

The big problem with plant-based meat: The 'meat' part

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FULL TEXT

For a while, plant-based meats — those complex concoctions of soy, oils, yeast and potatoes that are designed to look, feel and even bleed *exactly like meat* — seemed to be unstoppable. In 2020, with everyone stuck at home, sales of plant-based-meat brands like Impossible, Beyond Meat and Gardein skyrocketed, increasing 45 percent in a single year. The arrival of realistic products amid rising concern about climate change seemed to herald a new era of plant-based-meat consumption. Soon, it seemed, everyone would be eating burgers, chicken fingers and steaks — made purely out of vegetables. Then, a slump. Sales plateaued in 2021, and some of the plant-based-meat darlings — including Beyond Meat and Impossible — began to dip. Beyond Meat's stock price has fallen almost 80 percent in the past year; Impossible conducted two rounds of layoffs in 2022, letting 6 percent of its workforce go in October alone. Even as emissions and temperatures continue to rise — fueled in part by animal agriculture — and roughly a quarter of Americans claim they have cut their meat consumption, plant-based meats aren't succeeding as expected.

So what went wrong?

Some experts believe that plant-based meat's error may be the exact thing that was supposed to make it popular: its attempt to be indistinguishable from meat.

Alternative "meats" are nothing new. In the early 20th century, the food company owned by the Kellogg family — the same family that brought America cornflakes — sold a meat substitute known as "protose," made of a combination of soy, peanuts and wheat gluten. (It does not seem to have been very tasty.) "First-generation" plant-based meat alternatives include tofu and tempeh — protein-rich foods already popular in Asian cuisines that bear little resemblance to meat. "Second-generation" plant-based meats, however — like Beyond and Impossible — are designed to look, cook and taste exactly like meat. Impossible even developed an ingredient called "heme," a genetically modified version of iron that allows its fake meat to "bleed" much like meat from a cow or a pig.

The idea was to appeal to omnivores and "flexitarians" — people who eat meat but want to cut down on their consumption for environmental or health reasons.

The environmental benefits are clear. Researchers estimate that 15 percent of global greenhouse gas emissions come from raising meat. Producing 100 grams of protein from beef, for example, sends around 25 kilograms of greenhouse gases into the atmosphere; making the same amount of tofu, on the other hand, emits around 1.6 kilograms. Plant-based meats, meanwhile, have greenhouse gas emissions 40 to 90 percent less than traditional meats.

But the focus on appealing to meat eaters may have run afoul of human psychology. "The mimicking of real meat introduces that comparison of authenticity," said Steffen Jahn, a professor of marketing at the University of Oregon who studies consumer food choices. Jahn argues that by trying to align plant-based meat closely with its cow- and pig-based counterparts — Beyond Meat once introduced packaging that said "Now even meatier!" — companies have gone all-in on a category that many consumers don't love: artificiality.

"They try to mimic it and say, 'We're almost real,'" Jahn said. "But then some people will say, 'Yeah, but you're not *real* real.'"

There's more psychological complexity here as well. When consumers shop, they tend to simplify foods into categories: healthy, "good" foods on one side, and less-healthy, indulgent foods on the other. Consumer psychologists call these categories "virtue" and "vice" foods, and they guide how many products are marketed and sold. A Haagen-Dazs ice cream

bar is sold on its delicious creaminess, not its fat content; a bag of spinach is hawked for its rich mineral and nutrient content, not its taste.

"We always try to simplify stuff," Jahn said. "We dichotomize many things, including food."

But plant-based meats confound these "virtue" and "vice" categories in a few different ways. First, many alternative meats — especially those that are ready-made to resemble burgers, sausages or bacon — include a long list of ingredients. "I was pretty shocked when I saw the ingredient lists," said Marion Nestle, a professor emerita of nutrition and food studies at New York University. "I thought, 'Oh dear.'"

These products fall into the category of "ultra-processed" foods, which many consumers associate with weight gain and health problems. That creates a conflict for buyers. Those consumers who are most likely to want to be "virtuous" by avoiding environmental or animal harm are also most likely to want "virtuous" food in another sense — healthy food with simple ingredients.

JP Frossard, the vice president of consumer foods at the investment firm Rabobank, says that faced with a choice between sustainability or health, consumers often opt for health. "At the end of the day, we are looking at our bodies and what our intake is," he said.

And taste hasn't quite reached a point where plant-based meat can easily be a "vice" food either. Emma Ignaszewski, associate director of industry intelligence for the Good Food Institute, a nonprofit that promotes meat alternatives, is skeptical that consumers are paying very close attention to long lists of ingredients. But, she says, the institute's research shows that consumers prioritize taste over all else when it comes to alternative meats. "From consumer studies, we see that 53 percent of consumers agree that plant-based meat products should taste *just like* meat," Ignaszewski said.

Part of the issue is exactly who the customer is for the bleeding, pink-in-the-middle plant-based burger copy. It's a bit like the all-electric Ford F-150 truck or the Hummer EV — a vehicle with environmental flair, packaged in a form that could be palatable to a much wider group of Americans. But those consumers actually have to buy it. And while the electric Ford F-150 Lightning sold out in the United States in 2022, artificial meats are facing more resistance.

It may just take time. The biases against alternative meats are deep and long-lasting: According to one recent peer-reviewed study, consumers' top association with meat was "delicious"; the third-highest association with plant-based meat was "disgusting." ("Vegan" and "tofu" also made the cut.) It's impossible to unwind perceptions of plant-based meat as bland or oddly textured overnight. "Some of it might just take more years," Jahn said. "And therefore it's more than a single brand can do."

Price can play a role as well. According to data from the Good Food Institute, plant-based meat is still two to four times as expensive as traditional meat. With inflation cutting into people's paychecks, paying double for a similar experience is not an ideal choice for omnivores.

But there is a broader question: whether the right way to shift people away from meat is to offer a highly processed imitation of burgers, sausages and steaks — or to guide them toward other vegetarian and vegan options that look less like traditional meat. (There's a third option as well: Some companies are pushing ahead in attempts to make lab-grown meat from animal protein.)

"It's a marathon, not a sprint," Frossard said of the switch to a less meat-heavy diet. As for the ultra-processed plant-based meats, he added: "We have to see if they'll double down on the bet that people want this."

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