

## IMPOSSIBLE FOODS, BEYOND BURGERS, AND PLANT-BASED MEAT<sup>1</sup>

*Neil Bendle wrote this case solely to provide material for class discussion. The author does not intend to illustrate either effective or ineffective handling of a managerial situation. The author may have disguised certain names and other identifying information to protect confidentiality.*

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As the leaves fell in late 2019, Maya, a small investor, was remixing her stock portfolio. Her day job, running a medium-sized hotel, meant meeting people every day, and she felt she had a good view of the needs of the public. Her portfolio included quick-service restaurants (QSRs), and her research revealed product launches by two relatively new companies that were partnering with QSRs. Impossible Foods had made a splash at Burger King with its Impossible Whopper, and Beyond Meat had sparked attention through its association with the Tim Hortons coffee chain. Both Impossible Foods and Beyond Meat produced plant-based meat. To Maya, the term *plant-based meat* was intriguing, although oxymoronic. Plant-based meat was definitely making waves. Should Maya invest in it?

### PLANT-BASED FOOD

Today, about half of all American adults—117 million people—have one or more preventable, chronic diseases, many of which are related to poor quality eating patterns and physical inactivity. . . . In 2008, the medical costs linked to obesity were estimated to be \$147 billion.<sup>2</sup>

Meat remained a central component of many consumers' diets. Between 1970 and 2014, US chicken consumption doubled, though beef consumption fell by more than a third.<sup>3</sup> Despite the popularity of meat, except for some peoples living in especially harsh environments (e.g., the Inuit of Greenland), plant-based foods were central to healthy human diets.<sup>4</sup> Recent years had seen a movement toward foods derived from plants (i.e., plant-based foods) that served similar roles in the diet as animal products. To some consumers, it was likely that the best of both worlds would be something that tasted like meat but without some of the concerns that eating meat caused. Was this possible?

### Milk Substitutes

Food markets had witnessed a dramatic rise in sales of plant-based milk, also known as non-dairy milk or alternative milk. The most popular plant-based milk products were derived from almonds (e.g., Silk<sup>5</sup>), soy (e.g., So Nice<sup>6</sup>), and oats (e.g., Pacific Foods<sup>7</sup>). The US non-dairy milk market was worth \$1.9 billion<sup>8</sup> per year,<sup>9</sup> accounting for 15 per cent of the entire milk market.<sup>10</sup> In addition to vegans (people who avoided consuming animal products, representing about 3 per cent of the US population<sup>11</sup>), natural sales targets for

non-dairy milk included lactose-intolerant people who were unable to digest lactose, a sugar found in dairy products. Lactose intolerance was relatively rare in people of Northern European descent (approximately 5 per cent of the population) but common in other populations (more than 90 per cent in some communities of East Asian descent). Overall, approximately 65 per cent of the human population experienced some form of reduced ability to digest lactose.<sup>12</sup>

### Popular Meat Substitutes for Vegetarians and Vegans

For many years, non-meat foods had been marketed largely to vegetarians and vegans. (Vegetarians, who represented approximately 5 per cent of the US population, did not eat meat but did consume dairy and eggs, from animals, whereas vegans, representing 3 per cent of the US population, abstained from eating any animal products.)<sup>13</sup> Many foods provided protein but, compared with animal-derived meat, often differed significantly in taste, texture, and constitution (e.g., bean-derived products, such as black bean veggie burgers.)<sup>14</sup> Over time, many firms entered the non-meat arena, and the products they promoted as substitutes for animal-based meat increasingly became more similar to meat, taking the form of patties, sausages, and minced products.

Turtle Island Foods, which produced Tofurky, had been in business since 1980, making a variety of animal-free “meat” products.<sup>15</sup> This company was especially well-known for its roasts, which provided an alternative to traditional holiday turkey meals, by using non-GMO (i.e., non-genetically modified organism) soybeans. This family-owned company was a certified B Corporation. This designation was a private certification awarded to for-profit corporations that met the “highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose.”<sup>16</sup>

Quorn was a food developed in the 1960s by Lord Rank<sup>17</sup> in the United Kingdom. Quorn was created using mycoprotein, a low-fat, protein-rich protein derived from fungus and used to create many different Quorn products. MorningStar Farms, a brand owned by Kellogg,<sup>18</sup> had produced meat alternatives for more than 40 years. Yves Veggie Cuisine, which offered another range of meat alternatives, was operated by The Hain-Celestial Canada, ULC, “a leading organic and natural products company providing consumers with A Healthier Way Of Life.”<sup>19</sup>

By 2019, companies claimed to have produced plant-based products that did not just serve as a substitute for meat but were similar to animal-based meat. Perhaps the two most high-profile companies to make this claim were Impossible Foods and Beyond Meat, two companies that had secured significant deals with both grocers and quick-service restaurants.

