

# The (Fake) Meat Revolution

Photo



Scientists think they're getting closer to the day you won't be able to tell whether your steak started out growing out of the ground or grazing on it. Credit Bill & Brigitte Clough/AgStock Images, via Corbis

**IF only meat weren't so delicious!**

Sure, meat may pave the way to a heart attack. Yes, factory farms torture animals. Indeed, producing a single hamburger patty **requires more water** than two weeks of showers. But for those of us who are weak willed, there's nothing like a juicy burger.

Ah, but that's changing.

A revolution is unfolding in the food world, resulting in the first alternatives to meat that taste like the real thing. Veggie burgers used to seem like a blend of

tofu and cardboard, but in the last few years food scientists have come up with first-rate faux chicken strips and beef crumbles.

It will be a while before we're fooled by a fake sirloin steak, but scientists think they'll eventually get there. And before long you'll walk down the meat aisle of your supermarket and see plant-based "meat," even [leaking "blood."](#)

These meat alternatives could end up being cheaper than real meat. Buyers won't just be vegans but also carnivores simply looking for healthy, sustainable, cheap food.

So look out. If the alternatives to meat are tasty, healthier, cheaper, better for the environment and pose fewer ethical challenges, the result may be a revolution in the human diet.

"The next couple of years will be exciting ones," says Joseph D. Puglisi, a Stanford University professor of structural biology who is working on meat alternatives. "We can use a broad range of plant protein sources and create a palette of textures and tastes — for example, jerky, cured meats, sausage, pork."

"The true challenge will be to recreate more complex pieces of meat that are the pinnacle of the meat industry," he added. "I believe that plausible, good-tasting steaks and pork loins are only a matter of time."

Puglisi is advising [Beyond Meat](#), a start-up that is a leader in the field, with investments from Bill Gates and both Biz Stone and Ev Williams of Twitter fame, not to mention Kleiner Perkins Caufield & Byers, the venture capital firm that backed Google and Amazon. Beyond Meat says its sales are doubling each year.

"We're really focused on the mainstream," said Ethan Brown, the founder of Beyond Meat, over a lunch of fake chili, meatballs and hamburgers. It was a banquet of the bogus.

Brown, 44, is deeply concerned by climate change and spent eight years in a

company making hydrogen fuel cells. But he read that livestock cause more greenhouse gases than the entire transportation industry, and he wondered if he shouldn't focus more on food.

He came across two University of Missouri scientists who had figured out how to realign plant fibers into something more like meat, and began working with them. Brown founded Beyond Meat in 2009, and Whole Foods helped the company develop imitation chicken strips that were its first product.

At the beginning of 2013, its products were in 360 stores; now they are found in 7,500, and will soon be in Walmarts as well. Beyond Meat is aiming to get its products on pizzas and in fast-food restaurants and is targeting the average consumer.

“We want to create the next great American meat company,” Brown says. “That’s the dream.”

One advantage is health. Beyond Meat’s best-selling product, the Beast Burger, is loaded with protein, vitamins, antioxidants and Omega-3s. The disadvantage, alas, is that it still tastes a bit too virtuous.

Mock chicken and beef crumbles are triumphs when mixed in other foods (Whole Foods once inadvertently swapped real curried chicken salad with fake curried chicken salad, and no one noticed for two days). But if I were a cow, I might be a bit embarrassed by Beyond Meat’s meatballs and Beast Burger.

Moreover, prices are still a bit higher than real meat.

But both taste and price are likely to improve in the next few years, and other companies are also making great progress. One of Beyond Meat’s rivals is Impossible Foods, founded by a Stanford University biochemist, Patrick O. Brown, and there is an explosion of research in this field today.

The mainstream food industry isn’t saying much publicly. But [recently released](#)

documents from the American Egg Board, a quasi-governmental body, show it regarded Hampton Creek's egg-free "Just Mayo" spread as a "major threat." In one internal email, an Egg Board executive jokingly suggests hiring a hit man to deal with Hampton Creek.

My take is that the optimal approach to food, for health and ethical reasons, may be vegetarianism. But the average American still consumes close to half a pound of meat a day, so a large-scale impact requires providing options for the ambivalent or weak willed among us who can't quite make the leap.

And if I can still enjoy a juicy burger now and then, while boosting my health, helping the environment and avoiding the brutalizing of farm animals, hey, I'm in!