

Article
Critiques
Sample

[REDACTED]

Bloody Delicious

If it looks, sounds, feels, smells, tastes, and even bleeds like a beef patty, then it must come from...plants? In what may be the best sensory deception to hit the food industry yet, Impossible Foods has successfully created a food product that may help alleviate the growing global population and climate crisis by turning steadfast carnivores into herbivores. In *The Wall Street Journal's* article "*The Impossible Burger is Ready for Its (Meatless) Close-Up*", Kurt Soller profiles the company behind the Impossible Burger and how they are positioning their product as "meatless burgers as a "platform to disrupt" the international meat market."

Impossible Foods is one of several venture-backed food start-ups attempting to introduce to the market new plant-based protein foods that are less resource-intensive to produce than beef, which can help address climate change and help feed the growing global population that has an affinity for beef. To accomplish this, the Impossible Burger needed to provide a sensory-identical, nutritionally-equivalent, and cost-effective alternative to beef burgers. So far, the company appears to have accomplished the first two parts of that goal and continues to work towards achieving the third.

Pat Brown, Impossible Foods' founder, was a research biochemist at Stanford University for roughly thirty years before he launched the company in 2011. Rather than create just another bland, tasteless veggie burger aimed at vegetarians, he set his

sights on meat-lovers and used his biochemistry background to figure out exactly what properties gave beef its signature flavors and textures so that he could create a plant-based alternative that is just “as delicious as meat.” Nearly identical in all ways to a standard beef hamburger - flavor, texture, aroma, color, and sizzling sound on the grill - the Impossible Burger has different roots. Instead of a bovine background, it quite literally comes from roots: wheat and potato protein combined with coconut fat and the secret ingredient — heme derived from the roots of soybean plants — that provides its meaty appearance and flavor.

From a nutrition standpoint — save for a few nutrients (higher sodium and saturated fat levels) — the Impossible Burger is nearly-identical (particularly, bio-available protein and iron levels) to an equivalent-sized beef burger. It may even be considered an improvement as it is slightly lower in calories and lacks any cholesterol nor some of the other byproducts of production often found in beef, such as hormones, antibiotics, or fecal matter.

Achieving the third part of their goal has so far been the hardest part of Impossible Foods’ story. As hundreds of millions of dollars went into the research and development needed to bring this product to market, the Impossible Burger was initially launched as a niche food item offered in select up-scale restaurants where it could command and justify a higher price. However, as the company expands its production facilities, gains more exposure, and penetration into the market, increased demand will likely lead to costs dropping to a level equivalent to beef.

According to Kotler and Keller’s *Marketing Management* text, positioning is “the act of designing a company’s offering and image to occupy a distinctive place in the

minds of the target market.” Positioning requires the selection of “a competitive frame of reference by identifying a target market and relevant competition; identifying optimal points-of-parity and points-of-difference within that frame of reference; and developing a mantra for the brand that summarizes the essence and positioning of the brand.”

A competitive frame of reference is used to identify the other brands competing for the same customers as the company. Impossible Foods have chosen animal and plant-based producers of protein foods as their competitive frame of reference. All of these companies are jockeying to provide the choice protein option for consumers. However, rather than focus on vegetarians or plant-focused eaters as many of their fellow plant-based protein-producing competitors have, they instead shifted their aim to directly target meat eaters. This strategy allows Impossible Foods to compete directly with both beef-producing companies and companies trying to produce plant-based alternatives that may not be providing the same sensory attributes meat eaters seek.

Kotler and Keller define points-of-difference as “attributes or benefits that consumers strongly associate with a brand, positively evaluate, and believe they could not find to the same extent with a competitive brand.” Points-of-difference must be desirable to consumers, deliverable by the company, and be distinguishable enough to differentiate them from competitors. Beef production is an environmentally-taxing operation, requiring a remarkable amount of resources while simultaneously creating significant emissions that contribute to global warming. Conversely, production of the Impossible Burger requires a fraction of the land and water resources needed for cattle-raising and produces approximately 75% less greenhouse gas emissions. For

the environmentally-conscious, this is a significant point-of-difference over a beef burger that the Impossible Burger has been able to deliver. Additionally, it is on par with or even slightly better (from a nutrition standpoint) than a beef burger.

