

Yuxi Xia

Final Draft - 05/03/2020

A Sustainable Future of Food Begins in The Petri Dish: An Interview with Annie Osborn from  
The Good Food Institute

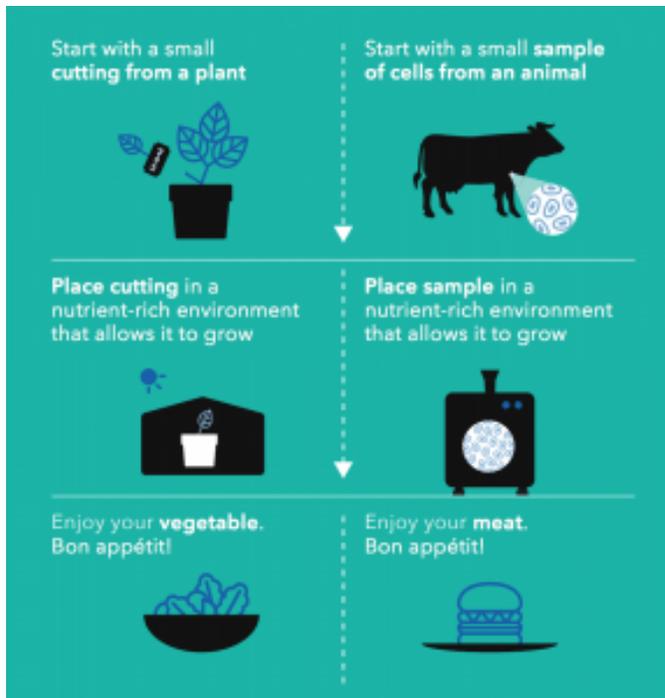
*Convincing individuals to change their diet hasn't worked. That's why we need supply side change—from farmed animals to cultivated meat—to build a sustainable future of food.*

I first met Annie Osborn at a reception after a panel on “The Future of Food: Growing Meat to Feed 10 Billion” hosted by Harvard’s Office of Career Services. Featuring scientists, entrepreneurs, policymakers, and movement builders, the panel addressed questions from “What is cultivated meat?” to diverse career pathways into the burgeoning field of alternative protein. Given the abstract and futuristic topic of cultivated meat—something that most people have never heard of—I figured that I’d likely be one of the few attendees on a stormy February day in New England. To my surprise, the conference room was jam-packed with eager students ready to make an impact. Standing at the back, I had to stand on tip-toe to see the panelists through the gaps between others in front of me.

Such a panel like this is one of the many ways that Annie, University Innovation Specialist at the [Good Food Institute](#) (GFI), is fostering engagement and collaboration between universities, students, and the plant-based and cultivated meat industries.

A non-profit based in the U.S., GFI works with scientists, investors, and entrepreneurs worldwide “to make groundbreaking good food a reality.” In GFI’s words, good foods are “foods that are more delicious, safer to eat, and better for the planet than their outdated counterparts.”

Simply put, cultivated meat is meat produced directly from animal cells in cultivators. Adapted from a widely accepted technology used to regenerate organs for medical purposes, this innovative approach grows meat from just a sample of animal cells. This is different from plant-based meats like the Impossible Burger and Beyond Meat. Done entirely outside of an animal, cultivated meat requires no factory farming or slaughterhouses but yields a product that looks, cooks, and tastes the same as slaughtered meat. The environmental benefits of this approach are many: it reduces greenhouse gas emissions, avoids manure and antibiotic pollution, and it conserves land and water, to name but a few.



(Image source: [GFI & Mattson.](#))

Annie did not start her career well-versed in the promise of cultivated meat. The combination of her education and research experiences led her to GFI. While pursuing a B.S. in Earth Systems at Stanford University, Annie focused on sustainable fisheries as a way to explore her interests in marine biology. Despite loving her research at the Alaska Marine Conservation Council, she gradually came to a realization: “There was no such a thing as a sustainable fishery at the scale you would need to feed everybody who wants to eat fish.”

“We have overfished the oceans far more than we have over-farmed the earth,” Annie explained. “Almost every major fishery is in the state of collapse right now.” Over the last 50 years, the number of fish in the world has [halved](#). According to the FAO, nearly [90%](#) of the world’s fish stocks are overexploited, fully exploited, or depleted.

Aside from issues of sustainability, Annie also became more concerned about the moral status of fish. Three words from Finding Nemo capture it well: “Friends, not food.”

