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Why cool!

Local company receives research grant for dairy byproduct

By CHRIS GAROFOLO / Reformer Staff

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BRATTLEBORO -- A Brattleboro renewable energy company announced this week it received federal grant money to encourage further study of extracting energy from dairy whey.

Delta Tri-Gen, a renewable energy company based in Brattleboro, has been awarded a \$15,000 research grant from the Vermont Experimental Program to Stimulate Competitive Research (EPSCoR) to experiment with whey, which is a dairy serum that separates as a watery liquid from the curd after coagulation, and test its future cultivation.

Nicole Pervere, a marketing associate with Omega Optical, Inc., said Delta is located on Omega's campus and is closely related to the company.

With assistance from Omega's President Robert Johnson, Delta Tri-Gen began to experiment in less traditional uses for dairy waste. Grafton Village Cheese in Brattleboro provided whey, Effluent from gas production was applied to Russian confrey plants in a greenhouse environment.

That effluent made the plants grow faster. Renewable natural gas can be used as a fuel for heat and electric generators, and even potentially as a transportation fuel. The proposal is titled "Fuel Crop Cultivation for Remediating Methane Digester Effluent from Dairy Whey."

"Vermont produces 1 billion pounds of whey per year. Generally, the whey is disposed of through municipal waste treatment facilities and this is expensive. We are producing renewable natural gas from whey now," said project researcher Steve Redmond.

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There are programs in Vermont to make whey from a manure mixture. In other cases, cheesemakers return the byproduct to farms, according to Redmond.

"Fermenting whey on its own is a relatively new and difficult technology and we've worked on a whey digester for the last year, which I've been using and producing gas," he said. "And we're trying to get the amount of time it takes for the whey to be digested into natural gas down as small as possible because otherwise a plant that did this would be too big."

Redmond has crafted a digester with a bacteria culture in it that produces the equivalent to natural gas from whey. He has taken a process that takes an estimated 30 days on a farm to digest the whey fully into methane down to four days.

But even when the energy is remove from the whey, other materials like nitrogen remains and Redmond wants to keep those byproducts from entering the streams and brooks.

"The effluent from that process can be used by plants for fertilizer. Those plants, in turn, can be combined with whey to increase the quantity of fuel we produce. That's the subject of our grant study," he said.

Delta received word of the funding in mid-August. The University of Vermont is serving as the fiscal agent for EPSCoR.

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