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**Groundbreaking and news conference for, State's First Commercial Dairy Anaerobic Digester**

LYNDEN, Wash. -- A ground-breaking ceremony and news conference will be held at the Vander Haak Dairy, LLC in Lynden, Wash. at 11 a.m. on Monday, June 21. The ceremony will mark the beginning of construction of the first commercial anaerobic digester for dairy waste in Washington State.

Anaerobic digesters have been called a "solution that leads to more solutions" for many of the environmental and economic problems facing the dairy industry today. Anaerobic digesters convert waste materials, such as dairy manure, into renewable energy and other value-added products. In addition, anaerobic digestion of dairy manure reduces odor problems, improves water quality and reduces methane emissions (a potent greenhouse gas linked to global climate change).

The Vander Haak digester will provide a significant economic impact to Whatcom County. The Andgar Corporation of neighboring Ferndale has been hired as project manager and will be constructing the digester, which is designed by GHD, Inc., a Wisconsin-based environmental engineering firm. In addition, two neighboring dairies have partnered with the Vander Haak Dairy for treating manure through the digester. Puget Sound Energy, through its green power program, will purchase the renewable energy generated by the digester. The project will generate enough electricity to serve 180 average homes.

The digester project has come together thanks to leadership from Darryl Vander Haak and the Andgar Corporation and key partnerships they have developed with private industry and public and non-profit institutions. They were successful in securing a cost-share grant from the U.S. Department of Agriculture's Rural Development's Renewable Energy Systems and Energy Efficiency Improvements Program. This program, funded under the 2002 Farm Bill, directs the Secretary of Agriculture to make loans, loan guarantees, and grants to farmers, ranchers and rural small businesses to purchase renewable energy systems and make energy efficiency improvements. Vander Haak has also formed a partnership with Washington State University's Climate Friendly Farming Project (funded by the Paul G. Allen Foundation) making his digester available to the research team for environmental modeling, value-added product development, and outreach and demonstration to the dairy industry.

For more information, please contact:

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## Vander Haak Dairy Anaerobic Digester Fact Sheet

### Description

Modern dairy farms are often sources of both air and water pollution. Most modern dairies utilize a lagoon system for animal waste storage, a practice that leads to large emissions of methane and nitrous oxide (greenhouse gases leading to global climate change) as well as odor problems and potential water quality concerns. The Intergovernmental Panel on Climate Change has estimated that the concentration of methane in the atmosphere has increased by more than 150% in the last 250 years. In addition, they estimate that methane is 23 times more potent as a greenhouse gas than CO<sub>2</sub>. In Washington State alone, if half of the 250,000 dairy cows were on a farm with anaerobic digestion (AD), as much as 100 million pounds of methane could be captured each year (about 3.15 million tons C equivalent), reducing greenhouse gas emissions and providing a distributed and renewable source of energy. Anaerobic digestion is a process in which organic matter in the manure is converted into methane by bacteria in the absence of oxygen. The methane is then collected and may be used to generate electricity. Closed-system AD of the manure has the potential to eliminate most of the greenhouse gas emissions, conserve nutrients, protect water quality, produce renewable energy, and eliminate odor problems. In addition, the AD process creates potentially valuable by-products, such as fiber and nutrient water, which create new revenue streams for dairy farms.

The Vander Haak anaerobic digester is a patented plug flow digester capable of handling manure from up to 1500 dairy cows. This methane will power a generator producing around 285 kw to the power grid, enough electricity to serve approximately 180 average homes.

The Vander Haak Digester is the result of the leadership of Darryl Vander Haak and key partnerships he has created with private industry and public institutions. This project will provide environmental and economic benefits to the Whatcom County community as well as the Vander Haak Dairy. The Andgar Corporation has been hired as project manager to build the digester. Tom Anderson of the Whatcom PUD was instrumental in brokering a partnership with Puget Sound Energy to purchase the electricity generated by the digester. Puget Sound Energy has agreed to purchase the digester's electric output through contributions from approximately 12,000 participants in its green power program. The green power program is a voluntary program, which enables PSE customers to help support the development of renewable energy in the Pacific Northwest. A cost-share for the digester was provided through a grant from the USDA Rural Development's Renewable Energy Systems and Energy Efficiency Improvements Program. This program was funded under the 2002 Farm Bill. Vander Haak has also formed a partnership with Washington State University's Climate Friendly Farming Project (funded by the Paul G. Allen Foundation) for environmental monitoring of water quality, nutrient management and greenhouse gas reduction, as well as for the development of AD by-products for high-value markets.

