



Elanco™

**Bovaer®**

# Earning value through enteric methane reduction

Right for cattle. Right by you.

**Elanco**

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Elanco™

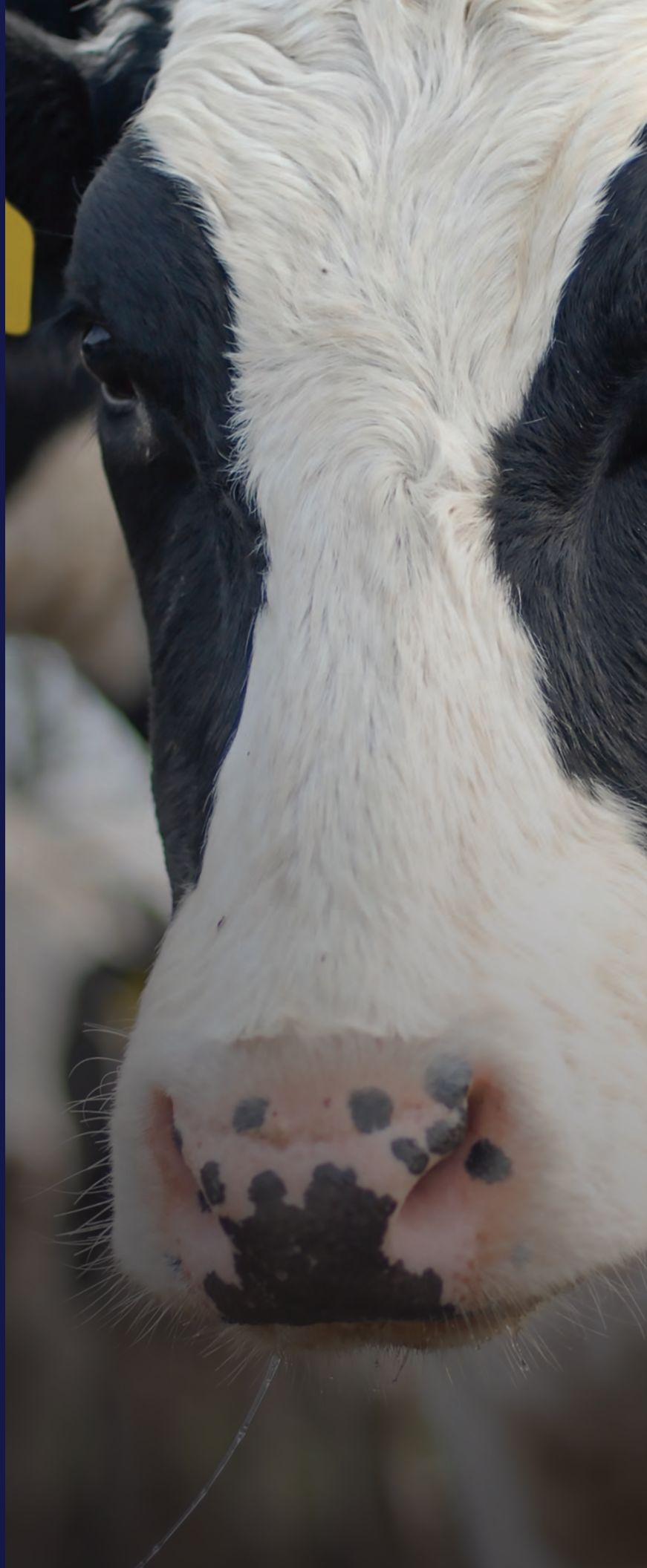
**Bovaer®**

Every dairy could use additional diversified income. That's where Bovaer® from Elanco comes in. Bovaer is a feed ingredient that reduces enteric methane emissions in lactating dairy cattle and provides dairy producers with an opportunity for an income stream that's not dependent on milk markets: the carbon marketplace.

