

14 Patents in Every Fake Bite of Impossible Burger

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STORY AT-A-GLANCE

- › Impossible Foods, which made headlines for its meatless burgers that “bleed” like real meat, holds 14 patents, with at least 100 more pending
- › Impossible Foods should be called “Impossible Patents,” according to Seth Itzkan of Soil4Climate, who suggests fake meat products are destroying the environment by perpetuating a harmful reliance on genetically engineered grains while accelerating soil loss and detracting from regenerative agriculture
- › Impossible Foods’ products are heavily processed and produced in laboratories – not grown in or found in nature
- › Impossible Foods has even taken aim at regenerative farming practices, which are promoting optimal nutrition and health while at the same time helping to prevent pollution and restore damaged ecosystems
- › Impossible Foods’ numerous patents reveal that their products are driven by profits, and perhaps the ultimate goal is to replace real meat altogether with a highly lucrative patented product

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Fake meat is all the rage, and although plant-based meat alternatives have been on the market for years, the industry is gaining speed, promoting its meatless 'burgers' as a

sustainable solution to feed the world. The green image is an illusion, however, one predicated on a product that's the epitome of unnatural.

Impossible Foods, which made headlines for its meatless burgers that "bleed" like real meat, is one of the leaders in the fake meat industry. Its website suggests its plant-based meat is better for you and the planet,¹ but eating an Impossible burger is not akin to eating a plate full of vegetables.

Far from it, Impossible Foods should be called "Impossible Patents," according to Seth Itzkan, environmental futurist and co-founder and co-director of Soil4Climate, who suggests fake meat products are destroying the environment by perpetuating a harmful reliance on genetically engineered (GE) grains while accelerating soil loss and detracting from regenerative agriculture.²

Impossible Foods Holds 14 Patents, Has 100+ Pending

Impossible Foods' products resemble nothing found in nature. That's why the company holds 14 patents, with at least 100 more pending. "It's not food; it's software, intellectual property – 14 patents, in fact, in each bite of Impossible Burger with over 100 additional patents pending for animal proxies from chicken to fish," Itzkan told Medium, adding:³

"It's iFood, the next killer app. Just download your flavor. This is likely the appeal for Bill Gates, their über investor. It's a food operating system (FOS), a predecessor, perhaps, to a merger with Microsoft. MS-FOOD.

The business model is already etched in Silicon Valley – license core technology (protein synthesis) while seeking vertical integration of supply chains, which, in this case, is not from coders to users, but from genetic engineers to protein seekers."

Natural foods cannot be patented, but Impossible Foods' products certainly can be. The Impossible Burger is a meat alternative that's unlike others on the market due to the addition of soy leghemoglobin, or heme. This, the company says, is what makes meat

taste like meat, and, in plants, leghemoglobin is the protein that carries heme, an iron-containing molecule.

Originally, Impossible Foods harvested leghemoglobin from the roots of soy plants, but deemed that method unsustainable. Instead, they turned to genetic engineering, which they use to insert the DNA from soy plants into yeast, creating GE yeast with the gene for soy leghemoglobin.⁴

Impossible Foods' products are heavily processed and created in production rooms – not grown in or found in nature. Their science project creations are also heavily protected, as evidenced by the 14 patents assigned to Impossible Foods, uncovered by Itzkan:⁵

Patent No. 10287568 – Methods for extracting and purifying nondenatured proteins	Patent No. 10273492 – Expression constructs and methods of genetically engineering methylotrophic yeast
Patent No. 10172380 – Ground meat replicas	Patent No. 10172381 – Methods and compositions for consumables
Patent No. 10093913 – Methods for extracting and purifying nondenatured proteins	Patent No. 10039306 – Methods and compositions for consumables
Patent No. 10087434 – Methods for extracting and purifying nondenatured proteins	Patent No. 9943096 – Methods and compositions for affecting the flavor and aroma profile of consumables
Patent No. 9938327 – Expression constructs and methods of genetically engineering methylotrophic yeast	Patent No. 9833768 – Affinity reagents for protein purification
Patent No. 9826772 – Methods and compositions for affecting the flavor and	Patent No. 9808029 – Methods and compositions for affecting the flavor and

aroma profile of consumables	aroma profile of consumables
Patent No. 9737875 – Affinity reagents for protein purification	Patent No. 9700067 – Methods and compositions for affecting the flavor and aroma profile of consumables
Patent No. 9011949 – Methods and compositions for consumables	

Impossible Foods Are Junk Foods

While the industrialized meat production that occurs on the concentrated animal feeding operations (CAFOs) responsible for most meat consumed in the U.S. is an environmental and ethical atrocity, creating fake meat in high-tech laboratory settings is not the answer.

Impossible Foods is only perpetuating the consumption of ultraprocessed foods, of which Americans already eat far too much. Americans not only eat a preponderance of processed food, but 57.9% of it is ultraprocessed⁶ – products at the far end of the "significantly altered" spectrum that have been robustly linked to obesity,⁷ ill health and early death.⁸

Friends of the Earth (FOE), a grassroots environmental group, released a report that posed critical questions about the growing trend toward animal product alternatives. In it they pointed out the highly-processed nature of these products:⁹

"Various 'processing aids' are employed to make some of these products, including organisms (like genetically engineered bacteria, yeast and algae) that produce proteins, and chemicals to extract proteins.

