

Impossible Fools at Impossible Burger

Analysis by [Dr. Joseph Mercola](#)

November 02, 2023

STORY AT-A-GLANCE

- › In its 2019 Impact Report, Impossible Foods – maker of the Impossible Burger, a meat substitute using GMO soy – takes aim directly at regenerative ranching, claiming grass fed cattle ranching generates higher amounts of greenhouse gas emissions than cows raised in CAFOs
- › What the report fails to include is evidence showing grass fed ranching actually has net negative emissions after all relevant factors are taken into account
- › A life-cycle analysis (LCA) – performed by the same company that conducted Impossible Burger’s LCA – reveals the carbon footprint of beef from White Oak Pastures is 111% lower than conventional CAFO beef, as the “system effectively captures soil carbon, offsetting a majority of the emissions related to beef production”
- › Regenerative grazing is a key activity required for the optimal sequestering of carbon-dioxide from the atmosphere into our rangelands and pasturelands, while GMO soy production is associated with resistant super weeds and super pests and uncontrollable cross contamination
- › According to the latest forecast by the National Oceanic and Atmospheric Administration, a dead zone the size of Massachusetts may develop in the Gulf this summer, thanks to heavy rains washing agricultural chemicals off farmland

Editor’s Note: This article is a reprint. It was originally published June 26, 2019.

Are genetically engineered food and lab-grown meat the most sustainably regenerative choices available? Impossible Foods, creator of the meatless bleeding Impossible

Burger,^{1,2,3,4} made with GMO soy, would like you to think so. After the release of its 2019 Impact Report,⁵ senior manager of impact strategy, Rebekah Moses, told FoodNavigator-USA:⁶

“We have done a tremendous amount of diligence and we’re confident that in using GMO soy, we are not taking a step backward in terms of sustainability.

Soy is really high yielding, it’s a good source of protein and it’s more efficient than wheat. You get so much more protein in a given harvest vs the amounts of water, energy and inputs needed to grow it.

Everything is very field-based, but at a high level, there is very little difference if any difference in the environmental impact of conventional vs herbicide tolerant soy and in some cases using herbicide tolerant soy enables you to adopt more sustainable practices such as the ability to reduce tillage, which is a win for the soil.

Similarly, the chemicals you spray to manage pests – that includes insects and weeds – in herbicide tolerant crops are lower toxicity than the alternatives [used to grow conventional soy].”

Impossible Foods Takes Aim at Regenerative Farming

Impossible Foods also points out that since meat from cows require about 30 pounds of corn and soy for every pound produced, GMO soy burgers reduce the net use of herbicides.

However, while this is true for livestock raised in **concentrated animal feeding operations** (CAFOs), it’s absolutely not the case for organic grass fed beef production, as pastured cattle eat grasses and never lay a nose to GMO grains of any kind.

So, while GMO soy burgers may have an environmentally competitive advantage over CAFO beef, it cannot compete with regenerative grazing as far as herbicide usage (or toxicity thereof) is concerned.

Despite such well-established facts, Impossible Foods takes aim directly at regenerative ranching in its report, claiming grass fed cattle ranching generates higher amounts of greenhouse gas emissions than cows raised in CAFOs.^{7,8} What it fails to include is evidence⁹ showing grass fed ranching actually has net negative emissions after all relevant factors are taken into account.

Is Fake Food Really the Answer We're Looking For?

Impossible Foods' impact report is hard to reconcile with other established data showing GMO soybean and corn farms are a primary source of water¹⁰ and air pollution.¹¹ GMO soybeans and corn have also been identified as primary destroyers of grasslands and forests.^{12,13}

Regenerative grazing is also a key activity required for the optimal sequestering of carbon dioxide from the atmosphere into our rangelands and pasturelands, while GMO soy production is associated with resistant super weeds¹⁴ and super pests and uncontrollable cross contamination.

Impossible Burger also skirts the issue of nutrition by focusing solely on the intake of protein in general, ignoring the fact that **grass fed beef** contains a complex mix of nutrients (including healthy fats) and cofactors you simply cannot recreate by mixing together an assortment of plant-based components.