When Annie continued to graduate school at Stanford, she shifted her focus away from marine research to studying sustainable agriculture. Modeling commodity grain prices for her master’s thesis, Annie became aware of the inefficiencies of our agricultural systems. Today, only [55%](#) of the world’s crop calories are fed to people, while 36% are devoted to feeding livestock. Meanwhile, only [17-30 calories](#) of food is produced for every 100 calories of edible grains fed to animals. This explains why animal farming takes up [83%](#) of our farmland but provides only 18% of our calories. “It’s a really imbalanced system,” Annie stressed.

After graduating from Stanford, Annie spent a year researching micronutrient deficiency in rural China, another experience that reinforced her belief in “supply-side” transformation of our food system. The prevalence of micronutrient deficiencies in western rural children in China that she witnessed was deeply depressing. Day after day, Annie met families who had anemic children. “They were lagging cognitively and it was really affecting their development,” Annie said, “but we didn’t really have any ways to help them other than telling them ‘you need to feed them meat.’” This made Annie realize that many people are not able to make thoughtful decisions about what they eat.

“It’s very hard to motivate people to change their behavior if you don’t provide an alternative option—especially when it comes to food. If we really want to precipitate a major quick change in our food system,” Annie reasoned, “it needs to come from the suppliers. It needs to be ethically driven as much as market driven, and it needs to happen quickly.”

A market-driven, technology-based revolution of the food system is exactly what GFI is working towards. “One of our theses is that the free market, while flawed, is an incredibly powerful resource,” Annie explained. It is a system that can precipitate rapid change if you can harness it. That’s why GFI is laser-focused on transforming the food system by leveraging the meat industry’s economies of scale, global supply chain, marketing expertise and massive consumer base.

Under the market system, “you have to think about what consumers want,” Annie explained. There are three main criteria consumers base their decisions on: taste, price, and convenience. Consumers want palatable food that is cheap and easy to cook and to keep. To precipitate a change in the food system through meat, dairy, and egg alternatives, they must outcompete their animal-based counterparts in the marketplace on all three criteria.

Another aspect to consider is the ethics of meat production and consumption. “People currently eat meat despite how it is produced, not because of how it’s produced.” People are always horrified when being exposed to inhumane practices in concentrated animal feeding operations (CAFOs) and slaughterhouses, “but because they have no other choice now, they are kinda just accepting it,” Annie observes.

The supply-side reform to revolutionizing the food system is promising. When cultivated meat becomes the default, a sustainable future will no longer depend on the careful choices of consumers. “Supply-side change allows you to impact many individuals without having to tailor your message to each and every one of them,” explains Annie. “Supply-side change allows individuals to preserve their behaviors for the reasons that are valuable and meaningful to them, which in turn vastly lowers the activation energy required for global change.”

The urgency of change is only heightened under the current COVID-19 pandemic, which has illuminated the myriad risks posed by our current food system. While there's no evidence of a direct causal link between CAFOs and COVID-19, pathogens do jump from factory farms to humans. Globally in the past 30 years, [75%](#) of new human pathogens have originated from animals. In the U.S., 80% of antibiotics are used in animal agriculture, which contributes to increasing antibiotic resistance. "Our food system is also a serious disease factor," Annie remarked.

It is uncertain how the current pandemic might shift the investment landscape in cultivated meat, which had been predicted to be commercially available in supermarkets in 8-10 years. The challenge is to bring down the price of cultivated meat, which is currently very expensive to produce. The severe economic impact of COVID-19 may delay the process, but it's also possible that the crisis will alarm governments to shift away from animal agriculture and support cultivated meat research. "That feels a little optimistic, even though it is reasonable," Annie speculated.

A large-scale supply-side transition to cultivated meat and alternative protein would be devastating for farmers and fishers. GFI is attentive to the challenge. While GFI primarily works with researchers and companies who are good food innovators, they remain committed to building connections with those who work closely with farmers so that livelihoods concerns can be addressed.

Another unique fact about GFI is their strategic use of language. Take a look at GFI's publications, and you won't find the word "vegan." While "vegan" labels are helpful for consumers who do not want to consume animal products, that language also comes with a stigma that is not helpful for innovators who are recreating the components of meat in novel food products.

To Annie and her colleagues at GFI, cultivated meat promises to revolutionize our current food system and mitigate the environmental impacts of animal agriculture without requiring conscientious effort from consumers.

In her role as the University Innovation Specialist at GFI, Annie works to engage high-potential entrepreneurs and scientists with the plant-based and cultivated meat industry. Across university campuses, she builds and supports [student](#) communities and departments centered around the future of meat.

"An overarching goal is to set up research centers," Annie envisioned. "A big dream is to have an alternative protein research center in Boston with experts from Tufts, Harvard, MIT—and Wellesley maybe—all working together to really propel the science forward."

Ultimately, GFI wants “to mobilize resources towards solving the technological issues around sustainable food production in an open-access way so that the whole industry can move forward more quickly.”