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A brief history of Impossible Foods: how 'bleeding' plant-based burgers started a food industry trend

Impossible Foods brought meatless meat to the mainstream. Now, the startup is coming for the dairy aisle.

MEL GOLDFINE

We are living in the age of plant-based meat. The market is expected to be worth $85 billion by 2030 and if current trends continue, conventional meat consumption will drop 33% by 2040.

Few companies have contributed more to the mainstream-ification of plant-based meat than Impossible Foods. The Redwood, California start-up launched the Impossible Burger in 2016 after years of biotech R&D, with the pitch that this wasn't your vegan friend's garden patty. The Impossible Burger bleeds, sizzles and tastes just like meat, but its production uses 96% less land, 87% less water and emits 89% less carbon into the atmosphere than a beef hamburger.

As the company's products have become commonplace in grocery stores like Walmart and Krogers and fast food chains like Burger King and White Castle, the Impossible Burger has transformed from a novelty to try into a menu staple. Impossible Burgers have helped drive plant-based meat sales up 11% over the last year, compared to meat's 2% gain.

IMPOSSIBLE EXHIBIT - 2002
Motif FoodWorks, Inc. v. Impossible Foods Inc. - IPR2023-00208

Plant-based meat currently only makes up 2% of packaged meat retail, but that's certainly poised to change. The pandemic has pushed growth trends along. Faux meat sales increased 264% in the nine week period ending May 2, as the pandemic caused meat shortages and price spikes as meat plants shut down. Given the reality that the pandemic reportedly started in an animal market and reports of Covid-19-infested meat-packing plants, shoppers also may have felt queasy about picking out beef and chicken. There's also a growing awareness about the general disease risk of animal factory farming.

"This is a peak moment for trial potential among regular meat eaters," Pat Brown, Impossible Foods's chief executive, told Wall Street Journal.

Investors can't resist. In March, Impossible Foods raised $500 million — the largest investment sum ever for a food tech startup — then brought in another $200 million in an August funding round, bringing its total funding up to $1.5 billion.

Impossible Foods added Impossible Sausage to its inventory this summer. Flushed with cash, the company is now hoping to conquer a new market: Milk. Last month, Impossible Foods said the company will be bringing on a team of more than 100 scientists to develop a dairy-free milk product. Just like the burger, the company's pitch is that, unlike most plant-based milks, the Impossible milk will "look, act and taste" just like cow's milk.

Diagnosing America's meat problem

Impossible Foods CEO and founder Pat Brown spent most of his career as a professor at Stanford University, well known as a pioneer in gene mapping. However, he had larger ambitions. In 2009, he embarked on an 18-month sabbatical with one mission: figure out how to eliminate the meat industry, which he'd determined to be the world's most devastating environmental problem.

Determining the single biggest entity ruining our planet is a tough one, but meat production is certainly competitive. Emissions from livestock account for 13-18% of greenhouse gas emissions and a staggering third of the planet's land is used to raise livestock. Animal agriculture also plays a huge role in deforestation, land erosion, a loss of biodiversity and pollution stemming from sewage and fertilizers.

Brown ended his sabbatical with the conclusion that people would never cut meat out of their diets solely for the sake of the environment. He concluded that the only way to truly beat meat would be fair and square on the free market. How would he do that? Re-create meat using plants.

A new kind of meatless meat

Veggie burgers have been on grocery store shelves since the 90's. However, they were marketed and sold to vegetarians, who make up around 5% of US adults. Impossible Foods never intended to appeal to people who were already on board with a meatless future. "The only consumer we care about is the hardcore meat lover" Brown told CNBC in 2019.

The main problem is that people are addicted to meat. We're genetically, chemically, viscerally drawn to its protein and fatty calories. As such, Brown's first step after officially founding Impossible Foods in 2011 and picking up $3 million in VC seed money, was to launch a biochemical investigation into why meat tastes the way it does.

Researchers came away with blood as the answer, or rather, one of its iron-containing molecules called heme. Impossible Foods spent the first year of R&D developing a non-meat based heme molecule (a yeast that produces heme during fermentation). With a better pitch deck, Impossible Foods picked up another $75 million from investors to finish the burger. More than 1,500 consumers couldn't tell the difference between a meat burger and the Impossible burger in a test, and scientists conduct "at least 100 internal" taste tests per week to ensure the product never slips.