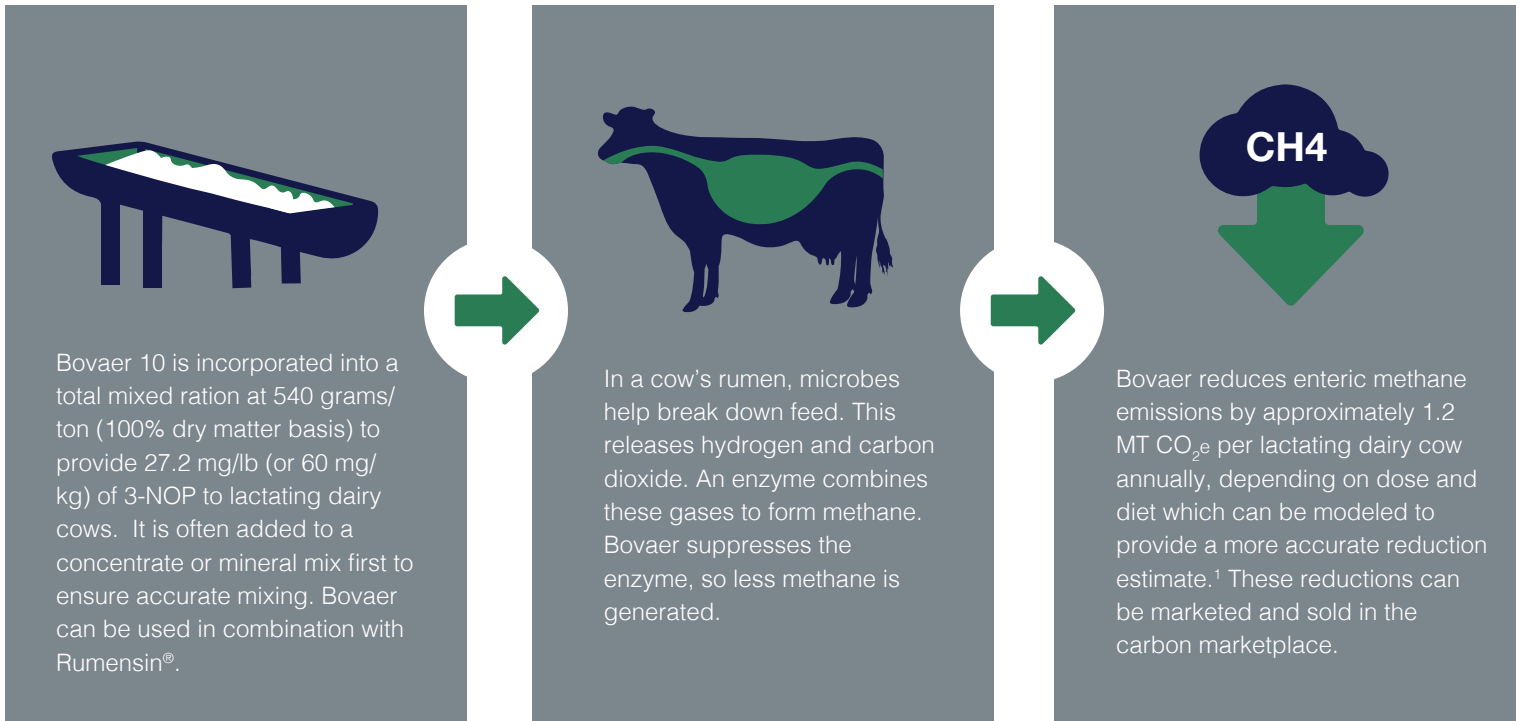
## **Reduce methane with no negative impact on productivity or animal health**

Globally, Bovaer is one of the most scientifically researched and recognized feed ingredients for methane reduction.

More than 70 peer-reviewed scientific studies and 100+ on-farm trials in more than 20 countries show Bovaer consistently reduces enteric methane emissions. In lactating dairy cows, methane emissions are reduced by approximately 1.2 metric ton CO<sub>2</sub>e per cow annually, depending on dose and diet, which can be modeled to provide a more accurate reduction estimate.<sup>1</sup> Feeding Bovaer has proven safe for animals, producers and consumers and shown no negative impact on the quantity or quality of milk produced.<sup>2</sup> Make your lactating dairy cows part of the answer to help boost your operation's success today and tomorrow with Bovaer.



