage was used to direct shoppers' attention to plant-based alternative meat and dairy products. In the Marks and Spencer store, for example, an eye-catching plastic sign projected out from the shelves into the aisle, and carried the twin messages *'Our Plant Kitchen Range Makes Eating More Sustainable and Truly Delicious'*, while a shelf edge label carried the message *'Eat More Sustainable Plant-Based Food In Your Diet With Plant Kitchen.'* In the Asda store above the in-store kitchen, a large sign advertised *'Plant Based Street Food'*, and the plant-based products on sale included *'Spicy Veggie Roll', 'Coconut Hosomaki'*, and *'Edaname.'*

Within the selected retailers' stores, plant-based foods were positioned in two ways. Firstly, some plant-based products were positioned on shelves close to their meat and dairy counterparts but not side by side on the same shelves as meat and dairy products. In, Sainsbury's for example, both the *'Plant Pioneers'* brand *'Slightly Salted Alternative Butter'*, and the plant-based butter from the proprietary brand *'Flora',* were on shelves adjacent to the traditional ranges of butter and spreads. In the Marks and Spencer store, *'Crackd'* the *'No Egg Egg Replacer'*, described as being designed *'to create scrambled egg, Yorkshire pudding and great pancakes'*, was positioned next to the conventional eggs. Secondly, in some of the selected retailers' stores were grouped together in dedicated chiller and freezer cabinets. In the Tesco store, for example, a number of plant-based dairy alternatives, including *'Chocolate Dessert',* '*Pistachio Mousse', 'Caramel and Chocolate Little Pots'*, and *'Chocolate Orange Cups'*, were positioned together in a dedicated chiller cabinet, and in the Aldi store a freezer cabinet was given over to plant-based products including, *'Yellow Thai Curry'*, *'Onion and Rosemary Sausages'*, and *'Indian Inspired Curry.'*

Discussion

The findings reported above provide responses to the paper's three simple research questions of if, why, and how the leading UK food retailers are adding plant-based alternatives to meat and dairy products to their retail offers. Firstly, the majority of the selected retailers highlighted their introduction of plant-based alternatives to meat and dairy products and evidence collected in the observational survey of all the retailers' stores revealed that the plant-based alternatives were being added to their retail offer by the leading food retailers in the UK. Secondly, information drawn from the selected retailers provided some insights into why these retailers were adding plant-based alternatives to their retail offer. Thirdly, the information drawn from both the retailers' websites and the observational survey, provided a number of illustrations of how the leading food retailers have added plant-based alternatives to meat and dairy products to their retail offer.

In responding to these three research questions the findings suggest that the leading UK rood retailers are following their US counterparts in adding plant-based alternatives to meat and dairy produce, and that in doing so, there are some indication that leading food retailers were responding to consumer demand, and to health and sustainability concerns, though concerns about animal welfare were conspicuous by their absence. The results from the store survey would seem to be consistent with Trewern et al.'s (2021) findings that supermarkets were experimenting with the placing of plant-based meat and dairy alternatives, in that in some stores plant-based products were found adjacent to their meat and dairy counterparts while elsewhere plant-based alternatives were in dedicated cabinets and on separate shelves. At the same time, Beacom et al.'s (2021) recommendations that a market-oriented approach should be adopted by retailers can be seen to reflected in part, in the signage and labelling of plant-based alternatives to meat and dairy produce in the majority of the stores surveyed. That said, promotional strategies designed to increase visibility and the provision of information on the sustainability credentials the plant-based alternatives to meat and dairy produce, as also recommended by Beacom et al. (2021) were generally much more limited at the store level.

More generally, the issues of sustainability and plant-based alternatives to meat and dairy produce is contested. On the one hand, the conventional view is that intensive animal farming *'may be the most environmentally damaging industry on Earth',* and as *'a major threat to global sustainability'* (The Global Food Institute undated), any substantial move to a more plant-based diet should be seen as a contribution to a more sustainable future. Alae-Carew et al. (2022), for example, argued that 'a *global transformation towards sustainable food systems is crucial for delivering on climate change mitigation targets worldwide. In high- and middle-income settings, plant-based meat and dairy alternatives present potential substitutes for animal sourced foods, and a pathway to transition to more sustainable diets.'*

On the other hand, while Lusk et al. (2022) recognized that plant-based meat alternatives could have significant economic, environmental, and animal welfare impacts if they replaced traditional animal-based meats and reduced the demand for livestock production, they called such a scenario into question. More specifically, Lusk et al. (2022) constructed, and calibrated, an economic model to estimate how a reduction in the price of plant-based alternatives, or an increase in demand for such alternatives, would affect cattle production in the US. Their results suggested that shifts in the prices of, and the demand for, plant-based meat alternatives, would have *'minor environmental and climate benefits.'*