GMO Soy Linked to Ecological Devastation

To learn more about the ecological impact of soy, check out the Greenpeace documentary "**Soy: In the name of progress.**" Also take a look at Dan Charles' 2013 NPR article,¹⁵ "Pictures don't lie: Corn and soybeans are conquering U.S. grasslands." He writes, in part:

"Grasslands are disappearing ... They're being replaced by fields of corn and soybeans ... A study¹⁶ published in the Proceedings of the National Academy of

Sciences shows actual pictures – derived from satellite data – of that changing landscape.

The images show that farmers in the Dakotas, Minnesota, Iowa and Nebraska converted 1.3 million acres of grassland into soybean and corn production between 2006 and 2011.

‘This is kind of the worst-kept secret in the Northern Plains. We just put some numbers on it,’ says Christopher Wright, from South Dakota State University, who got funding from the National Science Foundation and the Department of Energy to take a close look at this phenomenon ...

Wright's images are striking, and these changes are having profound effects on the environment of this region. For instance, it's bad news for wildlife, because corn fields are much less inviting habitat for a wide range of wild creatures, from ground-nesting birds to insects, including bees.

Corn and soybean fields are increasingly encroaching into the Prairie Pothole region of the Dakotas and Minnesota, the most important breeding habitat for waterfowl in North America.

In southern Iowa, Wright says, much of the land conversion is taking place on hillsides. The soil of those fields, without permanent grass to hold it in place, is now much more likely to wash into streams and ponds.”

Modern Agriculture Largely Responsible for Death of Our Oceans

Chemical runoff is indeed among the most significant threats posed by these gigantic monocrop fields. As noted by National Resources Defense Council:¹⁷

“Nutrient pollution, caused by excess nitrogen and phosphorus in water or air, is the number-one threat to water quality worldwide and can cause algal blooms, a toxic soup of blue-green algae that can be harmful to people and wildlife.”

Similarly, a June 11, 2019 PBS News Hour article¹⁸ warns that “A ‘dead zone’ the size of Massachusetts could hit the Gulf this summer,” based on the latest forecast¹⁹ by the National Oceanic and Atmospheric Administration.

“If this prediction holds true, this event would be the second largest on the list of Gulf dead zones in more than three decades,” PBS reports, noting this dead zone “would be 50% larger than the average seen in the last five years.”

The reason for the massive increase in algal blooms that kill marine life by sucking up all the oxygen is blamed on heavy rainfall increasing chemical runoff from fertilizer-enriched farmland – in the case of the Gulf, farmland surrounding the Mississippi River. As reported by The Washington Post:²⁰

“Analyses from U.S. Geological Survey monitors in the Mississippi and Atchafalaya watersheds showed that discharge from these rivers was 67 percent greater than the 1980-2018 average. The amounts of nitrogen and phosphorus spilling into the Gulf were 18 percent and 49 percent above average, respectively.”

What’s more, “Even if nitrogen runoff was eliminated today from the Mississippi River, a 2018 study in the journal Science found, it would take at least 30 years for the Gulf dead zone to recover,” The Washington Post notes.²¹

Savory Institute Responds to Impossible Foods’ Attack

Impossible Foods specifically mentions the Savory Institute in its report, boldly claiming that Savory’s regenerative grazing theories have been “thoroughly debunked.” In response, the Savory Institute issued a statement saying:²²

“This is not the first, nor will it be the last, attempt to discredit Holistic Management as a sleight-of-hand for promoting and profiting off of large scale industrial agriculture ...

Claims that our work has been ‘debunked’ disregard not just the millions of acres that have been regenerated globally and the tens of thousands of farmers, ranchers, and pastoralist communities who have stewarded this land transformation and witnessed it firsthand ...

[T]hey also overlook the growing body of peer-reviewed evidence documenting that properly-managed livestock can be a net positive for grassland ecosystems,²³ carbon drawdown,²⁴ wildlife habitat,²⁵ and rural communities.”²⁶

Savory also highlights a third-party lifecycle analysis²⁷ (LCA) of a holistic ranch, showing properly grazing livestock “when taking a full accounting of all greenhouse gases in and out of their farming operation,” is a net carbon sink. As noted in the analysis, “Carbon footprint evaluation of regenerative grazing at White Oak Pastures”:²⁸

“Traditional LCAs don’t account for soil carbon sequestration and therefore don’t take into account the full carbon story for regenerative agriculture systems ... Soil samples were taken and evaluated to quantify soil carbon sequestration and allow a highly credible inclusion of this information into the LCA ...

