

Jenny Splitter
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Meet the Innovators Who Want to Kill the Chicken Nugget

First it was burgers. Now plant-based startups are coming for the nugget — but chicken is a much tougher challenge.

Christie Lagally used to see a lot of chicken trucks when she drove 35 miles each morning from Seattle to her job in Everett, Washington. “Every single morning up I-5 at about 5:45 in the morning, they’d transport the chickens to slaughter,” she says. “What calls us to action can come from a lot of different directions.” A mechanical engineer at Boeing, Lagally also volunteered for Humane Society, working to pass animal rights legislation in states like California and Washington. But the pace of change was excruciatingly slow, and meanwhile, day after day, Lagally was still driving to work and seeing more trucks of chickens on their way to slaughter.

“I really want to do something about this,” Lagally remembers telling a few particularly entrepreneurial-minded animal rights advocates in a hotel lobby during an animal rights conference. She talked to Josh Balk, a vice president for the Humane Society who also happens to be a co-founder of the plant-based food company Just, Inc. With the success of companies like

Impossible Foods and Beyond Meat as their inspiration, the group started brainstorming about what was still missing from the plant-based landscape. Someone suggested cheap-as-chicken plant-based nuggets and Lagally thought, well, why not? How hard can that be?

It can be pretty darn hard, it turns out. Trey Malone, an agricultural economist at Michigan State University, studies consumer buying habits for meat and meat substitutes, and believes that chicken “is going to be a pretty difficult market to disrupt.” Chicken is cheap and plentiful, and Americans eat it by the truckload. While per capita beef consumption has decreased by about one third since the 1970s, during that same time period, per capita chicken consumption has been steadily increasing.

There are plenty of reasons to avoid chicken, including the frequently grueling and low-paying jobs offered by the poultry processing industry.

Chicken doesn't have the same environmental or health baggage as beef. In fact, there are some environmentalists who would be perfectly happy to see most consumers swap their beef for chicken, no further vegetarianism or veganism required.

Greenhouse gas emissions for chicken are comparatively low, with poultry production requiring less land and irrigated water than cattle.

Though there's been heated disagreement about the impact of meat on health, there are plenty of consumers who avoid red meat for health reasons, opting for chicken instead.

Lagally knows these facts all too well. She left Boeing to work for the plant-based advocacy group the Good Food Institute soon after that brainstorming session, in part to figure out her next move. And then in 2017, Lagally launched what became Rebellious Foods, then called Seattle Food Tech, to try to develop a plant-based alternative to chicken. Right now, like most other plant-based companies, the cost of their nuggets isn't on par with one made from chicken. But Lagally has a plan to get there.

She isn't alone in the movement to displace chicken. Leah Garcés, the president of the nonprofit Mercy For Animals, has spent decades criticizing the chicken industry, and she is now launching a new project called Transfarmation. The goal is to help chicken farmers and workers get out of the poultry business and give them a new opportunity. She's working with a few farmers already who've transitioned to products like hemp and hydroponic lettuce, crops that can be grown in repurposed chicken warehouses.

Garcés is also taking the case against chicken to the public. Sure, chicken might be lower in greenhouse gas emissions, but there are plenty of other reasons to abstain, she argues. Garcés points to the cramped and dirty conditions in which most chickens are raised as

well as the frequently grueling and low-paying jobs offered by the poultry processing industry.

There are other problems as well. Poultry production is a significant contributor to the growing public health threat of antibiotic resistance. Though regulatory efforts like the Food and Drug Administration's Veterinary Feed Directive are beginning to curtail the overuse of antibiotics, the problem isn't under control. Far from it, in fact. Resistant bacteria spread everywhere, through the soil, "through the sewage, through the air [and] through workers," says Ramanan Laxminarayan, an expert in antibiotic resistance. "I don't think we're out of the woods."

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Consumer preferences are indeed changing, says Michigan State's Malone, but it's tough to know how those changes will play out. "The agricultural markets of the future are not going to look like the agricultural markets of the past," he says. But consumers are also fickle. They might adopt a new diet for any number of reasons, but that doesn't necessarily mean they'll stick with it.

Novelty wears off. Something like a new chicken sandwich from Popeye's can contribute to what Malone calls "a nice bump" in sales in the short-term,

but a trend like that is usually fleeting. “In the short run, people may adjust their behavior,” says Malone, but eventually, “they just go back to what they were doing before.” The same thing might happen with plant-based foods. While consumers often say they care about things like animal welfare and antibiotic resistance in surveys, the holy trinity of price, taste, and convenience tends to be what wins out in the end — something markets are witnessing with the rise of plant-based burgers.

Sales of Impossible and Beyond burgers were likely driven at least in part by an increased awareness of beef’s environmental impact, but Malone says the more important factor was probably just how good those new patties taste. Not only do they taste better than older veggie burgers, they also became widely available — Beyond initially in the meat case at Whole Foods and Impossible at fast food franchises like White Castle and Burger King. They’re getting pretty close in price, too.

Where does that leave plant-based nuggets? That’s where Lagally’s manufacturing expertise might pay off. Most plant-based nuggets, including the ones from Rebellyous, are still more expensive than chicken. After pouring over old Department of Agriculture engineering plans on chicken processing, Lagally realized that the equipment plant-based companies use is actually designed to make chicken meat, which means it just isn’t that efficient at

processing plant-based proteins. That costs time and money, which means the nuggets end up pricier for consumers. So Lagally designed equipment that is tailored specifically for plant-based ingredients.

Rebellyous is still testing the equipment, but Lagally says once they start using it in earnest, she can finally sell plant-based nuggets at a price that compares to chicken.

For his part, Malone is cautiously optimistic about Rebellyous' approach, but notes that no one really knows what changes the future food economy might bring. While there is an opportunity for people like Lagally and Garcés to disrupt the chicken market, it won't be easy, and they can expect pushback from the chicken industry, just as beef producers have tried to shut down plant-based burgers. But if it works out, we could see far fewer chickens on their way to the slaughterhouse.