

UNH Scientists Share \$13M in Grants to Study Benefits of Feeding Dairy Cows Seaweeds

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DURHAM, N.H.—Most people are unlikely to associate seaweed with dairy production, but University of New Hampshire scientists will be working to change that, sharing two grants totaling nearly \$13 million to investigate supplementation of dairy cow diets with seaweed to reduce greenhouse gas emissions and improve milk quality and animal health.

New Hampshire Agricultural Experiment Station researchers André Brito and Alexandra Contosta will lead the UNH portion of both projects, which total \$1.5 million.

Dairy farmers continue to face finance uncertainties and are increasingly looked to for help in making agricultural production a mitigator of climate change. The agricultural industry is responsible for 10% of the planet's greenhouse gas emissions, according to the EPA. Livestock, especially ruminants such as cattle, represent more than a quarter of the emissions of methane, which is produced as part of the normal digestive processes. Scientific innovation in feed management could help reduce these environmental effects in a cost-effective manner.

The first project, led by the University of Vermont, will focus on using different species of seaweed as an alternative feed in organic dairy management. Although feeding seaweed to cows is common in the organic dairy industry, only wild-harvested, dried, ground kelp meal is widely available.

“Seaweeds are loaded with bioactive metabolites ranging from polyphenols to antioxidants to trace minerals, which may interact to improve animal health and productivity. However, there is limited information of which native seaweeds are best suited to be incorporated in organic dairy diets and to mitigate methane emissions. Our project will help deliver this information to dairy producers,” said Brito, associate professor of dairy cattle nutrition and management.

“One of the unique aspects of this project is our focus on how seaweed supplements might affect the flow of nutrients from manure to soils and then back to the forages that cows eat. It is not known how compounds within the seaweed might change the nutrient profile of manure, which has implications for soil health,” said Contosta, research assistant professor with the UNH Earth Systems Research Center. The project is particularly important as organic dairy farmers are currently dealing with oversupply of organic milk, tight profit margins, production quotas and dropped contracts. The U.S. organic dairy market generated about \$9.5 billion in revenue in 2017, with total organic milk sales of \$2.58 billion, according to Statista. The \$2.9 million grant was awarded as part of the USDA National Institute of Food and Agriculture’s Organic Agriculture Research and Extension Initiative.

The second project, led by the Bigelow Laboratory for Ocean Sciences and Colby College, investigates using algae-based feed supplements in conventional dairy industries to balance quality milk production with environmental, economic, and social sustainability. The five-year \$10 million grant was awarded as part of the USDA National Institute of Food and Agriculture’s Sustainable Agriculture Systems Program.

Founded in 1887, the [NH Agricultural Experiment Station](#) at the [UNH College of Life Sciences and Agriculture](#) is UNH’s first research center and an elemental component of New Hampshire’s land-grant university heritage and mission.

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<https://www.unh.edu/unhtoday/sites/default/files/media/images/unhfairchilddairycow.jpg>

UNH scientists are investigating supplementation of dairy cow diets with seaweed to reduce greenhouse gas emissions and improve milk quality and animal health.

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