### Impossible Foods

Impossible Foods launched its first product, the Impossible Burger, in 2016. The process involved creating plant-based heme (which provided the meat taste) by fermenting genetically engineered yeast. The base of the product was GMO soy<sup>20</sup> and potato proteins.<sup>21</sup> From Redwood City, California, Impossible Foods was established by Stanford University Professor Patrick Brown. He aimed to make the global food system sustainable and to tackle climate change<sup>22</sup> because, he explained, “using animals to make meat is a prehistoric and destructive technology. We’re making meat from plants so that we never have to use animals again. That way, we can eat all the meat we want, for as long as we want. And save the best planet in the known universe.”<sup>23</sup> As of 2019, Impossible Foods remained in private hands with no immediate intention to go public.<sup>24</sup>

## Beyond Meat

Launched in 2009, Los Angeles-based Beyond Meat could point to 2013 as an inflection point. That year, PETA (People for the Ethical Treatment of Animals) named it PETA's company of the year,<sup>25</sup> and Beyond Meat gained access to Whole Foods,<sup>26</sup> an upmarket US grocer that was later sold to Amazon. In 2018, Beyond Meat opened a second processing facility, in Columbia, Missouri,<sup>27</sup> and in 2019 announced plans for a third facility in the Netherlands.<sup>28</sup>

The start of Beyond Meat's mission statement clarified the company's aim: "At Beyond Meat, we believe there is a better way to feed the planet. Our mission is to create The Future of Protein®—delicious plant-based burgers, beef, sausage, crumbles, and more." The company produced a pea-based product that contained no soy, gluten, or GMOs.<sup>29</sup>

On May 2, 2019, Beyond Meat launched its initial public offering (IPO), which saw the company valued at \$3.8 billion. By summer its valuation had reached \$13 billion. At the time of writing this case (October 2019) the valuation was nearer \$6 billion. See Exhibit 1a for Beyond Meat's market value compared with Tyson Foods, a major food manufacturer and an early Beyond Meat investor. Exhibit 1b compares the market performance of Beyond Meat and Tyson Foods.

## Other Brands, Blended Meat, and Cultured Meat

Some of the biggest names in food had increased their commitment to plant-based meat. For example, Conagra Brands promoted its newly purchased Gardein line,<sup>30</sup> while Nestlé promised an Awesome Burger as part of its Sweet Earth Brand.<sup>31</sup> The Kraft Heinz Company and Unilever were also looking to compete with a plant-based product.<sup>32</sup> Rather than worrying about competitors with deeper pockets, Beyond Meat said it welcomed the competition because big players helped to legitimize the space.<sup>33</sup>

While most plant-based food focused on vegan product lines, some saw the opportunity for food that blended both plant and animal proteins. For example, Tyson Foods had invested in Beyond Meat, only to then sell its stake and announce plans for products that blended beef and plant-based materials.<sup>34</sup>

Also, on the horizon was commercial cultured, or "clean" meat that was grown in a lab. This product was not plant-based but based on animal cells that had been directly cultured in the lab. This commercially produced meat did not require raising or killing the full animal. Technically, production was feasible, but the first batch cost \$425,000 a pound, or \$192,776 a kilogram. Many observers had high hopes the price could soon fall dramatically to be comparable to the price of organically reared meat.<sup>35</sup>

## THE RISE OF PLANT-BASED MEAT

Plant-based meat took off in 2019, with major distribution deals for Impossible Foods and Beyond Meat, and a massive IPO for Beyond Meat. Exhibit 2 shows Google Trends data on searches for Tofurky, Beyond Meat, and the Impossible Burger. Tofurky saw steady but modest interest with seasonal spikes (e.g., at Thanksgiving), while in 2019, the other plant-based meats experienced a major interest spike.

## Distribution

By fall 2019, Beyond Meat products could be found at Target stores, and in major supermarkets such as Publix, Safeway, Giant, and Harris Teeter. Many well-known QSRs also began to serve Beyond Meat,

including TGI Friday's, A&W, Carl's Jr., Del Taco, and Dunkin (Donuts).<sup>36</sup> Revenues reached \$67.3 million in Q2, 2019, a 287-per-cent increase over the same period in 2018.<sup>37</sup>

Impossible Burgers found distribution in Wegmans (a mid-Atlantic/New England grocery chain) and became the number one packaged item at Gelson's (a medium-sized Southern California grocery chain). The company found that "Impossible Burger buyers spent 72 per cent more than the average shopper" and that "the most commonly cross-shopped items were: brioche buns, marinara sauce and cheddar cheese slices."<sup>38</sup>

After a launch with White Castle,<sup>39</sup> Impossible Foods teamed with Burger King to launch the Impossible Whopper.<sup>40</sup> Early signs were positive: with considerable marketing support, the Impossible Whopper was predicted to contribute to 6 per cent same-store sales growth in Q3 2019 at Burger King. Notably, the average bill for orders including Impossible Whoppers was \$10 or higher, compared with Burger King's average bill of \$7.36.<sup>41</sup> A test market in St. Louis showed that traffic to Burger King outlets offering the Impossible Whopper grew 18 per cent, compared with no increase for McDonald's venues in St. Louis, or for Burger King in Kansas City. Further analysis suggested a nationwide 2-per-cent sales increase for Burger King could be attributed to the launch. On the back of these announced results, McDonald's even announced its test of a plant-based burger.<sup>42</sup>