From Silicon Valley conference tables to Momofuku to Burger King

The Impossible Burger launched in 2016 after five years of research and hundreds of iterations. The final version consists of soy and potato protein, yeast-fermented heme, sunflower and coconut oil, the culinary binder methylcellulose (commonly used in jam and ice cream) and food starch (an ingredient in most canned soups).

First, the company targeted foodies, chefs and celebrities. After gaining buzz for investments from Jay-Z and Serena Williams, the first restaurant to ever serve an Impossible Burger was Momofuku founder David Chang's New York City Italian-leaning counter Nishi. The restaurant reported a newly buzzing lunch rush and headlines touted the burger as "David Chang-approved." Next was San Francisco's Jardiniére, headed by chef Traci Des Jardins before moving into chains like Applebees, Cheesecake Factory and Hard Rock Cafe in 2018. Per data collected by Nielsen and the Good Food Institute, plant-based meat grew 8.1% between 2016 and 2017 alone.

The burger's culinary credibility trickled down. First they expanded to boutique burger chains like Umami Burger and Bare Burger. Impossible Burgers finally went mass market in April 2018 when they launched in White Castle. Deals with Little Caesars, doba, Red Robin, Little Caesars and Disney Parks followed. By early 2019, Impossible Foods inked a massive partnership with Burger

Impossible Foods helped spark the restaurant industry's current meatless arms race. Impossible Burgers' biggest competitor Beyond Meat, which makes burgers out of pea protein, has since inked deals with Denny's, Subway, Carls Jr., TGI Friday's, A&W, Hardee's, Del Taco and Dunkin' Donuts among others, while companies like Shake Shack invented their own meatless options.

Notably absent from the race is McDonald's, which promptly fell behind Burger King in 2019 after the Impossible Whopper fueled Burger King's best sales quarter and fastest growth in years. Shares of Burger King's parent company Restaurant Brands grew 30% in 2019 compared to McDonald's 10% rise as the chain failed to provide a strong answer to the meatless burger craze. Eater says the question of when McDonalds will join the pack is "a matter of if not when."

The great Impossible Burger shortage of 2019

Impossible Foods had 25 employees when the company launched. That number grew to 125 by late 2017, but it wasn't enough to keep up with the demand for that sweet, mashed up heme and potato protein cocktail. Shortly after the Impossible Whopper rolled out in April of 2019, demand had so severely outpaced production that by summer, R&D workers and scientists volunteered to flip patties on the production line during the 12 hour shifts necessary to triple production. The shortage, which will go down in trendy food history alongside the great oat milk draught of 2018, ended in mid-July when the company joined forces with a major manufacturing operator. The scaling up seems to have paid off: Impossible made it through the pandemic without any reported shortages.

The drama and scarcity may have actually been good for PR Impossible Burgers' publicity and cultural clout suggests Eater revealed how loyal customers had become to the brand: owners of Ruby's in New York Cities recall customers showing up for an Impossible Burger meal and turning away when they heard the company was serving Beyond Burgers (Beyond has also hit supply chain issues) instead that day.

The Impossible Burger hits households

By September of 2019, Impossible Foods had recovered from its shortages and launched its first "raw" patty in a grocery store, for people to cook at home. They started out in just 27 Gelson's supermarkets in Southern California. A week later, the Impossible Burger made its East Coast debut in Wegmans and Fairway Markets. Over the next year, the burger hit the meat cases in Walmart, Krogers, Safeway, Vons, Jewel-Osco, Albertsons, Ralphs and many more locations. Today, the company has nearly 600 employees and sells patties in over 3,000 grocery stores and around 17,000 restaurants across the US, Hong Kong, Macau and Singapore.

Impossible Foods Twitter Followers

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ImpossibleFoods

Source: Thinknum Alternative Data - Open Dataset

Impossible Foods says it has increased its retail footprint 20-fold since the start of 2020 and says it plans to increase that to 50-fold by the end of the year. In addition to adding new grocery stores to its customer list, the company launched a direct-to-consumer retail site in June after the pandemic saw sales booming. Now, customers can buy Impossible Burgers in patty form or ground and have them delivered directly to their homes. The company also released an "Impossible Cookbook" in July to inspire those taking advantage of the raw products' new

availability. Kroger-owned Home Chef also became the first meal kit company to offer Impossible products in July.