These points-of-difference from a beef burger, however, are likely points-of-parity shared with several of their competitor's plant-based burgers and not enough of a differentiating reason for meat eaters to choose the Impossible Burger over a competing plant-based burger. Points-of-parity are defined as the "attributes or benefit associations that are not necessarily unique to the brand but may in fact be shared with other brands. To help provide a significant point-of-difference from other vegan burgers, the Impossible Burger incorporated plant-based heme to produce the desired meaty appearance and flavor of beef. To help support this as an important point-of-difference, survey results from 600 burger-lovers indicated that an overwhelming majority would switch to an identically-tasting, affordable plant-based alternative to a beef burger, revealing that the source of the burger (animal versus plant) was less-important than the sensory-satisfaction.

The Impossible Burger has the sensory points-of-parity — flavor, texture, aroma, and appearance — with beef burgers that make it more competitive than and differentiated from other vegan burgers, while simultaneously having the nutritional- and environmentally-beneficial points-of-difference from beef burgers. The combination of these has allowed Impossible Foods to target meat eaters and uniquely position the company as the provider of the environmentally-superior yet equally-delicious "meatless burgers as the "platform to disrupt" the international meat supply."

THE WALL STREET JOURNAL.

This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers visit <https://www.djreprints.com>.

<https://www.wsj.com/articles/the-impossible-burger-is-ready-for-its-meatless-close-up-1465912323>

The Impossible Burger is Ready for Its (Meatless) Close-Up

A long-awaited vegan burger from Silicon Valley startup Impossible Foods hits select restaurants this month. But can coconut oil and potato proteins compete with the red-blooded original?

By Kurt Soller

June 14, 2016

FROM THE OUTSIDE, THE HEADQUARTERS of Impossible Foods looks like the set of “Office Space”: a one-story Redwood City, Calif., industrial park with blacked-out windows, fronted by rows of plugged-in electric cars. Inside, there’s none of that sleek, airy aesthetic for which Silicon Valley has become infamous. Rows of drab desks lead to back rooms packed with scientific equipment. “For four years, nobody outside the building knew we existed, which is how we wanted it,” says CEO and founder Patrick O. Brown. Brown’s father was in the CIA; a clandestine work environment may be in his blood. As we continue our tour, Lance Igonn, a communications consultant, quips: “It’s not like investors are complaining about us wasting money on art.”

Investors have hardly been an issue so far. The company, founded in 2011, is one of the best-funded food startups of the decade, with \$182 million over four rounds from top venture-capital firms and Bill Gates, who joined the latest round in 2015. “This has all gone a lot easier for Pat because he has so much credibility,” says Samir Kaul, a founding partner at Khosla Ventures, which was the only investor during the first round and has participated in every subsequent one.

Today, Brown works just a few miles from the Stanford campus, where he spent almost three decades as a top biochemist. At 61, he bears a passing resemblance to Apple CEO Tim Cook. A regular marathoner, he’s spry and trim in his wardrobe of dad jeans, T-shirts branded with his company’s logo (they’re free to visitors) and a hoodie from American Giant, which Slate once called “the best sweatshirt known to man.” He’s casual in his manner, occasionally sarcastic, prone to delivering research-driven soliloquies while avoiding eye contact. While at Stanford in the 1990s, he pioneered a new type of DNA mapping called microarray, which some in his field believe could one day earn him a Nobel Prize.

