Cow masks? Agricultural company tries methane-absorbing wearable device

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Many humans adjusted to wearing masks last year for the greater good. Why not cows?

Cargill Inc. is partnering with Zelp Ltd., a U.K.-based startup, to distribute devices that are put over a dairy cow's nose to absorb methane released by their burps and exhales.

Minnetonka-based Cargill, with a sizable animal nutrition business in Europe, is working with dairy farmers there to gauge and shore up interest in using Zelp's cow-mask technology.

It's the latest in a series of experimental pilots, programs and technologies being explored by the mammoth agribusiness as it seeks to reduce the environmental toll of livestock within its supply chain.

"It's obviously reducing methane—that's the primary piece—but it also improves animal welfare because we are able to capture, analyze and process data about the animals and their behavior and eating habits," said Heather Tansey, sustainability director for Cargill's protein and animal nutrition businesses.

The wearable device is fitted on a harness and hangs over the cow's nostrils like a window awning. The accessory captures and converts methane, of which 90 to 95% is released through a cow's mouth through belches or exhalations, into carbon dioxide.

Zelp notes that while CO_2 is also a greenhouse gas, methane is a far more potent contributor to warming the planet. Early trials suggest its devices effectively capture more than half the methane emissions created by the dairy cows.

As one of the world's largest purveyors of agricultural goods, Cargill is under constant pressure to clean up its supply chain in everything from palm oil to soy.

Its beef production, concentrated largely in North America, is arguably

under the greatest consistent pressure because of the greenhouse gas emissions of ruminants.

Recent events have ratcheted up the scrutiny in new ways. The COVID-19 pandemic exposed vulnerabilities of a concentrated meat industry, with four major processors, including Cargill, controlling roughly 80% of the U.S. beef market.

The recent ransomware attack on competitor JBS U.S. again highlighted the influence the dominant meat companies have on the nation's supply of conventional proteins.

The Food and Agriculture Organization of the United Nations estimates that 14.5% of greenhouse gas emissions caused by human activity are due to the feeding, raising and processing of livestock. Last year Cargill rolled out its Beef Up program aimed at cutting its U.S. beef emissions by 30%.

Its efforts so far have largely been focused on partnering with conservation nonprofits and major U.S. retailers and restaurants, including McDonald's and Target, to expand soil health-improvement techniques, commonly called regenerative agriculture, that use specialized grazing practices to capture carbon in fields and pastures.

The cow-mask product is still in a trial period and, with Cargill's network of dairy farmers in Europe , could scale more quickly.

"If it is successful in capturing and converting methane to CO_2, and you can scale it up and put it on a lot of farms ... then, yes, [meaningfully cutting emissions] is definitely a possibility," said Brad Heins, a dairy production professor and researcher at the University of Minnesota.

Cargill said it doesn't plan to bring the mask technology to the U.S. for

use on beef cattle. But Heins said he believes such a device could easily be applied to a feedlot setting.

Perhaps the most important factor in the success of the apparatus will be the cost, Heins said.

"It has to beat a certain price point. There has to be some economic advantage to the farmer. Obviously economics drive a lot of their decisions," Heins said.

The company said it hasn't determined the cost of the device yet, and much of it depends on incentives given European dairy farmers, that according to a Cargill spokesman, are "rapidly evolving and will certainly have changed by the time we will go to market."

Zelp says the cows quickly adjust to the wearable device, which also collects data that can detect early signs of disease or when the cows are most fertile. The distributor partnership builds on Cargill's existing sales portfolio, which includes feed additives that claim to lower methane production within the animal's gut.

Tansey said the company sees a clear sales pitch for this device.

"We think there are some really interesting insights we are going to be able to gain with producers around sustainability," Tansey said. "There are a lot of downstream customers that are interested in reducing the impact of the milk they are buying."

Farmers looking to sell "climate-smart milk" that fetches a premium could see the financial benefit.

"We believe the farmers that will be interested in this product," Tansey said, "are ones selling to companies wanting a more sustainable supply

chain."