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## The Livestock Industry's Response to Meatless Meat

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*This is the fourth in a series of six articles from the author's master's thesis about plant-based meat. Previous articles in this series are: farmdoc daily, July 22, 2021, July 29, 2021, and August 5, 2021.*

Meatless meat sales grew rapidly in between 2019-2021. The Good Food Institute reports that plant-based meat dollar sales have increased 43% over the past two years, and 57% percent of American households have purchased plant-based meat (2021). As meatless meat takes aim at the animal meat market, the question remains how much of the meat market it can capture. It is unlikely that the industry will not steadily capture the entire meat market in the way it intends to, because the livestock and feed industries will respond dynamically to this new competition, and their response eventually could stall meatless meat's growth. This article provides an overview of ways the U.S. livestock industry likely will respond to competition from meatless meat.

As shown by consumer willingness-to-pay surveys discussed in the last article, the cost of meatless meat will be an important determinant of the size of its market. The more cost competitive meatless meat is, the more market share it will take. The industry aims to achieve price parity with animal meat, but its ability to drive down cost remains to be seen. If it does achieve price parity, consumer acceptability studies suggest that the initial market share will be 25-30%. These figures assume the expansion of the market itself, because meatless meat draws in customers who would otherwise not purchase meat at all.

If the industry does achieve price parity with meat, however, expect a dynamic response from the livestock industry. The livestock industry will be able to respond strategically to meatless meat; even without the competition posed by meatless meat, the industry has been becoming increasingly efficient, thanks to advances in livestock breeding and feed formulation. Because of the size and sophistication of the industry, livestock will be able to lower its prices to undercut meatless meat, breaking the market equilibrium. The pressure from meatless meat also will spur livestock innovation in an already sophisticated agricultural research industry, increasing livestock's capacity to undercut meatless meat.

The commercial agriculture industry is closely linked with the livestock industry, and it, too, will respond to the growth of the meatless meat market. Corn and soybean are staples of livestock diets, and livestock

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feed is the number one use of U.S. corn and soy worldwide (United Soybean Board, 2020). Commercial agriculture is also becoming increasingly efficient as plant breeders and agronomists increase crop yields annually. If demand for livestock dips, in the short run farmers will face lower commodity prices as a result of their increased supply. These lower prices would feed into declining livestock prices, which again would make it more difficult for meatless meat to compete with livestock in the short run. This increased competition would cause price sensitive consumers who had switched to meatless meat because of lower prices to return to animal meat.

The variety of meat cuts offered by meatless meat also will affect meat prices. There are dozens of different cuts of meat, and currently meatless meat offers only a few of them, namely, the lower end meats such as ground meat. Limited offerings of meatless meat cuts will distort animal meat prices because the livestock industry cannot adjust its supply of certain cuts while demand for other cuts remains steady – animal meat cuts are joint products. Price competition would result. In this scenario, conventional ground meat prices would drop far below the prices that meatless meat can offer because there would be a surplus and livestock cannot readily adjust its supply if demand for other cuts of meat remains constant. Meatless meat would then have to compete with those dropped prices. This competition would benefit consumers, but it could imperil meatless meat’s strategy of undercutting the price of animal meat.

Besides adjusting price, the livestock industry likely will challenge some of the claims made by meatless meat. For example, it will challenge the claim that meatless meat products are nutritionally superior, pointing out that plant-based meat is highly processed, and highly processed foods have been linked to obesity and other health problems (Hall et al., 2019). Similarly, the livestock industry could criticize lab-grown meat the same way that GMOs have been criticized. Although there is no immediate evidence that consuming these products contributes to poor health, the potential health side effects of consuming these products long-term are not yet known. Livestock also may seek to distinguish itself from meatless meat by defining itself as ‘natural,’ a quality in food highly valued by U.S. consumers (Consumer Reports, 2016). Finally, livestock may conduct its own life cycle analyses to reckon with the environmental claims against it (see Appendix A for a discussion of life cycle analyses related to plant-based meat), or it may invest in practices which improve its perception among environmentalists. For example, commercial agriculture’s main source of greenhouse gas emissions is nitrogen fertilizer; with precision agriculture technologies, significantly reducing these emissions is within reach.

The agricultural lobby will backstop the livestock industry’s competition with meatless meat. Though agriculture comprises only 1% of the U.S. economy (USDA Economic Research Service, 2020), the agricultural industry commands political sway disproportionate to its share of GDP because it provides an essential good (food) and its trade strengthens diplomatic relations with numerous key economies. The rising demand for ‘natural’ products also compels government support for smaller farms. For these purposes the U.S. Department of Agriculture subsidizes the production of key commodities, and agriculture industry associations, such as the National Corn Growers Association, American Soybean Association, and National Cattlemen’s Beef Association, maintain lobbyists in Washington to protect their interests. These institutions are likely to push regulations that protect livestock and agriculture as meatless meat enters the market. Already in Missouri, the state legislature passed a bill in 2018 prohibiting food companies from labeling products as “meat” if the products do not come from livestock or poultry (Tsang, 2018).<sup>1</sup> Prompted by Big Ag, the USDA, the FDA, and state governments will likely introduce further regulations which support the livestock industry in its competition with meatless meat.

Beyond impacts on U.S. agriculture, the growth of the meatless meat market also will have consequences on emerging economies. As the world’s population grows to 10 billion by 2050, demand for meat will rise, but the majority of that demand will come from population growth in African and South Asian cities. Currently meatless meat’s target market is wealthy economies, which still experience annual growth in meat consumption, but the real need for protein nutrition in the coming decades will come from the Global South. Traditionally the growth of domestic livestock industries is a key step in a country’s economic development and food security, but if meatless meat reduces demand for livestock in the U.S., American

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<sup>1</sup> The Animal Defense Fund, the Good Food Institute, the American Civil Liberties Union, and the company Tofurkey, filed a lawsuit against the state of Missouri over this law. Litigation continues.

farmers will look abroad for markets for their corn and soy. This could have a detrimental effect on the economic development of poor countries – an increased dependency on food imports could stifle economic growth, and a drop in key commodity prices also could reduce the food security of agrarian-based economies. Meatless meat would not achieve its intended environmental impact if U.S. livestock was simply redirected to new markets. Yet if meatless meat does target emerging markets in the Global South, can its sophisticated production processes be conducted in resource-poor environments? As an industry oriented towards a sustainable future, meatless meat will need to consider the global implications of its challenge to the livestock industry.

Next week's article will feature an empirical case study of the price competition between plant-based meat and ground beef, to illustrate the difficulties that plant-based meat will face with its current strategy of competition with the livestock industry.

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