### Marketing Strategy: The Meat Aisle

Plant-based meat products relied on an unusual location in supermarkets—they could be found in the meat aisle. This placement followed the success of plant-based milk, which had positioned itself as directly comparable with, and was often stocked adjacent to, dairy milk.<sup>43</sup> Situating plant-based milk next to dairy milk communicated to consumers that plant-based milk did exactly what dairy milk did, allowing consumers to envisage how it could be used—for example, by pouring it on cereal and into hot drinks. Vegetarian alternatives had traditionally been housed in their own grocery section, but grocers had started plant-based meat sections in the meat aisle.<sup>44</sup> For Beyond Meat, being displayed in the meat aisle was "absolutely critical." If a grocer refused to locate Beyond Meat products in the meat aisle, then Beyond Meat refused to help promote the product's availability at that store.<sup>45</sup>

The prices charged for plant-based meat were comparable with, or a little more than, animal-based meat. Supermarket prices were \$11.50 for the Beyond Burger, \$12 for the Impossible Burger, and \$7–\$9 for posh meat patties.<sup>46</sup>

### The Go Beyond Campaign

Beyond Meat's celebrity endorsers, known as Beyond Ambassadors, included successful sporting figures, such as basketball pros Chris Paul, Kyrie Irving, and Maya Moore; free climber Alex Honnold; and surfer Tia Blanco. Ambassador and professional chef Charity Morgan said, "Players love getting a huge double manly sized Beyond Burger. It opens the doors for many other plant-based meals. They realize it's no compromise from what they usually eat." The company said the Go Beyond campaign "isn't a polite invitation. It's a bold challenge. To break barriers. Defy convention. Shatter expectations."<sup>47</sup>

### WHY WOULD PEOPLE EAT PLANT-BASED MEAT?

By shifting from animal to plant-based meat, we can address four growing global issues: human health, climate change, constraints on natural resources, and animal welfare.<sup>48</sup>

Nearly two-fifths of Americans who described themselves as carnivores told a survey by Mintel in February that they wanted to add more plant-based foods to their diet. Some call themselves “flexitarians”: not wholly vegetarian or vegan, but anxious to reduce their meat consumption nonetheless. Young people are the most fervently flexible.<sup>49</sup>

## Human Health

Many people did not eat healthily. In 2016, 39 per cent of adults (over 18 years) were overweight, with a body mass index (BMI) greater than or equal to 25, of which 13 per cent were obese, with a BMI greater than or equal to 30. The fundamental cause of being overweight was an imbalance between calories taken in and calories expended. In addition to an increase in sedentary lifestyles, people were increasingly consuming high-fat, energy-dense foods.<sup>50</sup>

While meat could provide useful protein, vitamins, and minerals, many people ate more meat, and more processed meat, than was thought to be healthy. The National Health Service (NHS) in the United Kingdom advised reducing meat consumption to 70 grams of meat daily, noting, “A cooked breakfast containing two typical British sausages and two rashers of bacon is equivalent to 130g.” The NHS further suggested:

If you eat a lot of red and processed meat, it is recommended that you cut down as there is likely to be a link between red and processed meat and bowel cancer. . . . Some meats are high in fat, especially saturated fat. Eating a lot of saturated fat can raise cholesterol levels in the blood, and having high cholesterol raises your risk of heart disease.<sup>51</sup>

Canada’s Food Guide advised consuming less meat and choosing protein foods that came from plants more often.<sup>52</sup> Plant-based meats were seen as a potentially healthy alternative to animal-based meats, and avoided the risk of colorectal cancer arising from eating red meat.<sup>53</sup> Scientific tests on the long-term health implications of eating plant-based meat were not yet available,<sup>54</sup> but it was possible to compare the nutritional information. A Harvard study concluded, “The good news: Meatless burgers are a good source of protein, vitamins, and minerals. . . . The bad news: Meatless burgers are heavily processed and high in saturated fat.” Highlights of the study noted statistics for 4 ounces of different food stuffs:

- Ground turkey had 170 calories, 85 per cent lean ground beef had 240, Impossible Burger had 240, Beyond Burger had 250, and a black bean burger had 260 calories.
- Saturated fat for ground turkey was 2 grams, 85 per cent lean ground beef had 6 grams, Impossible Burger had 8 grams, Beyond Burger had 6 grams, and a black bean burger had 1.5 grams.
- Ground turkey had 80 mg of sodium, 85 per cent lean ground beef had 70 mg, Impossible Burger had 370 mg, Beyond Burger had 390 mg, and a black bean burger had 190 mg of sodium.
- Ground turkey and 85 per cent lean ground beef both had 80 mg of cholesterol but the Impossible Burger, Beyond Burger, and a black bean burger had 0 mg.<sup>55</sup>

## Animal Welfare

Views differed on the ethical acceptability of slaughtering animals for food. Some felt that it might be permissible if the animals were treated carefully and the slaughterhouse was “quick and respectful,” practices often associated with a higher price tag.<sup>56</sup> The North American Meat Institute suggested that “one common theme among all faiths has been a respect for animals, avoidance of animal suffering and appreciation for the nourishment that they provide. These themes permeate the practices of the meat packing industry.”<sup>57</sup> Some, however, disagreed, and argued that it was never ethically permissible to kill animals for food.<sup>58</sup>

