

UNH Names Innovative Composting Facility after Sustainable Agriculture Pioneer

Technology Advanced by Josh Nelson Used at UNH Organic Dairy Research Farm

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THE FACILITY PRODUCES HIGH-QUALITY COMPOST AND HEAT CAPTURE, THEREBY REDUCING THE USE OF FOSSIL FUELS ON THE FARM.



The University of New Hampshire has named its high-tech composting/energy capture facility at the Organic Dairy Research Farm in honor of the sustainable agriculture pioneer who advanced the technology -- the Joshua Nelson Energy Recovery Compost Facility. The facility is the only one of its kind at a land-grant university.

Recently members of Nelson's family and his former colleagues at Agrilab Technologies of Enosburg Falls, VT, gathered at the Organic Dairy Research Farm (ORDF), a facility of the [NH Agricultural Experiment Station](#) at the [UNH College of Life Sciences and Agriculture](#), to honor Nelson, who passed away in 2012. The system was installed in 2013 and made possible by a \$550,000 gift to the college. The facility produces high-quality compost and captures generated heat, thereby reducing the use of fossil fuels on the farm.

"Having this facility honoring Josh is absolutely amazing. It recognizes his entrepreneurialism and his desire to educate and provide a foundation for change. I feel really pleased that UNH is inheriting that mission, and I look forward to seeing the growth and students who will go out into the world and make change," said Beth Nelson Meachem, Nelson's sister.

Nelson's daughter Dana said her father was very excited about the UNH composting facility. "He was so excited to get *this* started. He was on the hill thinking about this all of the time, and I am so grateful to have this. This is beautiful," she said.

The system developed by Nelson and his former colleagues at Agrilab Technologies uses fans to actively aerate compost and pull hot vapor from the bottom of an aerated compost pile or an in-vessel composting system. The active aeration system makes it possible to produce compost on a commercial scale with minimal mechanical turning because the system actively aerates the material throughout the process. Vapor from hot compost is pulled into the Isobar® heat exchange system, where the thermal energy is transferred to a water tank. The heated water can be pumped to reservoirs and used for wash water, provide pre-heated water for a boiler, or be used in hydronic heating systems. At the ODRF it is used to pre-heat the water used to clean and sterilize the tank and tubing in the milk room, which is a significant energy requirement on dairies. The Isobar® heat transfer technology was patented by Acrolab, Ltd. of Windsor, Ontario, which worked with Nelson and Brian Jerose, president of Agrilab Technologies who founded the company with Nelson, to bring the system to the United States.

UNH is the only university in the nation using the cutting-edge energy recovery composting system.

“I was very inspired by Josh as I think a lot of us were. He had a vision of where this fit, not just as a practice but how this fit into the larger picture of sustainability, food systems, waste management, and making a difference for the future,” Jerose said.

Since the system was installed, NHAES scientists have conducted a number of research projects on composting, including best practices regarding aeration, compost recipes, fertilizer applications, irrigation methods, whether or not to cover the compost, loading methodology, composting in winter, and heat production.

“The research that takes place in this facility is thanks to a generous donor who wishes to remain anonymous but whose passion for what the college is doing to improve sustainable approaches to agriculture will have a direct impact on producers and other rural residents of the region. Their investment is recognition of the college’s exceptional teaching, research, and outreach opportunities that ultimately improve people’s lives in practical and affordable ways while simultaneously maintaining the health of the environment,” said Jon Wraith, director of the [NH Agricultural Experiment Station](#) and dean of the [UNH College of Life Sciences and Agriculture](#).

“We are so honored to have Josh’s name on a building that symbolizes what he stood for – sustainability and the environment. The research that is conducted here will have an impact on our environment for generations to come, and Josh’s name will be connected to that research and the outreach that comes with it,” Wraith said.

Agrilab Technologies (AGT) has developed patented renewable energy technology to capture reliable base load thermal energy from the composting process. AGT designs, builds and sells composting and thermal energy-capture systems for farms, commercial composters, universities, municipalities, and zoos that have existing or new composting operations. Several successful projects in commercial operation demonstrate that the economics of compost heat recovery are strong without the need for subsidies. The technology can be used to heat greenhouses, buildings and meet demands for hot water or process heat while producing valuable compost for sustainable agriculture. Visit www.agrilabtech.com for more information.

Founded in 1887, the [NH Agricultural Experiment Station](#) at the [UNH College of Life Sciences and Agriculture](#) is UNH's original research center and an elemental component of New Hampshire's land-grant university heritage and mission. We steward federal and state funding to provide unbiased and objective research concerning diverse aspects of sustainable agriculture, aquaculture, forest management, and related wildlife and natural resources. We maintain the [Woodman](#) and [Kingman](#) agronomy and horticultural farms, the [Macfarlane Greenhouses](#), the [Fairchild Dairy Teaching and Research Center](#), and the [Organic Dairy Research Farm](#). Additional properties also provide forage, forests and woodlands in direct support to research, teaching, and outreach.

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