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To Combat Climate Change, We Can't Ignore Agriculture

Meat consumption per capita in China has doubled in the last 25 years, and is rising 3% a year, says WSJ Energy Expert Jason Bordoff. PHOTO: ISTOCK PHOTO

By

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There's no solution to climate change that does not include dramatic changes in how we produce and consume food. Livestock are directly responsible for 15% of global greenhouse gas emissions through agricultural production. The leading source of agricultural emissions is methane from livestock (while cow farts are often blamed, the burps are the main culprit).

Agriculture is also a leading driver of land-use change (for example, cutting down forests for croplands or pasture), and land use overall is responsible for a staggering one-quarter of global

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greenhouse gas emissions.

Yet while September's Climate Week in New York included calls to phase out fossil fuels, agriculture received scant attention.

Relative to subsidizing renewables, setting efficiency standards or even pricing carbon, the policy pathways to reduce agriculture emissions are less clear, not to mention more complicated to monitor and verify.

Efforts to change cultural norms to eat less red meat, the worst offender from a climate standpoint, have met with little success. Not only is world population growing, but as people grow richer, they continue to consume more meat. Meat consumption per capita in China has doubled in the last 25 years, and is rising 3% a year.

So what's the solution? Just as the "Green Revolution" of the 20th century saved us from Malthusian predictions that a growing population would run out of food, so too can technology deliver innovations to reduce the climate-change impacts of our food system.

First, new technologies are creating new potential substitutes to meat. Plant-based "meat" has one-tenth the carbon footprint of meat and sales are growing rapidly. Beyond Meat's IPO in May was the year's most successful by far, and Impossible Foods' IPO seems widely anticipated by frenzied investors.

Second, technology and improved agricultural practices have the potential to reduce emissions significantly. New chemical additives in feed and changed diets can have a surprisingly large impact. Research by a professor at University of California, Davis, for example, found that adding a particular kind of seaweed to cows' ordinary diets could slash enteric methane by more than 50%. Nitrification inhibitors slow the rate at which excess nitrogen in fertilizer oxidizes into greenhouse gas. Methane digestors capture the potent greenhouse gas from manure lagoons, allowing the methane to then be converted into energy in the form of electricity or natural gas.

Third, reducing food waste is important, as a staggering one-third of what the world grows to eat is never consumed. In the developed world, that is often post-consumption waste. But in developing countries, 40% of the food produced spoils or is thrown away before reaching consumers. Here, technology, too, provides a solution, from temperature-controlled supply chains to software and imagery tools that all help ensure produce, fish and meat arrive fresh at the market.

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Finally, new technology will soon give us much greater visibility into and understanding of the scope of the challenge. Several new satellites, such as MethaneSAT by the Environmental Defense Fund, are about to be launched that will provide far more precise information about the location and sources of methane emissions, a very potent greenhouse gas.

While technology and improved practices can deliver solutions, as with other environmental challenges from acid rain to lead, those solutions will not be implemented unless policy creates the right incentives. For example, government can incentivize reductions through a price on emissions, regulate emissions or provide farmers with grants to adopt climate-friendly technologies and practices.

The state of California recently passed a law requiring a 40% reduction in potent but short-lived greenhouse gases, including methane, and the Air Resources Board has committed to regulate methane emissions from dairy and livestock by 2024. The state has used public funds to help farmers cover the cost of projects like methane digestors.

Eating less red meat is among the largest contributions that can be made at the individual level to reduce greenhouse gas emissions. But we can't rely only on changing cultural norms and consumer habits. The good news is that new technologies and practices to deliver meat substitutes and reduce the climate impact of livestock means a stronger focus on what we eat in climate policy design is not only necessary, but increasingly feasible.

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