Beyond or Impossible?

Beyond Meat and Impossible Foods have risen to the top of the plant-based meat industry, insofar as they're both vying for a flavor profile that will win over meat-lovers, not just the environmentally conscious which brands like Morning Star and Boca focus on. There are key differences between them. Impossible Burgers remains private while Beyond Meat made an IPO in May 2019 to resounding interest: shares soared 169% on day one. For a period, it clocked as the best-performing public offering of 2019, reports TechCrunch.

The brands also had very different initial strategies. Beyond Meat focused on getting into grocery stores, while Impossible Foods has led the plant-based race into restaurants, according to QZ. The outlet suggests Impossible's initial focus on splashy, celebrity chef partnerships has given them more name recognition and a greater number of new restaurant launches each year. However, traders have pulled back on Beyond as Impossible Foods made "strong inroads into

Beyond Meat was founded in 2009 and started selling products by 2012. As such, Beyond currently leads Impossible on social media, with 439,000 likes on Facebook and 117,000 followers on Twitter, compared to Impossible's 127,000 and 68,200, respectively. However, Impossible is gaining quickly. The company's Facebook following grew by 10% over the last 12 months, compared to Beyond's 8% growth. On Twitter, Impossible also outgrew Beyond, increasing followers by 30% on Twitter while Beyond only grew its following by 18%.

Impossible Foods vs. Beyond Meat T... Copy widget code

BeyondMeat ImpossibleFoods

Source: Thinknum Alternative Data - Open Dataset

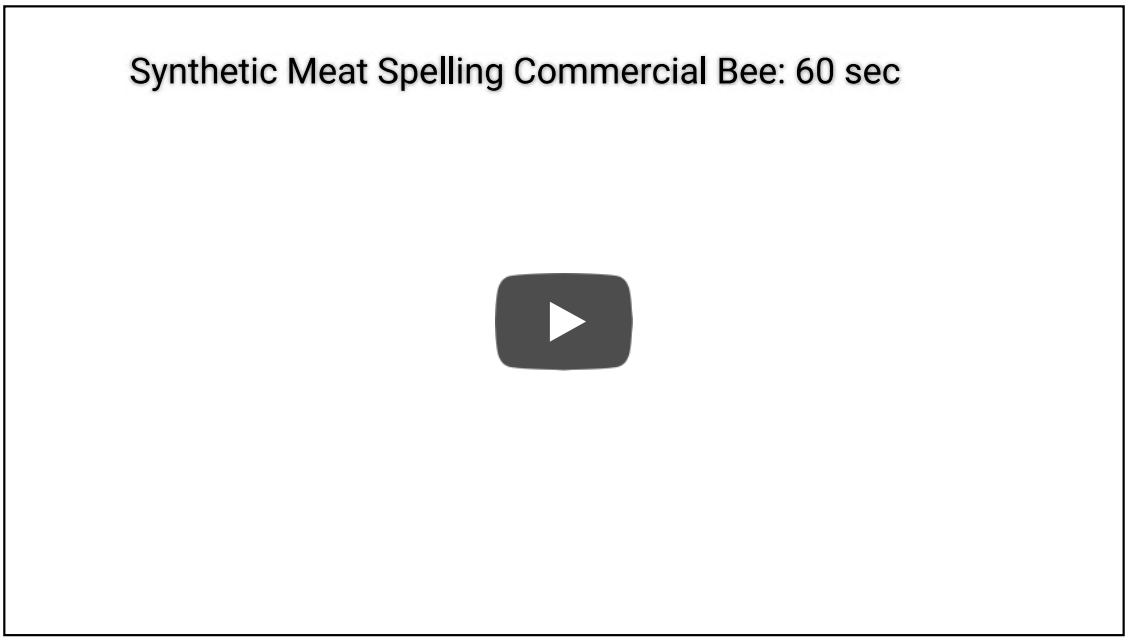
Brown has said Impossible is in no rush to go public given the recent successful funding rounds, while criticizing competitors for making an inferior product that could turn people off from plant-based food all together. "The only negative is that most of those products, to be honest, tend to suck, and I think that hurts us," Brown told CNBC "The best thing they could do for us is make better products because every time someone who hasn't tried our product tries one of those products, it reinforces the idea that plant-based meat replacements are terrible."