## How Bovaer works



## What is Bovaer made of?

Bovaer is made from two ingredients: nitrate and a bio-based alcohol. After suppressing methane production in the rumen, Bovaer is broken down into the same natural compounds present in the rumen.

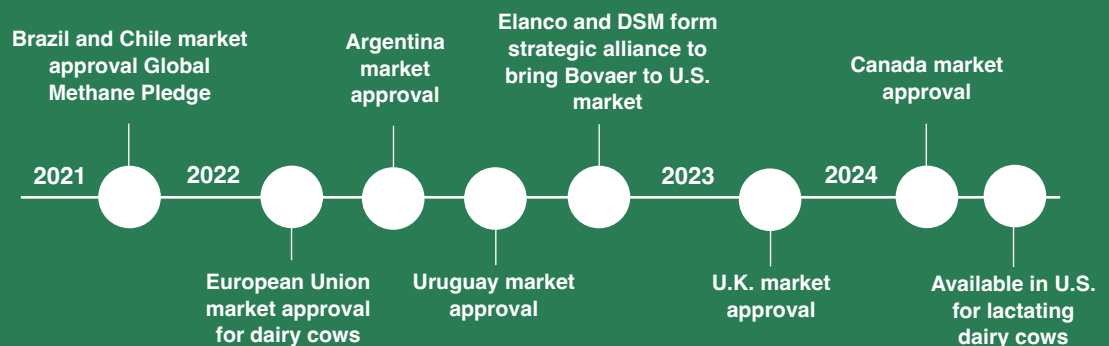
## Proven and safe

A U.S. meta-analysis from Penn State University found an average methane reduction of 123 grams per day or 28% compared to controls.<sup>2</sup> Bovaer has been proven safe for animals, producers and consumers and shown no negative impact on productivity or animal health.

## Bovaer's growing global impact

- 10+ years of research
- >70 peer-reviewed scientific studies
- >100 on-farm trials in >20 countries

### Key milestones



## Capture value with Bovaer

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Bovaer provides an opportunity for dairy producers to be financially rewarded for reducing their herd's enteric methane emissions. When producers incorporate Bovaer into their rations and quantify the effect using carbon market enablement tools like UpLook™, Elanco's sustainability insights engine, they have the opportunity to monetize their enteric methane emissions through a carbon credit marketplace. This new value stream can help ensure your operation's success today and in the future.

## A livestock carbon inset marketplace: creating value for producers

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Dairy producers have a new value stream opportunity by using product interventions and protocols reviewed by a third party to monetize greenhouse gas (GHG) emissions reductions via a carbon inset market.

### Feed Bovaer

Decrease the emission of enteric methane by approximately 1.2 MT CO<sub>2</sub>e per lactating dairy cow per year.<sup>1</sup>

Dose: 27.2 mg 3-NOP/lb (or 60 mg 3-NOP/kg) total ration dry matter.



### Earn Profit

A dairy's emissions reduction activity is verified and the resulting credits are marketed through Athian, Truterra or other marketplaces.

These marketplaces connect consumer packaged goods (CPG) and retail companies, industry processors and dairy operations by enabling the monetization of validated interventions.

### Use UpLook

UpLook calculates and analyzes on-farm data, allowing producers to quantify the impact of their operation's GHG reduction data to then be marketed on carbon marketplaces.



## The carbon market is here to stay

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According to leading financial sources, the carbon market is expected to continue to grow. In fact, some carbon markets are expected to grow from \$2B to \$250B by 2050.<sup>3</sup> The expected growth comes at a time when two-thirds of all Fortune 500 companies have set significant climate commitment goals.<sup>4</sup> Dairy producers have an opportunity to meet this demand with Bovaer, all while creating a diversified income stream that's not dependent on milk markets.