## Environmental Impact: Climate Change and Constraints on Natural Resources

A third potential benefit of plant-based food was a lower environmental impact, as many people were concerned about the sustainability of food production. In 2019, world attention had focused on the Amazon rainforest, where many blamed the illegal clearance of land for agricultural purposes for creating the conditions that had led to a series of devastating fires.<sup>59</sup>

Impossible Foods said that compared with making traditional meat burgers, making Impossible burgers used 96 per cent less land and 87 per cent less water, and produced 89 per cent fewer greenhouse gas emissions. Each year, the company published an impact report on its progress toward a more sustainable food system.<sup>60</sup> Beyond Meat said that compared with producing a beef burger, producing a Beyond Meat Burger used 93 per cent less land and 99 per cent less water, producing 90 per cent fewer greenhouse gas emissions and using 46 per cent less energy.<sup>61</sup> Other competitors such as Quorn made similar claims: “By choosing Quorn, you choose to protect the planet. Quorn Mince uses 90 per cent less land and produces 90 per cent fewer carbon emissions than beef.”<sup>62</sup> Ron Milo of the Weizmann Institute of Science and Alon Shepon of Harvard University produced independent data on the environmental impact, shown in Exhibit 3.

## LOOMING CHALLENGES FOR PLANT-BASED MEAT

The success of plant-based milk and meat had not gone unnoticed, but not everyone was happy. Critics of plant-based meat argued cultural practices around animal-based meat created unique communal bonds. One said, “We all participated in the bloodletting, the singeing and scraping off of the hair, the gutting; we all bore responsibility for her death.”<sup>63</sup> Others pointed out that, globally, meat production was on the rise.<sup>64</sup>

## Governmental Action against Plant-Based Foods

In 2017, the European Court of Justice said that plant-based foods, such as milk, could not be sold using the terms more familiar for animal-based products. This ruling was to avoid possible “confusion” surrounding dairy and non-dairy products. Exemptions were given for common terms such as *coconut milk*, *almond milk*, and *peanut butter*, but soy- and tofu-based products were not allowed to use terms such as *milk*.<sup>65</sup> This decision did not noticeably impact demand.<sup>66</sup> The US Food and Drug Administration (FDA) was considering a similar stance, citing concerns that toddlers could be given non-dairy milk by parents, expecting it to have the same nutritional benefits as dairy milk. Non-dairy milks proponents noted that non-dairy milks were common across cultures and historical periods.<sup>67</sup>

The National Cattlemen’s Beef Association lobbied the FDA to ban the labelling of plant-based products as *meat*, while individual US states (e.g., Arkansas and Mississippi) also pursued bans.<sup>68</sup> Missouri was the first to enact a “real meat” law. Soy-based products could not be labelled as *meat* or *meaty* but instead had to be labelled *protein textured*.<sup>69</sup> An alliance that included the ACLU (American Civil Liberties Union) defended the plant-based meats, citing freedom of speech, attempted protection of product integrity, and lack of consumer confusion.<sup>70</sup> “No one’s confused when they buy veggie sausage. Forcing them to call it a “veggie tube” is more confusing,” said Amanda Howell of the Animal Legal Defense Fund.<sup>71</sup> Critics were unimpressed by attempted bans on the term *meat*, with one saying, “Can we just pause for a moment and acknowledge the irony of the animal agriculture industry calling for transparency in food labeling.”<sup>72</sup> The executive director of the Good Food Institute, which promotes plant-based and clean/cultured meat,<sup>73</sup> said, “We’re confident that the court will overturn this anti-competitive and unconstitutional law.”<sup>74</sup>

## Chipotle, Whole Foods, and Tim Hortons

Chipotle and Whole Foods, despite their commitments to natural food, did not back plant-based meats. The Chipotle chief executive officer (CEO) said that the new meat offerings were too processed and did not represent “food with integrity.” Ethan Brown, Beyond Meat’s CEO, responded, “You can come to our facility anytime. . . . Don’t call me, just knock on the door. I invite you to do the same with all of Chipotle’s meat-processing facilities. They won’t let you, and if they did, you wouldn’t want to see it.”<sup>75</sup> Although Whole Foods stocked Beyond Meat, its CEO John Mackey, a vegan, said, “I don’t think eating highly processed foods is healthy. I think people thrive on eating whole foods.”<sup>76</sup> Mackey echoed the idea that plant-based “foods are less like a salad, and more like a Pringle.”<sup>77</sup> Some suggested this criticism emerged from classism, and a belief that only radical solutions were worthy.<sup>78</sup>

Tim Hortons, the popular Canadian coffee and doughnut chain, launched Beyond Meat in its restaurants but only a few months later announced that Beyond Meat was being withdrawn outside of Ontario and British Columbia, the two provinces where the product received a particularly positive reception.<sup>79</sup>

## Profitability

While Beyond Meat had a successful IPO, the company had little history and no evidence of profitability. The Beyond Meat S1 filing was upfront: “We have a history of losses, and we may be unable to achieve or sustain profitability.”<sup>80</sup> Financial statements showed that the company was not profitable. For the quarter ending June 29, 2019, the company revenues of \$67.3 million incurred a pre-tax loss of \$9.4 million.<sup>81</sup>