As there is little information published on this topic and the outcomes challenge much conventional thinking on beef’s carbon footprint, careful consideration should be given to the conclusions and messaging.”

According to this analysis – notably performed by the very same company that conducted Impossible Burger’s LCA – the carbon footprint of beef from White Oak Pastures is 111% lower than conventional CAFO beef, as the “system effectively captures soil carbon, offsetting a majority of the emissions related to beef production.”

Regenerative Grazing Creates Net Carbon Sink

All things considered, including enteric emissions, manure emissions, soil carbon capture, vegetation carbon, miscellaneous farm activities, slaughter and transport, the total net carbon emissions from the beef production on White Oak Pastures was found

to be a negative 3.5 kilos of carbon emissions per kilo of fresh meat, making this integrated, holistic system six times more carbon efficient than the average CAFO production model. Importantly, as noted by Savory:²⁹

“What Impossible Burger seems to have conveniently omitted is that their GMO soy-based product is still a net carbon emitter in comparison to White Oak’s properly-managed livestock that create a net carbon sink.

Could it be that GMO soy-based Impossible Burger feels threatened by the regenerative movement? In a world where current agricultural practices have eroded soils to the point of having less than 60 harvests left (according to the UN FAO³⁰), the solution is not to maximize efficiencies in the broken, extractive, industrial model ...

Rather, as environmentally-conscious businesses and individuals, we must address the root cause and adopt land management practices that honor the symbiotic relationships of plants and animals. One cannot exist without the other, so we must reevaluate our preconceived notions and return to farming in nature’s image.”

White Oaks Pastures Invites Impossible Foods for a Visit

Will Harris, owner of White Oaks Pastures and president of the American Grassfed Association, has taken matters a step further, issuing an open invitation to Impossible Foods’ officials to visit his farm to get a thorough understanding of how regenerative grazing actually works. In a statement, Harris writes:³¹

“As an independent professional rancher, who has practiced regenerative land management on our family farm for more than 20 years, I can state unequivocally that Impossible Burger’s claims about regenerative grazing are incorrect.

Not only is our business financially successful on a large scale, but we are accumulating data showing that our practices are enhancing the carbon

sequestration potential of the soil on the lands we manage.

Today I am publicly inviting Impossible Foods representatives to visit my farm and see for themselves the many social, economic and environmental benefits of regenerative grazing.

I would be grateful to share our recent Life Cycle Assessment that clearly demonstrates that the carbon footprint of our farm results in a positive impact on the environment – a claim that imitation meat companies cannot make.”

Meat Replacement Companies Need to Demonstrate Superiority

On his website, Harris also highlights some of the other benefits of [regenerative farming](#) and why we need it:³²

“Land is meant to be a living thing. It contains the natural order of all living things: Life, Growth, Death, Decay, Life, Growth, Death, Decay. The land is our teacher. Looking back to the evolution of our ecosystem informs the way we manage land today.

The energy cycle, carbon cycle, mineral cycle, microbe cycle, water cycle have all co-evolved with plants, microbes, and animals since our planet's creation. Our passion is to create an environment that allows these cycles to flow freely: microbes feed plants which feed the animals which spread urine and feces to microbes which feeds the plants which feed the animals.”

Just how exactly does cultivating fake meat in an industrial facility improve the ecology of our environment? Again, we're not just talking about which strategy is the least destructive, we're talking about which one actually improves the environment the most.

“Talk is cheap” they say, and in the case of Impossible Burger's claims that certainly rings true. They (and other meat replacement companies) really need to tangibly demonstrate how their system is better, overall, and not just on some minor point, than the regenerative system.

Grazing Livestock Is Integral to Ending Ecological Destruction

In the podcast above, Sustainable Dish interviews Ronnie Cummins, executive director and co-founder of the Organic Consumers Association, about the importance of grass fed livestock farming for climate stability, environmental health, sustainability and regeneration.

