

# Trialing Dietary Interventions to Mitigate Enteric Methane Emissions in Dairy Cattle



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## Background

Over the past few decades, improved feeding and other management practices have allowed U.S. dairy herds to use natural resources more efficiently and lower greenhouse gas (GHG) emissions per unit of milk produced. However, feed management practices that specifically target enteric methane mitigation are still not widely adopted.

To address this gap, The Nature Conservancy—in partnership with the Innovation Center for U.S. Dairy and IFEEDER—led a USDA-funded project to explore barriers to adoption of enteric methane mitigation feed management options. Through on-farm trials, expert advisor surveys and stakeholder engagement, the project gathered insights and developed resources to identify pathways for scaling feed management options to mitigate enteric methane emissions.

## A Human-centric Approach

A survey involving animal nutritionists, dairy consultants, educators, veterinarians, feed mill and cooperative staff and NRCS personnel was conducted to understand attitudes toward adopting feed

management practices on US dairy farms. Key findings and recommendations include:

- **Awareness of CPS 592:** Many dairy consultants and nutritionists are unfamiliar with NRCS Conservation Practice Standard 592. Targeted training and outreach are needed to promote its benefits and implementation strategies, which are essential for scaling the adoption of feed management practices.
- **Decision-making Factors:** Feed advisors consider cost, effectiveness, animal production and health impacts, and ease of use when recommending feed management practice like additives. Generating on-farm evidence around these factors can support more informed decisions.
- **Confidence & Cost Concerns:** Advisors often hesitate to recommend feed additives or supplements due to perceived high costs and uncertain economic returns. To address this, government agencies and supply chain companies should offer financial incentives and cost-share programs to decrease risk. Additional funding options should be explored to make these practices more accessible to farmers.





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## Generating Evidence from On-farm Trials

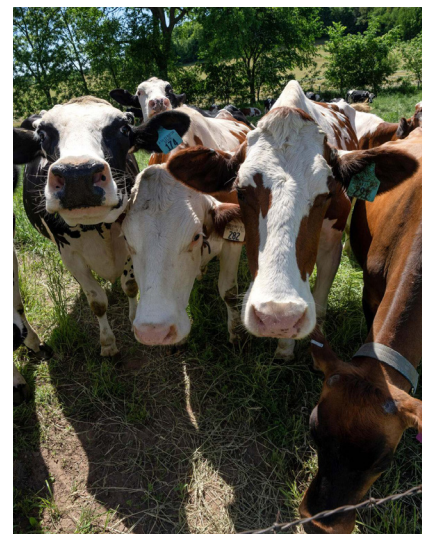
The on-farm trials delivered valuable insights:

- **Ease of Implementation:** All participating farms were able to implement the practices with minimal disruption and investment, demonstrating that these practices are generally easy to adopt. Early conversations with farmers and feed advisors are key to ensuring smooth implementation.
- **Production Impacts:** Commercial dairy farms in the project reported variation on milk production without negative effects on milk composition. In fact, some saw a net increase in milk production while others observed losses. Because results varied across farms, even when the same practice was used, the perceived risk and uncertainty could hinder adoption.
- **Fostering Confidence:** Building a stronger evidence base through on-farm trials, like the ones in this project, is essential for increasing confidence among farmers, consumers and other stakeholders across the dairy value chain.

## Understanding and Unlocking Value

Economic uncertainties and operational challenges are perceived risks to feed management practice adoption. The project provided the following insights for improving implementation and impact:

- **Value-Proposition:** The potential for net positive impact on milk production—without compromising animal health—demonstrates a clear value proposition for dairy farmers. However, wide variation in production outcomes and implementation costs creates uncertainty around economic returns. To address this, data on profit or loss from specific feed management practices, along with the factors driving variability, should inform how incentive payment rates are set for each practice.
- **Record Keeping:** Inconsistent or lack of record keeping among dairy farmers using feed management practices is a major barrier. Accurate records are essential for monetizing environmental benefits like reduced GHG emissions and water pollution. Establishing standardized record-keeping protocols can help farmers track feed management practice usage, measure effectiveness and facilitate verification—while also unlocking potential revenue streams.



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