## Unique Challenges for Impossible Foods

Creating plant-based meat that was a relatively close imitation of animal-based meat involved challenges. Scientists working on creating a plant-based meat needed to compare their products to animal-based meat. To create a meaty taste, Impossible Foods relied on heme, which had been tested on rats, a practice that PETA believed was unnecessary.<sup>82</sup> Beyond Meat did not do any animal testing.<sup>83</sup>

Another challenge for the Impossible Burger was its use of GMOs, which some consumers believed were damaging for health and the environment. Such concerns had led to bans on GMOs in numerous countries.<sup>84</sup> That said, the US FDA tested and passed the Impossible Burger’s heme.<sup>85</sup> Impossible Foods was upfront about its use of GMOs:

We’ve always embraced the responsible, constructive use of genetic engineering to solve critical environmental, health, safety and food security problems, and have long advocated for responsible use of this technology in the food system. We wouldn’t be able to make a product that rivals or surpasses beef on flavor, texture, nutrition, sustainability, versatility and accessibility without it.<sup>86</sup>

The soy used in the Impossible Burger was also from GMO sources. Initially, Impossible Foods wanted to use non-GMO soy solely to avoid controversy, although the company believed the health effects of GMO soy and non-GMO soy to be identical. Yet, Impossible Foods decided using GMO soy would be better for the environment. Sourcing non-GMO soy would have involved importing it 6,500 miles (10,460 kilometres) from Brazil, thereby considerably increasing the company’s carbon footprint.<sup>87</sup>

**IS PLANT-BASED MEAT, MEAT? DOES IT DO WHAT IT SAYS?**

As 2019 came to an end, plant-based meat had experienced a remarkable year. Plant-based meat firms had made some successful marketing choices, but what exactly had led to success? Furthermore, was it appropriate to describe plant-based meats as meat? What did that mean? Did the term confuse consumers?

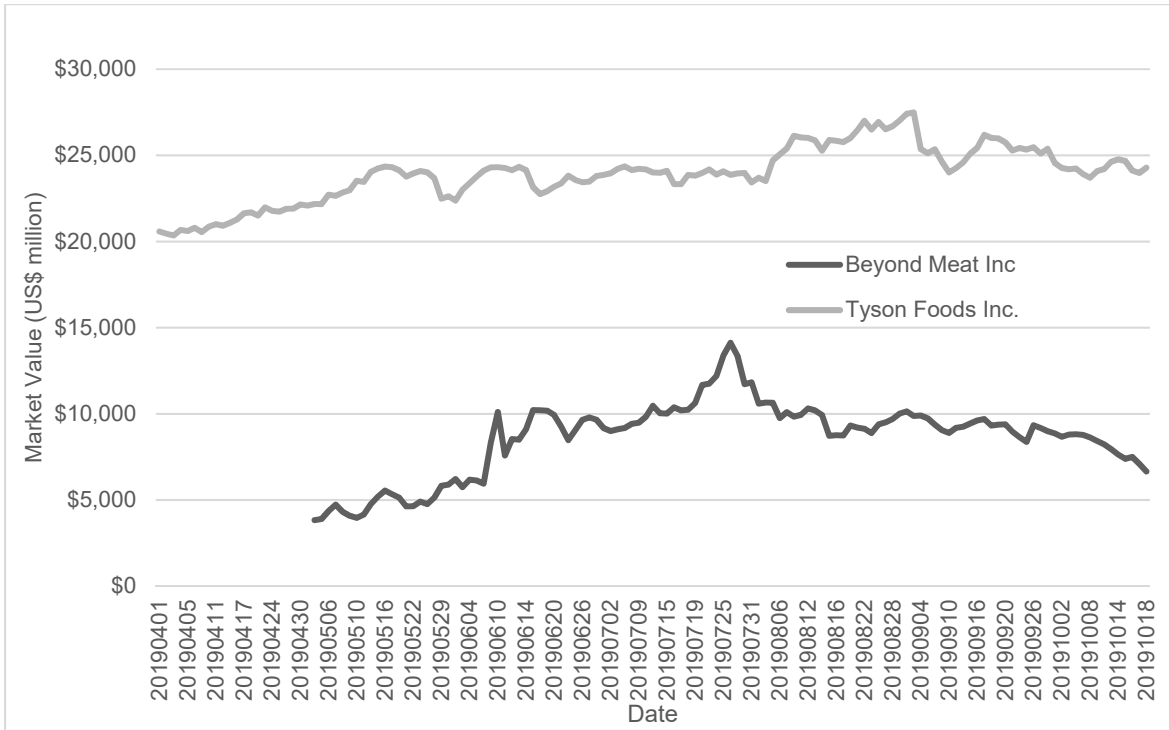
Did those consumers who knew that these plant-based products were not from animals fully understand the ingredients and processes behind the new “meats”? What benefits did the products deliver, and what benefits did the consumer perceive that the products delivered?

Could the success of plant-based meats continue as consumers moved toward a more plant-based diet, or was plant-based eating a fad that would go the way of fidget spinners? And should Maya to seek to invest in plant-based meats and add Beyond Meat to her portfolio?