As explained in many previous articles, livestock are important components that make farming truly regenerative, as they help build healthy soils. Lab-derived meat substitutes do not actually contribute anything to this healthy ecological cycle.

When animals are raised according to regenerative agriculture, a healthy ecosystem is produced and then more or less effortlessly maintained. So, eating meat is not synonymous with environmental harm; it's industrial farming practices — CAFOs — that inflict the damage.

Some also believe eating meat means ripping out more forests so animals can graze, but I'm certainly not advocating for that. U.S. cropland is currently dominated by a two-crop planting cycle of corn and soybeans, largely for animal feed. Like CAFOs, these monocrops are devastating the environment, and even though they're plant foods, they are part of the problem, not the solution.

Getting rid of these large swaths of corn and soy fields — which are laden with chemicals and largely devoid of life — is key, as is reverting them back to what they were before, namely grasslands for grazing animals.

Grasslands are key to fixing many environmental problems, and herbivores are a necessary part of this ecosystem. By mimicking the natural behavior of migratory herds of wild grazing animals — meaning allowing livestock to graze freely, and moving the herd around in specific patterns — farmers can support nature's efforts to regenerate and thrive.

Long-Term Health Effects of Fake Meat Are Still Unknown

Aside from the fact that fake meat production doesn't have any regenerative capabilities that would benefit the ecosystem, there's also the issue of health effects. A number of studies have highlighted the risks of ultraprocessed foods, showing they raise your risk of cancer, and the more ultraprocessed foods you eat, the greater your risk.

In one,^{33,34,35,36} which included 104,980 participants followed for an average of five years, 18.74% of the men's diet and 18.71% of women's was ultraprocessed, and each 10% increase in ultraprocessed food raised the cancer rate by 12%, which worked out to nine additional cancer cases per 10,000 people per year.

The risk of breast cancer specifically went up by 11% for every 10% increase in ultraprocessed food. While sugar and unhealthy fats are key staple ingredients suspected of causing these effects, there's reason to believe fake meat might have a similar impact, for a number of reasons.

For starters, the Impossible Burger meat substitute is the epitome of a highly-processed food – seeing how it's manufactured from start to finish, and involves the use of man-made ingredients – placing it squarely in the higher-risk category.

Secondly, GMO soy has been shown to have a number of health risks all by itself. Third, the human body is not designed to process fake meat and there's no telling what the long-term health ramifications might be. Even the liberal U.S. Food and Drug Administration has raised concerns over the soy leghemoglobin in the Impossible Burger being a possible human allergen.^{37,38}

Fourth, GMO soy is loaded with glyphosate, the health risks of which are of increasing concern as it's now being found in most processed foods, including non-GMO foods. Testing by Moms Across America (MMA) revealed concerning levels of glyphosate in the Impossible Burger.³⁹

Fake Meat Isn't About Humanitarianism; It's About Profit

You really need to question the rationale for creating expensive fake meat alternatives when a far less expensive and more reasonable answer is readily available. What's

worse, fake meats may ultimately create more problems than they solve, as laboratory derived meat substitutes are not part of the ecological cycle and health hazards are as yet entirely unknown.

This basic lack of understanding affects safety regulations pertaining to processing and manufacturing as well. Commenting on the open questions pertaining to fake chicken production, Al Almanza, former acting deputy undersecretary for food safety at the U.S. Department of Agriculture, noted that we still do not know “what’s normal or abnormal, and thus potentially unsafe, in a cultured-chicken plant.”⁴⁰

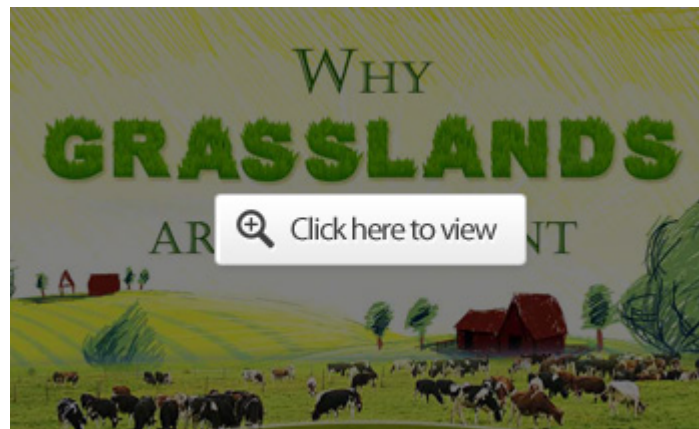
Without this knowledge, food inspectors have no idea what to look for, companies cannot devise and implement proper safety protocols and regulators cannot make regulations to ensure safety. The same applies to fake beef.