## Continuing a tradition of sustainability excellence

Dairy producers know a thing or two about innovation. Sustainability and animal stewardship, too.

While cattle are often pointed to as a culprit in climate change, they can be a vital part of the solution. Enteric methane emissions are a normal part of rumen fermentation accounting for more than 35% of GHG emissions on a dairy farm.<sup>5</sup>

By implementing reduction interventions such as feeding Bovaer, producers can reduce enteric methane emissions, contributing to the dairy industry's greater aspirations of achieving GHG neutrality by 2050, all while getting the credit they deserve for their sustainability efforts.



## Our Vision: Sustainability is the next era of opportunity

Elanco will be a **lead partner** in animal protein sustainability by helping farmers and the food chain advance toward climate neutrality and helping to connect the value chain through a credible, scalable marketplace.

### Innovation



Equip producers with product solutions and tools that reduce environmental impact as part of their direct or derived-benefits with a focus on innovation.

### Analytics



Develop services, analyses and partnerships designed to help capture value for sustainability projects.

### Value Creation



Establish a mechanism to aggregate, verify and monetize efforts and build a climate neutral ecosystem to bring value to producers.

### Advocacy



Lead the livestock sustainability conversation and drive change across species, borders and issues.



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**Get the credit you deserve by talking to your Elanco representative or nutritionist about incorporating Bovaer into your feeding program.**

For more information about Bovaer, visit [CreditForGood.com](https://www.creditforgood.com).

**For All Products**

The label contains complete use information, including cautions and warnings. Always read, understand and follow the label and use directions.

**BOVAER**

**Caution:**

Do not feed undiluted. For use in feed for lactating dairy cows only.

**Directions for Use:** Thoroughly mix Bovaer 10 into a total mixed ration at 540-720 g/ton of complete feed (100% dry matter basis) to provide 27.2-36.3 mg 3-nitrooxypropanol per pound (60-80 mg per kilogram) of dry matter intake. Feed continuously to lactating dairy cows.

**RUMENSIN**

**Caution:**

Consumption by unapproved species or feeding undiluted may be toxic or fatal. Do not feed to veal calves.

**Dairy Cows:** For increased milk production efficiency (production of marketable solids-corrected milk per unit of feed intake):

**Feeding Directions: Total Mixed Rations (“complete feed”):** Feed continuously to dry and lactating dairy cows a total mixed ration (“complete feed”) containing 11 to 22 g/ton monensin on a 100% DM basis.

**Component Feeding Systems (including top dress):** Feed continuously to dry and lactating cows a Type C medicated feed containing 11 to 400 g/ton monensin. The Type C medicated feed must be fed in a minimum of 1.0 lb. of feed/cow/day to provide 185 to 660 mg/hd/day monensin to lactating cows or 115 to 410 mg/hd/day monensin to dry cows. This provides cows with similar amounts of monensin they would receive by consuming total mixed rations containing 11 to 22 g/ton monensin on a 100% DM basis.

References

- <sup>1</sup> Kebreab E, et al. A meta-analysis of effects of 3-nitrooxypropanol on methane production, yield and intensity in dairy cattle. *J Dairy Sci.* 2023;106(2):927-936.
- <sup>2</sup> Hristov AN, Melgar A, Wasson D, Arndt C. Symposium review: Effective nutritional strategies to mitigate enteric methane in dairy cattle. *J Dairy Sci.* 2022;105(10):8543-57.
- <sup>3</sup> Where the carbon offset market is poised to surge. *Morgan Stanley*, 2023. Available at: <https://www.morganstanley.com/ideas/carbon-offset-market-growth/>
- <sup>4</sup> Commitment issues: Markers of real climate action in the Fortune Global 500. 2023. *Climate Impact Partners*. Available at: <https://www.climateimpact.com/news-insights/fortune-global-500-climate-commitments/>
- <sup>5</sup> Thoma G, et al. Greenhouse gas emissions from milk production and consumption in the United States: A cradle-to-grave life cycle assessment circa 2008. *Int Dairy J.* 2013;31(1):S3-S14.