Meat And Agriculture Are Worse For The Climate Than Power Generation, Steven Chu Says

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Green Tech
From Chicago, I write about green technology, energy, environment.

Cows stand in stalls at a farm in Wisconsin. Daniel Acker/Bloomberg

The world has focused first on energy in its effort to stop greenhouse gas emissions, but former Energy Secretary Steven Chu puts agriculture at the top of his list of climate challenges—particularly animal agriculture.

The Nobel Prize winning physicist surveyed the world's carbon-polluting industries in a lecture at the University of Chicago, and he started with meat and dairy.

dairy.

"If cattle and dairy cows were a country, they would have more greenhouse gas emissions than the entire EU 28," said Chu, who recently assumed the presidency of the American Association for the Advancement of Science.

"Just something to think about."

Chu lumped the greenhouse gas emissions from meat and dairy with other agricultural practices, such as fertilizer, and land-use changes, such as deforestation and soil disruption. He weighted the resulting greenhouse gases for lifetime and potency, showing that emissions from agriculture are a bigger problem than emissions from energy.

"Let me say it again: agriculture and land-use generates more greenhouse gas emissions than power generation."

Chu described the unnatural effects of industrial agriculture: what he called "oversexed corn" that devotes all its life energy to making giant kernels, pigs that gain 280 pounds in a matter of months, turkeys so breast-heavy they can't mate and must be artificially inseminated—a planet dominated by animals modified and raised and slaughtered to feed humans.

"Let me tell you how the carbon mass of animals is distributed," Chu said, referring to a recent study of biomass on earth. "Humans and the animals we eat are 96 percent of the carbon mass (of mammals) in the world."

He pointed at the smallest sliver on a chart. "That's all the buffalo and rats and mice and lions and tigers and bears: 4 percent."

Chu is not the first to suggest that experts underestimate the climate impact of animal agriculture. Experts typically attribute about 15 percent of the world's carbon emissions to livestock, but the Worldwatch Institute audited that number in 2009 and found uncounted emissions that bring the livestock contribution to 51 percent.

The answer, to Chu, is biotechnology. He profiled fake meat—highlighting the brands Impossible Burger and Beyond Meat—and

Impossible Burger and Beyond Meat—and a symbiotic fertilizer technology.

Steven Chu, former U.S. Secretary of Energy, 1997 Nobel Prize winner in physics, and the new president of the American Association for the Advancement of Science. (AP Photo/Tsering Topgyal)

Chu is a Stanford professor not only of physics—the field in which he won the 1997 Nobel Prize—but also of molecular and cellular physiology. His lecture was hosted not only by the Energy Policy Institute of Chicago (for whom I sometimes host podcasts), but also by the Institute for Molecular Engineering. And his solutions to climate change reveal a bent for engineering and biotechnology.

"There are certain plants, legumes especially, that develop symbiotic relationships with the microbes in the soil. Can you get corn and train the microbes to interact with corn, so the corn actually looks upon the microbes as a source of nitrogen? The answer is, yes, you can."

Both fake meat and symbiotic fertilization have to become more cost effective, Chu said, before they can solve agriculture's climate problem. Of symbiotic fertilization he said:

"The question is does it make economic sense? One hopes yes. Once it makes good economic sense, then the farmers will adopt it. There's no legislation in the world that can tell a farmer what to do, so it's about offering a better choice."

This is third in a series of four stories about Steven Chu's views of climate change and its potential solutions. Read more:

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