In its report “From Lab to Fork: Critical Questions on Laboratory-Created Animal Product Alternatives,”⁴¹ released in June 2018, Friends of the Earth calls for more stringent safety assessments, regulations and labeling requirements.

The report highlights a number of health and safety concerns and environmental impacts hidden beneath “climate-friendly” claims. It also points out the lack of substantiation for “clean meat,” “animal-free,” “plant-based” and “sustainable” claims.⁴²

All in all, it seems that, contrary to the PR being churned out, the creation of fake meat products is not about feeding the world or eliminating animal suffering. It's about dominating billionaires looking to put patents on the food system.

Go Grass Fed, Not Lab Bred



While many view lab-created meat substitutes as the lesser of two evils when comparing it to the CAFO meat that currently dominates the market, taking nature out of the equation altogether is not the answer, especially since holistic herd management is an integral part of the regenerative agriculture equation.

Ultimately, creating fake food is not the answer to solving the problems associated with conventional meat. For health reasons as well as ecological reasons, I recommend skipping the meat alternatives and opting for real beef raised the right way instead.

When you do shop for meat, go to a local organic farmer or look for Demeter (biodynamic) and American Grassfed Association (AGA) certifications. Both indicate high-quality, sustainable and environmentally sound food.

Sources and References

- ¹ [Living Maxwell August 8, 2017](#)
- ² [Eater August 8, 2017](#)
- ³ [Endgadget October 8, 2017](#)
- ⁴ [ARS Technica October 8, 2017](#)
- ^{5, 7} [Impossible Foods 2019 Impact Report](#)
- ^{6, 8} [FoodNavigator-USA June 13, 2019](#)
- ^{9, 27, 28} [Quantis, Carbon footprint evaluation of regenerative grazing at White Oak Pastures, February 25, 2019](#)
- ^{10, 17} [Natural Resources Defense Council, May 14, 2018](#)
- ¹¹ [UVA Today September 14, 2016](#)
- ¹² [Grist, December 31, 2009](#)
- ¹³ [TandF Online, March 31, 2016](#)
- ¹⁴ [Non-GMO Project. The GMO High-Risk List: Soybeans](#)
- ¹⁵ [NPR February 19, 2013](#)

- ¹⁶ Proceedings of the National Academy of Sciences March 5, 2013; 110(10): 4134-4139
- ¹⁸ PBS News Hour June 11, 2019
- ¹⁹ NOAA June 12, 2019
- ^{20, 21} Washington Post June 10, 2019
- ^{22, 29} Savory Institute responds to Impossible Burger's attack on regenerative agriculture
- ²³ African Journal of Range and Forage Science 2017; 34(2)
- ²⁴ Agricultural Systems May 2018; 162: 249-258
- ²⁵ African Journal of Range and Forage Science 2018; 35: 23-31
- ²⁶ Agriculture, Ecosystems and Environment April 1997; 62(2-3): 199-213
- ³⁰ Scientific American December 5, 2014
- ³¹ Organic Consumers Association June 12, 2019
- ³² White Oak Pastures, Land regeneration
- ³³ BMJ 2018; 360:k322
- ³⁴ BBC News February 15, 2018
- ³⁵ Time Magazine February 14, 2018
- ³⁶ The Guardian February 14, 2018
- ³⁷ Global Justice August 8, 2017
- ³⁸ New York Times August 8, 2017
- ³⁹ Moms Across America May 16, 2019
- ⁴⁰ The Atlantic April 16, 2019
- ⁴¹ Friends of the Earth, From Lab to Fork, June 2018 (PDF)
- ⁴² Bloomberg June 27, 2018