



LSP *Myth Buster* #58

An ongoing Land Stewardship Project series on ag myths and ways of deflating them.

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→ **Myth: Fake Meat Will Save the Planet's Climate**

→ **Fact:** The promoters of “meat” that does not come from living, breathing animals go to great lengths to differentiate their products from the “veggie burgers” that started popping up in the grocery aisle decades ago. The fake meat industry’s target customer is not the vegetarian or vegan. These products — also called “alt-meat,” “cultured meat,” or “synthetic meat” — represent a new generation of food that utilizes recent developments in biochemistry to create something that will taste close enough to the real thing to attract carnivores.

Faux burgers produced by companies like Impossible Foods and Beyond Meat are now being served in restaurants. This fall, McDonald’s announced its own alt-meat product, the “McPlant,” and Kellogg’s and Cargill are getting into this sector of the food industry.

A big part of the fake meat industry’s marketing campaign centers around climate change. Stop eating meat, switch to the McPlant, and we can save the planet from ecological doom, argue people like Pat Brown, a biochemist who founded Impossible Foods. In fact, Brown has been particularly blunt about his goal: he wants to use plant-based meat to wipe out all animal agriculture and deep-sea fishing by 2035, according to the *New Yorker* magazine.

Brown and his colleagues are making the argument that since animal agriculture contributes to climate change, having *no* animal agriculture will solve our climate problems. But it’s not so much the cow, as the how, something the backers of fake meat fail to acknowledge. They are also failing to be transparent about their own industry’s carbon footprint.

Plant-based burgers are a concoction of ingredients like peas, mung beans, brown rice, coconut oil, and cocoa butter. It’s a highly processed product that has to be done in expensive, high-tech facilities. The Impossible Burger’s key ingredient is a molecule called “heme,” which is produced in tanks of genetically modified yeast.

Other companies are pursuing a different path by growing meat from animal cells in vats. As of this writing, only Singapore has approved lab-grown meat for sale to the public (it’s “cultured chicken”), but

several start-ups are attracting billions in Wall Street and Silicon Valley cash as they produce prototypes that are supposed to taste like beef, pork, and fish.

Although the alt-meat industry correctly points out that their gleaming laboratories would occupy a fraction of the landscape that millions of head of livestock do, there’s more to reducing one’s carbon footprint than cutting square footage. Highly processed foods of all types have a massive carbon footprint, given the amount of energy and ingredients required. The plants that go into plant-based products have to be grown somewhere, and crops like soybeans are already creating environmental problems because of the role they play in an input-intensive monocultural system. It should also be noted that the more processed a food product, generally the less healthy it is.

On the face of it, alt-meat is just replacing one resource intensive process for another. But it’s actually worse than that. By working to eliminate the entire livestock industry, people like Brown aren’t just targeting industrialized feedlots and CAFOs, they’re going after the regenerative sector of the business — the growing part of agriculture that utilizes managed rotational grazing of deep-rooted grasslands and cover crops, and thus gives farmers an economic reason to grow a diversity of soil-friendly plants. And when that’s gone, so goes an incredible opportunity to make agriculture a carbon sink while revitalizing rural economies.

Critics of grass-based livestock production point out that since pastured animals take longer to reach market weight, they have more time to produce greenhouse gases when compared to their counterparts that are fattened on high energy grain in feedlots. But a Michigan State University study found that when cattle were raised in a managed rotational grazing system that allowed pasture grasses to develop deep roots and healthy stands of forage, the soils could sequester enough carbon to more than make up for the longer period of time the animals are putting on market weight. And all that corn being fed in feedlot systems has its own significant carbon footprint when it comes to the energy, tillage, and chemicals used to

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produce it.

An Oxford University study directly compared cultured meat production to various forms of beef farming, including pastured systems. Scientists found that while beef production of all types produces more methane in the near term, in the long term it's the cultured meat industry that causes the most harm given its contribution to carbon dioxide emissions. What the Oxford research found was that the warming effect declines and stabilizes in cattle systems, while the CO₂ based warming from cultured meat persists and accumulates, overtaking beef production in some scenarios.

A major reason grass-based livestock production can play a significant role in sequestering greenhouse gases is because of the "biogenic carbon cycle" — a relatively fast removal of carbon dioxide from the atmosphere via photosynthesis in plants, which deposit that carbon into leaves, roots, and stems while oxygen is released back into the atmosphere. Through the biogenic cycle, the methane cattle belch out is broken down and converted back to CO₂. Once converted

to CO₂, plants can use these emissions to perform photosynthesis and fix the carbon back into cellulose, which cattle can then consume as part of a continuing, closed-loop cycle that is roughly a decade in length. But when carbon is released through the burning of fossil fuels to power, for example, an alt-meat processing plant, the cycle is measured in terms of millennia — a thousand years or more.

That's why it's misleading to say things like, in terms of our carbon footprint, cutting a quarter-pound of beef from our diet each week is the equivalent of taking 10 million cars off the road annually. Gasoline and steel don't cycle carbon back into the soil within a decade, while grass and hooves do.

There's nothing inherently wrong with using technology to create alternative nutrition choices. But if the same corporate mind-set that gave us industrial meat is controlling the fake meat game, we shouldn't expect a better result, and perhaps we should be prepared for an even worse one.

More Information

- To read the *Agricultural Systems* journal study, "Impacts of soil carbon sequestration on life cycle greenhouse gas emissions in Midwestern USA beef finishing systems," see <https://bit.ly/3klu9RP>.
- "Climate Impacts of Cultured Meat and Beef Cattle" can be found in the *Frontiers in Sustainable Food Systems* journal at <https://bit.ly/2UE4rU6>.
- For more on how regenerative farming practices can mitigate climate change, see <https://landstewardshipproject.org/carbonfarming>.

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