For example, chemicals like hexane are used to extract components of a food, like proteins (from peas, soy, corn etc.) or compounds (from genetically engineered bacteria) to make xanthan gum ... disclosure of these ingredients is not required.

Other processing aids (e.g. bacteria, yeast, algae), including those that are genetically engineered to produce proteins, are also not currently required to be disclosed on package labeling. The lack of transparency makes it difficult to assess the inputs and impact of their use."

Many of these foods, including Impossible Foods' fake meat, are made with GMO soy, which in itself is ecologically devastating, in part because it's often planted where essential grasslands and prairies once stood. That soy is heavily sprayed with the cancer-linked herbicide glyphosate, posing additional environmental and potential human health risks.

Not surprisingly, testing by consumer group Moms Across America found the Impossible Burger contains Roundup ingredient glyphosate and its breakdown product AMPA,¹⁰ at levels of 11.3 parts per billion – that's 11 times higher than the glyphosate found in the Beyond Meat Burger,¹¹ the company's biggest fake meat competitor.

'There Is No Place for Nature' at Impossible Foods

Impossible Foods has even taken aim at regenerative farming practices, which are promoting optimal nutrition and health while at the same time helping to prevent pollution and restore damaged ecosystems. Yet, as Itzkan noted:¹²

"In this software-as-food scenario, there is no place for nature. Manufacturing of Impossible Burger starts with glyphosate-sprayed soy grown on what was once healthy prairie. It is then infused with heme molecules produced by patented yeast in high-tech labs for the blood-like upgrade.

Finally, it ends its journey as a plastic-wrapped puck that some are brave enough to ingest. Just fry with canola oil and the illusion of a meal is complete."

Impossible Foods also claims that they have a better carbon footprint than live animal farms and hired Quantis, a group of scientists and strategists who help their clients take actions based on scientific evidence, to prove their point.

According to the executive summary published on the Impossible Foods website, their product reduced environmental impact between 87% and 96% in the categories studied, including global warming potential, land occupation and water consumption.¹³ This, however, compares fake meat to meat from CAFOs, which are notoriously destructive to the environment.

"The pretense that this wealth-concentrating march of the software industry into the food sector is in any way good for people or the environment is predicated on a comparison with only the worst aspects of animal agriculture," Itzkan said.¹⁴

Grass Fed Farms Represent a Truly Regenerative Solution

White Oak Pastures in Bluffton, Georgia, which produces high-quality grass fed products using regenerative grazing practices, commissioned the same analysis by Quantis and published a 33-page study showing comparisons of White Oaks Pastures emissions against conventional beef production.¹⁵

While the manufactured fake meat reduced its carbon footprint up to 96% in some categories, White Oaks had a net total emission in the negative numbers as compared to CAFO produced meat. Further, grass fed beef from White Oak Pastures had a carbon footprint that was 111% lower than a typical U.S. CAFO and its regenerative system effectively captured soil carbon, which offset the majority of emissions related to beef production.¹⁶

"Within our margin of error," the report noted, "there is potential that WOP [White Oak Pastures] beef production is climate positive. This would be very rare and it is unusual that there is more benefit to producing something than to simply not produce,"¹⁷ but it's within the realm of possibility when it comes to properly raised grass fed beef. Fake meat produced in a lab simply can't compare.

"It [the fake meat industry] ignores, entirely, the rapidly growing regenerative movement that is offering so much hope for the planet at this key time, healing landscapes, replenishing aquifers and mitigating fires," according to Itzkan. "Thus, because of its

reliance on grains, tillage, pesticides and fertilizers, fake meat of scale exacerbates depletion of grasslands while undermining a more legitimate solution."¹⁸

Are There Health Risks in Fake Meat?

The drive for plant-based meat alternatives isn't due to health or even to support vegan or vegetarian diets. Those truly interested in eating a plant-based diet can do so by eating plants, after all, and in so doing can enjoy the many health benefits that eating plant foods provides.

Impossible Foods' numerous patents reveal that their products are driven by profits, and perhaps the ultimate goal is to replace real meat altogether with a highly lucrative patented product.

It's already known that the consumption of ultraprocessed food contributes to disease,¹⁹ but manufactured fake meat may also pose additional risks. The U.S. Food and Drug Administration, for instance, has raised concerns over the soy leghemoglobin in the Impossible Burger being a possible human allergen.²⁰

Impossible Foods' scientists also fed leghemoglobin to rats for 28 days to determine the risk of allergic reaction or toxicity. Dana Perls, from Friends of the Earth, pointed out that the rats exhibited alterations in blood chemistry "that could indicate kidney or other health problems," which the company did not follow up on.²¹

Consumer Reports senior scientist Michael Hansen added that there are no long-term studies of soy leghemoglobin in humans, even though the process to make it creates at least 45 other proteins as byproducts, which are also consumed and in need of further evaluation.²²

The fact is, fake meat cannot replace the complex mix of nutrients found in grass fed beef and other high-quality pastured meats, and it's likely that consuming ultraprocessed meat alternatives could lead to many of the same health issues that are caused by a processed food diet. To protect your health and the environment, skip pseudofoods that require patents and stick to those found in nature instead.

Sources and References

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- ^{15, 16, 17} Quantis, Carbon Footprint Evaluation of Regenerative Grazing at White Oaks Pastures
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