Further, and drawing more on politics, and political economy, than economics, Clay et al. (2020), demonstrated how plant-based milk companies *'inherit and strategically deploy positive framings of milk as wholesome and convenient, as well as negative framings of dairy as environmentally damaging and cruel, to position plant-based as the better alternative.'* Clay et al. (2020) argued that *'by encouraging consumers to reach for plant-based as a way to cope with environmental catastrophe and a life out of balance'*, producers of plant-based milk alternatives are promoting *'a neoliberal ethic'* and that *'they individualize systemic problems and further entrench market mechanisms as solutions, thereby reinforcing the political economy of industrial agriculture.'*

More generally, Clay et al. (2020) suggested that plant-based milk alternatives *'provides a window onto the broader trend of plant-based food'*, and Clay et al. (2020) argued that as plant-based meat and dairy products increase and diversify, so it *'is crucial to consider how they might enable more democratic food futures'*, and that a shift to *'fexitarianism presents a potentially open, inclusive, and democratic form of consumption that could drive food system change in just and sustainable ways.'* Further, Clay et al. (2020) suggested that it is important to explore different pathways to plant-based diets and argued that plant-based milk alternatives can be made within the home, that food products so produced *'can give rise to environmentally beneficial, socially just, ethical, and nutritious ways of feeding people*', though *'assuring that they do, requires attention to processes of production, distribution, and consumption*.'

Conclusion

This paper has outlined if, why and how, the leading food retailers in the UK, have added plant-based alternatives to meat and dairy products to their retail offer. The paper revealed that the leading ten food retailers in the UK had highlighted the plant-based alternatives to meat and dairy produce within the retail offer and that a range of such products were available within their stores. The retailers claimed to be adding plant-based alternatives to their retail offer as part of their response to consumer demand and to health and environmental concerns. A number of illustrations demonstrated how plant-based alternatives to meat and dairy products were presented within stores. This exploratory paper it has its limitations, as outlined earlier, and it does not seem appropriate to conclude with any managerial recommendations, rather the paper can perhaps best be seen offering a mirror which can offer retailers a preliminary opportunity to reflect on the addition of plant-based alternatives to meat and dairy produce, to their retail offer.

At the same time, the paper provides a platform for a wide range of future research agendas. At the corporate level, research might be undertaken with senior retail executives to help to develop greater understanding of the forces driving food retailers to introduce plant-based alternatives to meat and dairy products, to explore how food retailers are developing new relationships with suppliers to introduce new plant-based ranges, and to explore how and why decisions are made on the positioning of plant-based alternatives vis-à-vis their traditional counterparts within stores. There are also research opportunities at store level which might include work on if, and how, store managers were experimenting with the positioning of plant-based products, and on how the impact of positioning on consumer buying behaviour was monitored and evaluated, and examining the staff training and development programmes designed to enhance, both employee and customer awareness of the benefits of plant-based alternatives to meat and dairy products. At the consumer level many research questions arise but two provide an illustration of possible research agendas. What are customer's motives in looking for, and buying, plant-based alternatives to meat and dairy products? To what extent does a price differential between plant-based alternatives to meat and dairy products and their traditional counterparts, influence buying behaviour.

References

Alae-Carew, C., Green, R., Stewart, C., Cook, B., Dangour, A.D. and Scheelbeek, P.F. D. (2022) The role of plant-based alternative foods in sustainable and healthy food systems: Consumption trends in the UK. *Science of the Total Environment* 807 (3) Retrieved from: https://www.sciencedirect.com/science/article/pii/S0048969721061192 [Accessed 25 January 2022)

Aldi (2022) *Vegan Range.* Retrieved from: https://groceries.aldi.co.uk/en-GB/vegan-range [Accessed 25 February 2022]

Alessandrini, R. et al. (2021) Nutritional Quality of Plant-Based Meat Products Available in the UK: A Cross-Sectional Survey.' *Nutrients* 13 (12) Retrieved from: https://www.mdpi.com/2072-6643/13/12/4225/htm [Accessed 14 February 2022]

Asda (2022) *Plant Based*. Retrieved from: https://groceries.asda.com/search/plant%20based?termType=Refined [Accessed 25 February 2022}

Asda (undated) *Better Planet Commitments*. Retrieved from: https://www.asda.com/creating-change-for-better/strategy-and-commitments/commitments [Accessed 25 February 2022]

Beacom, E. Bogue, J. and Repar, L. (2021) Market-oriented Development of Plant-Based Food: A User Segmentation Approach. *Journal of Food Products Marketing*, 27 (4), 204-222