MORE FUTURE OF EVERYTHING »

- What Are You Printing for Dinner?
- Are Shipping Containers the Future of Farming?
- Is the Jetpack Movement Finally Taking Off?
- The Future of Everything: June 2016

At Impossible Foods, Brown, along with 125 colleagues—pedigreed scientists, nutritionists, techno-marketing experts—is working to perfect a vegan version of the all-American ground-beef patty. His elevator pitch is straight-up Silicon Valley: meatless burgers as a “platform to disrupt” the international meat supply. Cows, according to Brown, are “an inefficient

technology” requiring too many inputs to create beef, an output that hasn’t evolved since the Paleolithic age. “The whole mission of this company is to make eating animals unnecessary,” he says. “So, we don’t want our product to just be delicious, we want it to be as delicious as meat.” He would never describe his innovation as “a veggie burger,” which conjures images of bland, frozen constellations of grains and beans. His patty is officially “a combination of proteins, fats, amino acids and vitamins derived from wheat, the roots of soybean plants, coconuts, potatoes and other plant sources.” The goal? To reverse-engineer flavors and textures heretofore exclusive to cows.

Brown’s meat-disrupting motivations are manifold. Industrial animal farming uses a third of

things we call meat, they have s---loads of heme in them,” Brown says. He also knew, from his years as a biochemist, that nitrogen-fixing legumes—like clovers or soybeans—also contain heme. But according to Brown, no one had isolated the compound for flavoring purposes. “It was surprising to me that this was still left to be discovered, given that people have been eating meat for millions of years,” he says.

The team’s next task was to identify plant proteins and other vegan components that work in tandem with heme to approximate ground beef. Rather than picking vegetables with an inherent beefiness, like mushrooms or carrots, “we started with a bunch of ingredients that in no way resembled a burger,” Brown says. His staff used a machine that isolates compounds on a molecular level so scientists could determine which plants might lend desirable properties. Potatoes were selected for a protein that firms up when heated, giving the Impossible Burger that essential exterior crust. Coconut oil, which starts as a solid and melts as it cooks, adds fat and juiciness. Another machine, used to identify specific scents—the scientific equivalent of Smell-O-Vision—helped researchers determine that something in honeydew melon mirrors the scent of cooked beef.

But smell and taste aren’t the only reasons meat is entrenched in the human diet. In most of the world, beef is a luxury good—a uniquely efficient source of protein, iron and calories in a deliciously convenient package. The cattle industry has made it available at a relatively low cost. For the Impossible Burger to have a shot, it needs to replicate the sensory experience, dietary benefits and affordability of ground beef.

Nutrition was the easiest part. Brown had his burger tested to make sure its plant-based protein is just as abundant and “bio-available” as the protein in beef. A four-ounce Impossible Burger contains more sodium and saturated fat than its red-meat inspiration, along with 10 fewer calories. But it lacks cholesterol, hormones, antibiotics, fecal matter, “pink slime” and other unsavory byproducts of industrial meat production.

Cleanliness and eco-friendliness come at a price; in 2014, The Wall Street Journal reported that a single patty cost about \$20 to produce (and tasted like a turkey burger). Impossible Foods said that number “has dropped substantially,” but declined to give specifics. The company expects production costs to decrease further when its Oakland, Calif., production facility ramps up over the next six months, but the burger will be launching, like other Silicon Valley breakthroughs, as a niche product for the rich.

Brown, of course, understands that pricing will be the barrier to wide adoption. This year, the company surveyed 600 “hard core middle America burger lovers,” as he calls them, about their eating habits and asked them whether they’d choose a plant-based burger if it was identical—in taste and cost—to the beef version. Nearly 70% said they would. “People are addicted to meat, and it’s going to be a long time before they move away from it,” he says. “But what that tells you is that the fact that meat’s made from an animal is not part of its value proposition.” And that was before the company mentioned that the Impossible Burger also emits 75% less greenhouse gas than its beefy competitor and uses up a comparatively tiny fraction of both water and land.

This July, a half-decade after the project began, the Impossible Burger will become available for public consumption. Jardinière, a tony San Francisco restaurant, will begin by offering burgers on special occasions, and a small number of restaurants will start selling the Impossible Burger later this summer, starting in New York. Production is limited—the company could manufacture a million pounds this year, less than a tenth of a percent of U.S. beef consumption—so the rollout is calibrated to target high-end diners first. According to Impossible Foods, the retail price has not been set.

