



Media Background

Spotlight: How Food Companies Are Driving Down Agricultural Emissions

From wearable devices for cows that capture the methane to perennial rice that isn't grown in water and grows back each year, food companies are developing and deploying innovative approaches to slashing agriculture's greenhouse gas emissions. This innovation is critical for the food sector's climate transition as raising animals and growing crops is responsible for [up to 35% of human-produced emissions](#).

In a new report, *Cultivating Innovation: Practical Solutions for Companies to Reduce Agricultural Emissions*, Ceres lays out both the emerging and the ready-to-deploy technologies and approaches that are the future of a low-carbon, sustainable food system.

The report helps investors and companies understand the emerging solutions to reduce the main sources of agricultural emissions. By spurring innovation of new solutions while also incentivizing the adoption of existing practices, food companies have a key role to play in the sector-wide transition to a decarbonized economy.

Cross-sector and public-private collaborations to spur innovation

Across the sector, companies are investing in agricultural innovations. Key examples include:

- [The 100+ Accelerator](#), launched by Anheuser-Busch InBev, Coca-Cola, Colgate Palmolive, and Unilever, pools resources to help startups pilot, test, and scale solutions for key challenges in the global food and packaged goods industries. One company that participated in the accelerator was [Teralytic](#), a startup that manufactures wireless sensors that can collect data on water, soil, and fertilizer use and transmit that data up to 10 miles away, to help farmers tailor fertilizer application to changing conditions. Coca Cola piloted the sensors with several farmers in the Midwest in 2022.
- Archer Daniels Midland and Nestlé helped found the [Greener Cattle Initiative](#), and JBS USA sits on the steering committee. The initiative is researching a wide variety of technological solutions to address methane emissions from livestock, including breeding cattle with genetic traits to emit less methane and developing additives that, when added to cattle's feed, reduce how much the methane-producing microorganisms is produced in the animals' stomachs. Seaweed is one example of additives that the industry overall is experimenting with.

Emerging technologies to reduce emissions and meet climate goals

With climate change already impacting the food sector, any and all options to reduce agricultural emissions must be explored for the sector to have the best chance at mitigating escalating climate risks and building resilience within the supply chain. Among the most promising innovations are:

- **Methane capturing wearable devices** that capture methane from cow burps and convert it into water and carbon dioxide, which is a less potent GHG compared to methane. One methane mask product, [ZELP](#), has been shown to reduce methane emissions by 53% according to the manufacturer. ZELP was developed [with EU funding](#), and has recently attracted investments from [Danone](#) and the [Bill & Melinda Gates Foundation](#).

- **Methane-preventing vaccines** designed to make cows' immune systems produce antibodies that target and stop methane-producing microbes that are being developed by companies such as [ArkeaBio](#), a company incubated by [Breakthrough Energy Ventures](#). The vaccine research is still in the discovery and experimental phases.
- **Nanofertilizers** – small, particle sized fertilizers – are being designed to help improve plants use of nutrients, in a variety of ways, including through better uptake of the nutrients directly through a nanoscale pore in the plants' tissues, so that crops need less fertilizer to grow. Nanofertilizers [could reduce](#) fertilizer application rates and nutrient loss by 20%. U.S. Department of Agriculture's Agriculture and Food Research Initiative has funded research projects at universities and research stations to [develop](#) nanofertilizer technologies and [evaluate](#) food safety and plant health implications.
- **Agrivoltaics** is an [experimental approach](#) to producing on-farm renewable energy that involves generating solar power and growing crops at the same time by planting crops beneath solar panels. Solar panels can also be incorporated into livestock pastures. On a large scale, the solar power generated by agrivoltaic systems could nearly eliminate carbon dioxide emissions from a farm's energy use, especially if paired with electric tractors, heating, and irrigation equipment. The U.S. Department of Energy supports agrivoltaic research through [InSPIRE](#), and [recently introduced legislation](#) would provide \$15 million per year over five years to establish an agrivoltaic research and demonstration network within USDA's Agriculture Research Service.