Bloomberg Intelligence (2021) *Plant-Based Food Poised for Explosive Growth.* Retrieved from: https://assets.bbhub.io/professional/sites/10/1102795_PlantBased Foods.pdf [Accessed 13 January 2022]

British Standards Institute (2020a) *100% plant-based foods definition agreed for the first time.* Retrieved from: https://www.bsigroup.

com/en-GB/about-bsi/media-centre/press-releases/2020/december/100-plant-based-foods-definition-agreed-for-the-first-time/#:~:text=11%20December%202020,practices%20in%20communication%20and%20labelling. [Accessed 16 January 2022]

British Standards Institute (2020b) *100% plant-based foods. Characteristics and composition. Code of practice*. Retrieved from: https://shop.bsigroup.com/products/100-plant-based-foods-characteristics-and-composition-code-of-practice/standard [Accessed 16 January 2022]

Clay, N., Alexandra, E. S. Garnett, T. and Lorimer, J (2020) Palatable disruption: the politics of plant milk', *Agriculture and Human Values*, 37, 945-962

Clegg, M.E., Ribes, A. T., Reynolds, R., Kliem, K. and Stergiadis, S. (2021) A comparative assessment of the nutritional composition of dairy and plant-based dairy alternatives available for sale in the UK and the implications for consumers' dietary intakes. *Food Research International,* 48, Retrieved from: https://www.sciencedirect.com/science/article/pii/S0963996921004853?casa_token=0aBzSlNSrJ4AAAAA:64V-C2IrtSQqzp6UB7nQVfgHwIOYlcjS1nyCCyIsrrGuGCpKZEm0ngzJKpFqVel Nedhq36-i_A [Accessed 26 February 2022]

Co-op (2021a) *5 steps we've e taken towards our sustainability ambitions in 2021*. Retrieved from: https://www.coop.co.uk/blog/5-steps-weve-taken-towards-our-sustainability-ambitions-in-2021 [Accessed 25 February 2022]

Co-op (2021b) *Co-op Tackles Plant-Based Price Gap with Industry First Commitment.* Retrieved from: https://www.co-operative.coop/media/news-releases/co-op-tackles-plant-based-price-gap-with-industry-first-commitment [Accessed 25 February 2022]

Curtain, f. and Grafenauer, S. (2019) Plant-Based Meat Substitutes in the Flexitarian Age: An Audit of Products on Supermarket Shelves. *Nutrients*, 11 (11), Retrieved from: https://www.mdpi.com/2072-6643/11/11/2603 [Accessed 27 January 2022]

Deloitte (2019) *Plant Based Alternatives* Retrieved from: file:///C:/Users/s5750985/Downloads/deloitte-uk-plant-based-alternatives%20(1).pdf [Accessed 14 January 2022]

Fuentes, M. and Fuentes, C. (2021) Reconfiguring food materialities: plant-based food consumption in antagonistic landscapes. *Food Culture and Society*. Retrieved from: https://www.tandfonline.com/doi/epub/10.1080/15528014.2021.1903716?needAccess=true [Accessed 15 February 2022]

Good Food Institute (2022) *US retail market data for the plant-based industry*. Retrieved from: https://gfi.org/marketresearch/ [Accessed 14 February 2022]

Gravely, E. and Fraser, E. (2018) Transitions on the shopping floor: Investigating the role of Canadian supermarkets in alternative protein consumption. *Appetite*, 130, 136-146

John Lewis Partnership (2022) *Agriculture.* Retrieved from: https://www.johnlewispartnership.co.uk/csr/our-strategy/agriculture.html [Accessed 25 February 2022]

Lusk, J.L., Blaustein-Rejto, D., Shah, S. and Tonsor, G.T. (2022) Impact of plant-based meat alternatives on cattle inventories and greenhouse gas emissions. *Environmental Research Letters*, 17. Retrieved from: https://iopscience.iop.org/article/10.1088/1748-9326/ac4fda/pdf#:~:text=For%20every%2010%25%20reduction%20in%20the%20price%20of%20plant%2Dbased,plant%2Dbased%20meat%20alternatives%20are [Accessed 10 March 2022]

Kopplin, C.S. and Rausch, T. M. (2021) Above and beyond meat: The role of consumers' dietary behaviour for the purchase of plant-based substitutes. *Review of Managerial Science*, Retrieved from: https://link.springer.com/content/pdf/10.1007/s11846-021-00480-x.pdf [Accessed 24 February 2022]