By the time the Impossible Burger hits supermarkets—“in the next few years,” according to the company—Brown hopes to have built enough buzz that grocers will display his meat prominently in the butcher’s case, instead of hiding it in the frozen-food aisle. He’s following the model used to launch Kite Hill, a brand of nut-milk products he co-founded in 2014, which is now among the few nondairy lines stocked in cheese cases at Whole Foods. The idea is to grow slowly, ensuring his burger is increasingly in demand among consumers while the company

itself remains small enough to fly under the radar of beef lobbyists. “My feeling is, right now, that we’re in the fortunate position where the beef industry is not inclined to feel threatened by anyone like us,” Brown says. “We’re not having a war of aggression on the meat industry—at least overtly.”

I LEAVE THE IMPOSSIBLE FOODS LAB with a lunchbox full of raw, slider-size burgers and head to the San Francisco restaurant Jardinière. Chef-owner Traci Des Jardins is a consulting chef at Impossible Foods, where she has spent the past year developing recipes and teaching scientists about flavors and cooking techniques. Today, she’s making a version of the Impossible Burger that she plans to serve in July.

The patty sizzles like beef in the pan, which gets my appetite going. But the burger Des Jardins delivers to the dining room is improbably loaded with condiments. Inside a small potato roll, a seared patty is covered with dijonnaise—made with vegan Just Mayo, of course—avocado slices, mashed avocado, caramelized onions, tomato and gem lettuce. If a burger needs this many add-ons, how good can it be?

Surprisingly good, it turns out. The rich crust gives way to a soft, slightly tannic pink center. The taste is complex—fruitier, funkier and more barnyardy than any other plant-based veggie burger. The aroma, which accounts for about 80% of what we experience as taste, is exactly like cooked beef. But the texture is slightly off. When I roll a crumb of burger between my fingers, it goes grainy, lacking meat’s melty quality. Still, there’s a bona fide beefiness to the patty; Des Jardins’s accoutrements aren’t hiding anything. I ask for the chef’s opinion. “There’s a little bit of a cereal note to it,” she says. “But I equate this to when grass-fed beef first hit the market. Initially consumers were skeptical, but now some prefer it.”

The taste is complex—fruitier, funkier and more barnyardy than any other plant-based veggie burger. The aroma, which accounts for about 80% of what we experience as taste, is exactly like cooked beef.

Part of grass-fed beef’s appeal is its artisanal nature and the way it varies from purveyor to purveyor, which is something an engineered mix of isolated compounds can never provide. So the Impossible Burger lacks the elemental excitement of a burger blend made from what was once live animals. To Brown, that idea of tastiness is arcane. “We’re going into completely unexplored territories, where there might be flavors and qualities humans have never experienced before,” he says.

Already, his team has accidentally veered into pork territory a few times, then set those experiments aside. They’re entirely focused on replicating 80% lean, 20% fat, middle-of-the-road ground beef. But in chasing that goal, Impossible Foods may have optimized itself into a corner. The burger is designed for a crisp char and sears nicely in a pan, but Des Jardins admits it hasn’t worked as well when cooked over a grill. Supermarket beef is far from an ideal product, and an engineered, Silicon Valley version is...what, exactly? It’s a vegan take on carnivorous—delicious, admirable and still somewhat anemic.

Later, as I’m driving to the airport, I notice that my hands are sticky with juices that seeped from the burger at lunch. Tentatively, I lick my fingers, expecting beef, but finding nothing. In that moment, I’m convinced that the Impossible Burger is a simulacrum, a brilliantly concocted facsimile of the real thing. When a simulation comes this close to reality, the shortcomings are impossible to ignore. Especially since, as a flight attendant distributes tiny bags of pretzels, I realize that I still want lunch.

Corrections & Amplifications

Impossible Foods and Beyond Meat both make plant-based burgers that are raw and intended for cooking. An earlier version of this article incorrectly suggested the Impossible Burger was the only such burger. (June 17, 2016)

Copyright © 2019 Dow Jones & Company, Inc. All Rights Reserved

This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers visit <https://www.djreprints.com>.