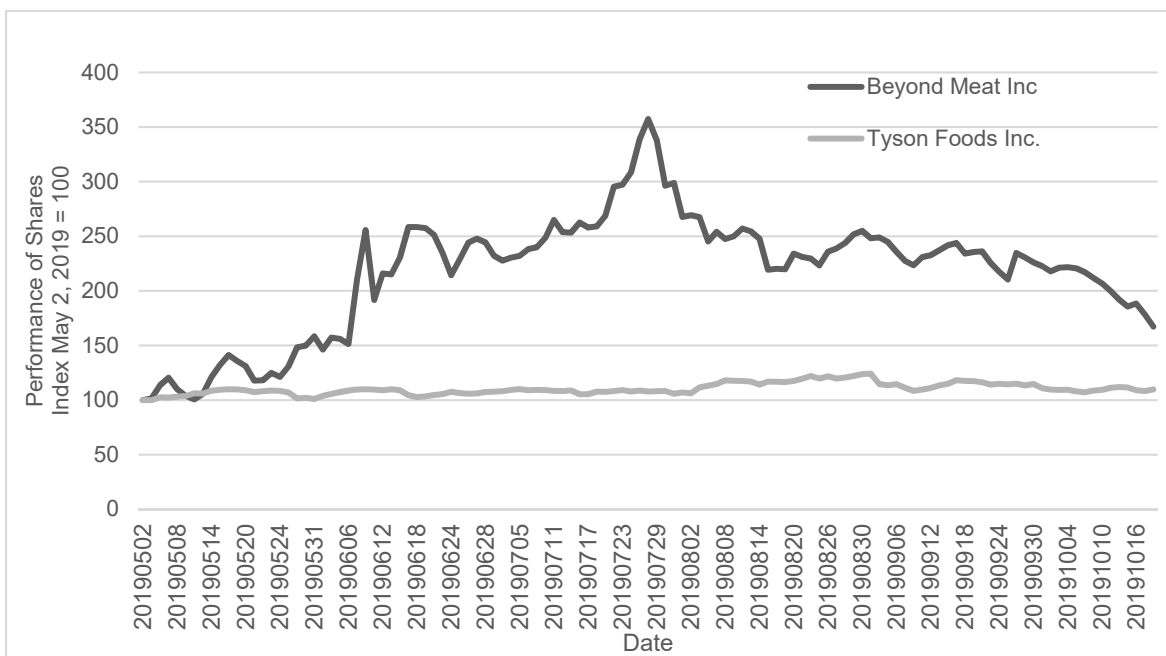


**EXHIBIT 1: MARKET VALUE AND PERFORMANCE OF BEYOND MEAT AND TYSON FOODS**

**a: Market Value of Beyond Meat and Tyson Foods, April 2019–October 2019)**

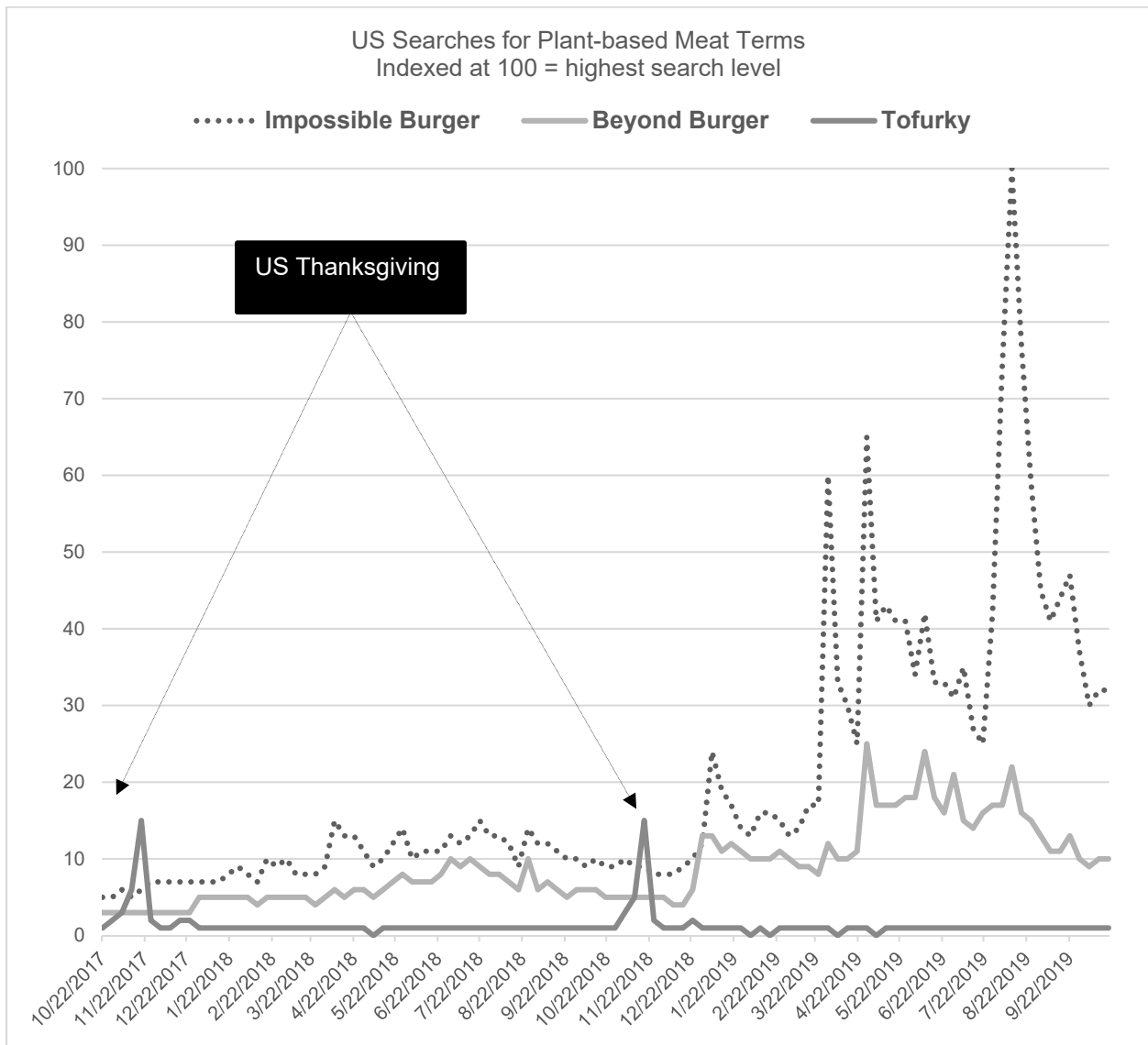


**b: Relative Market Performance of Beyond Meat and Tyson Foods, May 2019–October 2019**



Source: Created by the case author using stock market data from Compustat Daily Updates - Security Daily.