Marks and Spencer (2022) *M&S Helps Customers To Spark Change And Enjoy Lower Carbon Diets in 2022*. Retrieved from: https://corporate.marksandspencer.com/media/press-releases/5ff7017fc6fe1bc26cb21d12/m-and-s-helps-customers-to-spark-change-and-enjoy-lower-carbon-diets-in-2022 [Accessed 25 January 2022]

Marks and Spencer (undated*) Plant Based And Totally Delicious*. Retrieved from: https://www.marksandspencer.com/c/food-to-order/adventures-in-food/plant-kitchen [Accessed 25 February 2022]

Morrisons (2021) *We are responding.* Retrieved from: https://www.morrisons-corporate.com/globalassets/corporatesite/corporate-responsibility/sustainability-report-2021/morrisons_sr_2021_interactive.pdf [Accessed 25 January 2022]

Retail Economics (2022) Top 10 UK Retailers: Food and Grocery. Retrieved from: https://www.retaileconomics.co.uk/top-10-retailers-food-and-grocery [Accessed 22 February 2022]

Rondoni, A. Millan, E. and Asioli, D (2021a) Plant-based eggs: Views of Industry Practitioners and Experts. *Journal of International Agribusiness and Marketing*, Retrieved from: https://www.tandfonline.com/doi/full/10.1080/08974438.2021.1915222 [Accessed 17 February 2021]

Rondoni, A., Grebitus, C., Millan, E. and Asioli, D. (2021b) Exploring customers' perceptions of plant-based eggs using concept mapping and semantic network analysis. *Food Quality and Preference,* 94, Retrieved from: https://doi.org/10.1016/j.foodqual.2021.104327 [Accessed 17 February 2022]

Sainsbury's (undated) *Plant Pioneers*. Retrieved from: https://www.sainsburys.co.uk/shop/gb/groceries/dietary-and-lifestyle/plant-pioneers#langId=44&storeId=10151&catalogId=10241&categoryId=461875&parent_category_rn=453878&top_category=453878&pageSize=60&orderBy=SEQUENCING%7CNEW%7CFAVOURITES_ONLY&searchTerm=&beginIndex=0&hideFilters=true [Accessed 25 February 2022]

Sainsbury's (2022) *Vegetarian and Plant Based*. Retrieved from: https://www.sainsburys.co.uk/shop/gb/groceries/dietary-and-lifestyle/vegetarian-food#langId=44&storeId=10151&catalogId=10241&categoryId=461871&parent_category_rn=453878&top_category=453878&pageSize=60&orderBy=FAVOURITES_ONLY%7CSEQUENCING%7CTOP_SELLERS%7CNEW&searchTerm=&beginIndex=0&hideFilters=true&facet= [Accessed 25 February 2022]

Statista (2021) *YA sales growth of plant-based meat substitutes in selected European countries from October 2019 to September 2020.* Retrieved from: https://www.statista.com/statistics/1258158/sales-growth-of-plant-based-meat-products-in-selected-european-countries/ [Assessed 16 January 2022]

Tesco (2022b) *Plant Based and Vegetarian.* Retrieved from: https://www.tesco.com/groceries/en-GB/zone/plant-based-and-vegetarian [Accessed 25 February 2022]

Tesco (2022a) *Sustainable Diets*. Retrieved from: https://www.tescoplc.com/sustainability/taking-action/healthy-sustainable-

products/sustainable-diets/ [Accessed 24 February 2022]

Trewern, J., Chenoweth, J., Christie, I. Keller, E. and Halevy, S. (2021) Are UK retailers well placed to deliver less and better meat and dairy to consumers? *Sustainable Consumption and Production*, 28, 154-163

The Global Food Institute (undated) *Meat's Sustainability Problem*. Retrieved from: https://gfi.org/images/uploads/2018/10/AnimalAgEnvironment.pdf [Accessed 10 March 2022]

Tonheim, L.E., Austad, E., Torheim, L.E. and Henjum, S (2022) Plant-based meat and dairy substitutes on the Norwegian market: comparing macronutrient content in substitutes with equivalent meat and dairy products. *Journal of Nutritional Science,* Retrieved from: https://www.cambridge.org/core/services/aop-cambridge-core/content/view/542D087A73A860277815E01840B5602E/S2048679022000064a.pdf/div-class-title-plant-based-meat-and-dairy-substitutes-on-the-norwegian-market-comparing-macronutrient-content-in-substitutes-with-equivalent-meat-and-dairy-products-div.pdf [Accessed 15 February 2022]

Zhang, Y. Y., Hughes, J., and Grafenauer, S. (2020) Got Mylk? The emerging role of Australian plant-based milk alternatives as a cow's milk substitute. *Nutrients,* 12, (5), Retrieved from https://www.mdpi.com/2072-6643/12/5/1254 [Accessed 25 February 2022]