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Climate change



Product



Regional and national support in The Netherlands for trials and testing



Internal commitment to address climate change



Absence of pricing for externalities in livestock sector



With universities and research institutes during demonstration and trial phase



Bovaer® could be applied to all ruminants



A supportive policy and financial framework will be key



# One cow burp at a time

The methane challenge is finally getting the attention it deserves. We have known for a while that the window of time to stop global warming from turning into an irrevocable climate catastrophe is closing fast. But it is only recently that tackling methane emissions has been internationally recognised as an important lever to fight climate change. So far, 150+ countries have pledged to reduce methane emissions by 30% by 2030, as part of the Global Methane Pledge.

With an atmospheric lifetime of only around 12 years versus CO<sub>2</sub>'s centuries, methane is a much shorter-lived gas. However, its greenhouse effects are 84 times more potent on a 20-year timescale than those of CO<sub>2</sub>, making it a major contributor to climate change.

One of the main sources of methane emissions is agriculture, where dairy and beef cattle are responsible for around 30% of annual global anthropogenic methane emissions. Tackling this challenge is an important part of lowering the environmental footprint of beef and dairy products – after all they are key sources of high-quality, affordable protein.

The challenge is that, as ruminants, cattle can't help burping out methane; it's a natural part of their digestive process.<sup>1</sup> Fortunately, although the cattle can't help it, the agri-food sector can.

## Disarming the burp

Bovaer® is the ground-breaking result of a research and development journey lasting more than a decade – and now it is starting to make a difference. Bovaer® is a feed additive for cattle (and other ruminant herds) developed by dsm-firmenich.

The journey started fifteen years ago, when we identified tackling human-induced climate change as a key innovation priority. Colleagues from across the company were invited to pitch innovative ideas to address climate change through scientific discovery. One of the selected projects focused on a fundamental scientific challenge: how to reduce methane emissions from ruminants.

The R&D journey to develop the solution was extensive and required significant investment and patience, supported by a long-term vision. Until then, the scientific community had failed to find a solution and was generally sceptical about the possibility to overcome this challenge. But we managed.

A quick word on how this innovation works: microbes break down food in cattle's stomachs to release hydrogen and carbon dioxide. An enzyme combines these gases to form methane, which is emitted burp by burp.

<sup>1</sup> <https://www.ccacoalition.org/en/projects/enteric-fermentation>

Bovaer® suppresses this enzyme, reducing methane production. It works quickly, with just a quarter-teaspoon per day taking effect in as little as 30 minutes, and safely breaking down into compounds already naturally present in the animal's stomach. As soon as Bovaer® is no longer added to the feed, full methane production resumes as normal.

### A measurable impact

Feeding cattle Bovaer® consistently and conveniently reduces their enteric methane emissions – by an average of 30% for dairy cows and 45% for beef cattle. Feeding 1 dairy cow with Bovaer® for 1 year, saves around 1 ton of CO<sub>2</sub>-equivalent emissions (CO<sub>2</sub>e), and feeding Bovaer® to 3 cows is like taking 1 family-sized car off the road. Since Bovaer® was first developed, it already enabled the reduction of 50,000 tonnes of CO<sub>2</sub>e (until June 2023). And that's just the beginning, as the product has been on the market for only a year.

To date, Bovaer® is the most extensively studied and scientifically proven solution to the challenge of methane emissions from ruminants – with more than 60 on-farm trials conducted across 18 countries and various feeding systems, as well as more than 60 peer-reviewed studies published. In the EU, Bovaer® is the first feed additive authorised for environmental benefits.

### Accelerating impact in Europe

Bovaer® enables progress towards the Global Methane Pledge and fits well into the EU Farm to Fork strategy. But – as with most innovation – potential impact is not enough. In our case, real impact depends on the very simple question of how many cows have Bovaer® added to their

feed on a continuous basis. So, what is needed to convince as many farmers as possible to add Bovaer® to the feedmix?

To a certain extent, uptake can be promoted by private sector action and adoption throughout the value chain is already happening. In Europe, dsm-firmenich already partners with leading dairy producers such as Bel Group (France and Slovakia), FrieslandCampina (The Netherlands) and Arla Foods (Denmark, Sweden, and Germany).

Yet – to reach scale in uptake, more systematic incentives and pull factors will be key and this is where EU policy should step up.

First, it is key to enable and incentivise farmers via financial support for those who adopt proven sustainable innovations to reduce methane emissions. Funds from the EU's Common Agricultural Policy (CAP) can play an important role, notably by a greater use of so-called Eco Schemes, as already adopted in Flanders and Slovenia.

Second, consumers need to be in the position to make informed choices based on reliable, accurate and consistent eco-labelling on product packaging. Both the impact of innovative solutions and the farmers' efforts need to be recognisable to consumers: it is them who ultimately decide on the commercial success of innovation. And environmental foot-printing will only work if it is based on consistent calculation rules and is easy to implement for farmers. The adoption of a legislative framework on Sustainable Food Systems at EU level would be a powerful enabler for sustainable innovation.

Innovation – whether it is green fuels or reducing the methane-content of cow burps – always means changing the status-quo. In our case, success depends on aligning interests of millions of consumers and thousands of cattle farmers. The 1.5°C window is closing quickly – with the right policy in place, we can slow this down, one cow burp at a time.