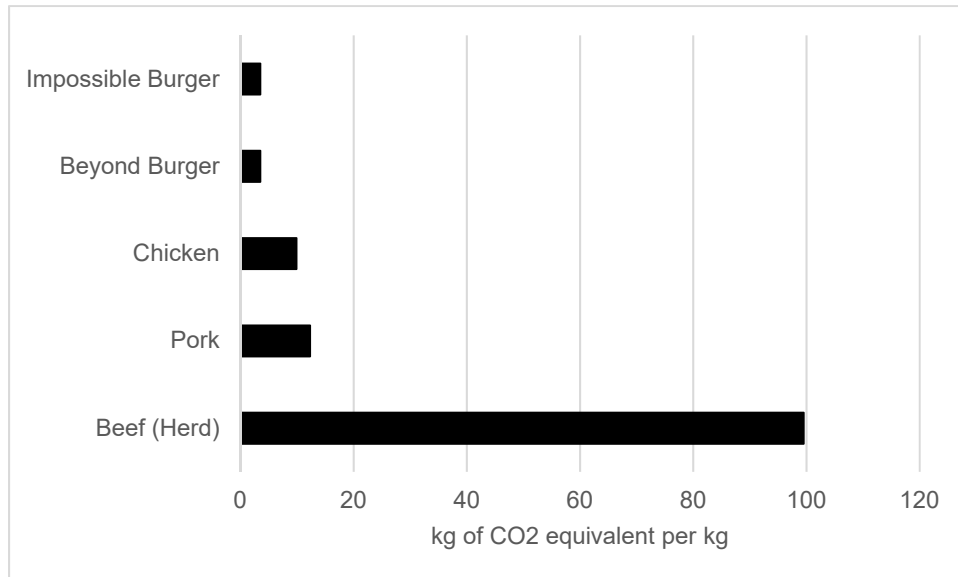
### EXHIBIT 2: GOOGLE TRENDS DATA: SEARCHES FOR SELECTED PLANT-BASED MEAT RELATED TERMS, OCTOBER 2017–SEPTEMBER 2019



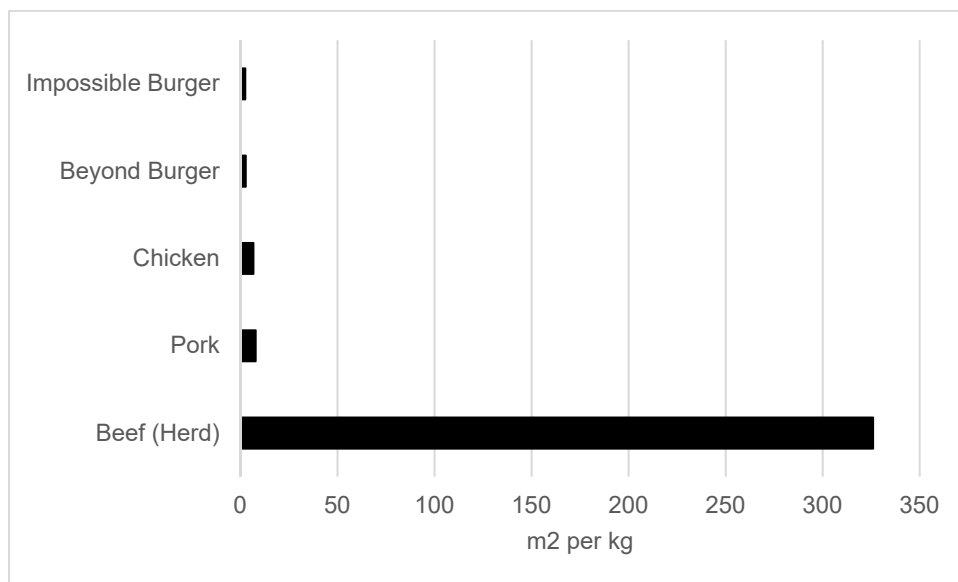
Source: Created by the case author using Google Trends, accessed October 24, 2020, <https://trends.google.com/trends/?geo=US>.