Heat from big meat — and environmentalists

Impossible Foods and Beyond Meat have bigger fish to fry than each other, at least until one of them figures out an Impossible or Beyond Fish formula.

In 2018 the U.S. Cattlemen's Association filed a petition with the U.S. Department of Agriculture calling for narrower definitions of “meat” and “beef” that would ban plant-based meat companies from using the terms in product names. The debate over how to label faux animal products goes back to the proliferation of margarine and soy products when the milk lobby tried to keep terms like “milk,” “yogurt” and “butter” exclusive. As of yet, the U.S. government has yet to ban start-ups like Impossible from calling themselves meat, however in the European Parliament, plant products recently officially won the right to use the term “steak,” “sausage” and “burger” after the meat lobby lost a vote.

Big meat has also hired the notorious lobbyist Richard Berman, famous for his work for the tobacco, food and alcohol industries including running attack ads against Mothers Against Drunk Driving. Berman’s industry-funded lobbyist group the Center for Consumer Freedom has taken out full-page ads in the New York Times, Wall Street Journal, New York Post and the Chicago Tribune spreading fear about plant-based meat as “ultra-processed.” He ramped up the messaging that synthetic meat was full of harmful chemicals with the 2019 Super Bowl ad that portrayed a spelling bee in which adorable children became puzzled trying to spell alleged ingredients in plant-based meat. One of the campaign's targets was Methylcellulose, a tasteless thickening powder used in many canned foods and certified as non-harmful by the Mayo Clinic among others.



Impossible Foods isn't perturbed. The company ran a parody ad asking children to spell "poop," citing studies where fecal matter was found in beef products.

A greater threat to Impossible Foods is likely the more forward-thinking meat corporations who are trying to bring the plant-based meat industry in-house. In an attempt to neutralize the competition, Tyson, Smithfield, Nestle and Perdue have all rolled out their own meat alternatives, stocked right next to their chicken wings and ground beef.

Or, the environmentalists who believe simpler, not more complex food systems will help save the environment. People like nutritionist Diana Rodgers have questioned Impossible Foods' lengthy ingredient lists, genetically modified soy, and call them "green-washers." "Beyond Burger and all the meat analogs are just another version of highly processed foods from cheap raw ingredients that are marketed as cleaner, more virtuous, healthier," Rodgers, author of the soon-to-be released book ***Sacred Cow: The Case for Better Meat,*** wrote on her blog. Others advocate for regenerative or sustainable farming techniques, over, or in addition to efforts like Impossible's to eliminate meat altogether

Protein is pricey

Backlash aside, the biggest issue for plant-based meat may be the fact that real meat is dirt cheap. This is due to a number of factors including agricultural government subsidies and a lack of environmental regulation. But, meat will never go away as long as a pound of plant-based beef costs $6.25 per pound while the real stuff costs $2.80.

Impossible Meat has a plan for that. Brown has said that his goal is to reach price parity with meat products, and then eventually undercut them, committing to selling at least one product by 20204 that's the same price or cheaper than animal meat. The company began by cutting prices by 15% for wholesale deals, which has made its fast food and restaurant products cheaper. There's reason to be hopeful it can get even closer as Impossible Foods scales up, making production more efficient and experiments with cheaper protein sources.

Fish, meat and beyond

None of Impossible Foods' detractors, or even its price, appear to be curtailing its business. Millennials in particular have been "driving the acceleration of plant-based meat in households," according to Impossible's consumer research. Given many in that age group are on the verge of settling down and starting families, the company could be looking at a generation of meat-free children.

As Impossible Foods goes on a hiring spree in pursuit of a fake milk — a drink famously consumed by children — it seems as if the world is its oyster (no word on Impossible shellfish yet). While hard to picture a competition against Oatly and Silk on the shelf, it's important to remember that Impossible's secret was never competing for vegetarians. Its customers are people who want the real thing.

About the Data:

Thinknum tracks companies using the information they post online, jobs, social and web traffic, product sales, and app ratings, and creates data sets that measure factors like hiring, revenue, and foot traffic. Data sets may not be fully comprehensive (they only account for what is available on the web), but they can be used to gauge performance factors like staffing and sales.

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