**EXHIBIT 3: SELECTED ENVIRONMENTAL IMPACTS OF MEAT PRODUCTION VERSUS PLANT-BASE MEAT PRODUCTION**

**a) Greenhouse Gas Emissions: Kilogram of CO<sub>2</sub> (carbon dioxide) equivalent per kilogram of food**



**b) Land Use: Square metres (m<sup>2</sup>) per kilogram (kg) of food**



Source: Created by the case author using data from Ron Milo and Alon Shepon, quoted in "Fake Moos: Plant-Based Meat Could Create a Radically Different Food Chain," *Economist*, October 12, 2019, accessed October 24, 2019, [www.economist.com/international/2019/10/12/plant-based-meat-could-create-a-radically-different-food-chain](http://www.economist.com/international/2019/10/12/plant-based-meat-could-create-a-radically-different-food-chain).

## ENDNOTES

- <sup>1</sup> This case has been written on the basis of published sources only. Consequently, the interpretations and perspectives are not necessarily those of any of the companies discussed.
- <sup>2</sup> US Department of Health and Human Services and US Department of Agriculture, *2015–2020 Dietary Guidelines for Americans*, 8th ed., December 2015, accessed October 24, 2019, [https://health.gov/sites/default/files/2019-09/2015-2020\\_Dietary\\_Guidelines.pdf](https://health.gov/sites/default/files/2019-09/2015-2020_Dietary_Guidelines.pdf).
- <sup>3</sup> Drew DeSilver, "What's on Your Table? How America's Diet Has Changed over the Decades," Pew Research Centre, Fact Tank, December 13, 2016, accessed October 24, 2019, [www.pewresearch.org/fact-tank/2016/12/13/whats-on-your-table-how-americas-diet-has-changed-over-the-decades/](http://www.pewresearch.org/fact-tank/2016/12/13/whats-on-your-table-how-americas-diet-has-changed-over-the-decades/).
- <sup>4</sup> Ann Gibbons, "The Evolution of Diet," *National Geographic*, accessed October 24, 2019, [www.nationalgeographic.com/foodfeatures/evolution-of-diet/](http://www.nationalgeographic.com/foodfeatures/evolution-of-diet/).
- <sup>5</sup> Silk, "The Many Flavors of Progress. Taste 'Em All," accessed October 24, 2019, <https://silk.com/plant-based-products/>.
- <sup>6</sup> Earth's Own, "Non-GMO, Organic, Crazy Refreshing, and Offers Heaps of Protein," accessed October 24, 2019, <https://earthsown.com/product/sonice-250mlsingle-serve-organicsoy-original/>.
- <sup>7</sup> Pacific Foods, "Oat Beverages," accessed October 24, 2019, [www.pacificfoods.com/our-products/oat-plant-based-beverages/](http://www.pacificfoods.com/our-products/oat-plant-based-beverages/).
- <sup>8</sup> All currency amounts are in US\$.<sup>3</sup>
- <sup>9</sup> Janet Forgive, "Plant-Based Food Sales Continue to Grow by Double Digits, Fueled by Shift in Grocery Store Placement," *Forbes*, July 16, 2019, accessed October 24, 2019, [www.forbes.com/sites/janetforgive/2019/07/16/plant-based-food-sales-pick-up-the-pace-as-product-placement-shifts/](http://www.forbes.com/sites/janetforgive/2019/07/16/plant-based-food-sales-pick-up-the-pace-as-product-placement-shifts/).
- <sup>10</sup> "Fake Moos: Plant-Based Meat Could Create a Radically Different Food Chain," *Economist*, October 12, 2019, accessed October 24, 2019, [www.economist.com/international/2019/10/12/plant-based-meat-could-create-a-radically-different-food-chain](http://www.economist.com/international/2019/10/12/plant-based-meat-could-create-a-radically-different-food-chain).
- <sup>11</sup> R. J. Reinhart, "Snapshot: Few Americans Vegetarian or Vegan," Gallup, August 1, 2018, accessed October 26, 2019, <https://news.gallup.com/poll/238328/snapshot-few-americans-vegetarian-vegan.aspx>.
- <sup>12</sup> "Lactose Intolerance," US National Library of Medicine, Health Conditions, accessed October 24, 2019, <https://ghr.nlm.nih.gov/condition/lactose-intolerance#statistics>.
- <sup>13</sup> Reinhart, op. cit.
- <sup>14</sup> Amy's, "Organic Black Bean Veggie Burger," accessed October 23, 2019, [www.amys.com/our-foods/organic-black-bean-veggie-burger](http://www.amys.com/our-foods/organic-black-bean-veggie-burger).
- <sup>15</sup> Tofurky, "Yum for All," accessed October 23, 2019, <https://tofurky.com/our-story/yum-for-all/>.
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