### Contacts

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# Vander Haak Dairy

Darryl and Judy Vander Haak started Vander Haak Dairy in 1968 by purchasing 20 dairy cows from Darryl's father. In 1974 Darryl's older brother Ed joined and they purchased a 100-acre farm nearby. In the 1980's with sons Tim, Steve, and Dean getting involved with the dairy Darryl and Ed developed several different recycling ventures (Western and Industrial Services Inc.) which are still successful, but Darryl and Ed are no longer involved in these businesses. They are still very interested in recycling or finding renewable products for industry and agriculture. In 1997 Darryl purchased Ed's interest in the dairy. Vander Haak Dairy is a dairy cow and replacement operation consisting of both registered Holsteins and Jerseys. Darryl & Judy have two sons and their nephew helping with the farm operation.

Steve Vander Haak has been the farm manager since 1997. Steve grew up on the farm and graduated from Washington State University with a Bachelor degree in Animal Science. Ed's son, Dean Vander Haak is the herdsman for Vander Haak Dairy. Dean has worked full time on the dairy since 1981. Tim Vander Haak graduated from Dordt College with a Bachelor degree in agriculture. Tim worked on the farm after graduating from college and then became an animal nutritionist for Land O Lakes Feeds in Iowa. Tim has returned to the farm as part of the ownership of the Visser Road dairy in August 2003. Darryl & Judy purchased another dairy on the Guide Meridian near the Canadian border crossing from the Russ Noteboom family in 1999. The anaerobic digester will be located on this dairy.

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## ANDGAR CORPORATION VITAL STATISTICS

### HISTORY

- Started in 1935 under other company name
- Company purchased in 1973 and renamed ANDGAR CORPORATION
- Grew from a small 3 person operation in 1973 to over 120 employees
- Has developed excellent reputation as a multi-faceted, but integrated construction company

### EXCELLENT FIT IN BIOGAS SYSTEMS

- Current project management experience allows for total project management and accountability for such a diverse project.
- Current experience in metal fabrication, industrial piping, system controls, and technical expertise fits beautifully to such construction.
- Combining GHD, Inc. design and engineering proven expertise along with Andgar's diverse construction/fabrication experience and project management ability makes for a strong project team and accountability.

### ANDGAR CORPORATION EMPLOYEES, FACILITIES AND EQUIPMENT

- Over 100 employees with skill and experience spread over several specialty construction trade areas.
- Three Fabrication shops; carbon steel, stainless and other specialty metals, and light gauge along with warehouse storage for shops. Total fabrication warehouse area of nearly 40,000 square feet.
- Full metal fabrication equipment to handle items as small as a 1" square manufactured goods piece up to structure steel for a commercial building.
- Ability and experience to produce PLC and computer controlled equipment or mechanical controlled equipment.
- Diagnostic equipment and expertise for installing and servicing electronic controls.

**IN SHORT, A COMPANY ON THE "GROW" AND ON THE GO ALLOWING FOR COMPLETE  
BIOGAS SYSTEM TURN KEY CONSTRUCTION AND SINGLE POINT ACCOUNTABILITY**



## **Climate Friendly Farming™ Research & Demonstration Project Washington State University Center for Sustaining Agriculture and Natural Resources**

### **Executive Summary**

Responses to global climate change are urgently needed. United Nations experts state that the current rate of global warming is the fastest in recorded history and has already started to disrupt many biological systems on the planet, including agriculture. This disruption is occurring at a time when agriculture is expected to maintain environmental quality and provide bioenergy resources while still increasing food output for a growing human population.

To better understand agricultural sustainability within the context of climate change, the Center for Sustaining Agriculture and Natural Resources (CSANR) established the “Climate Friendly Farming” research and demonstration project. The goal of “Climate Friendly Farming” is to **develop and implement systems and practices that maximize the potential for agriculture to mitigate global climate change.**

Rapid increases in atmospheric concentrations of greenhouse gases have been suggested as the primary cause for the rise in global temperature. Thus, “Climate Friendly Farming” primary focus will be to mitigate this global climate change by shifting agriculture from a **net source** (contributor) to a **net sink** (tie-up or sequestration) for greenhouse gas emissions. In addition, “Climate Friendly Farming” designs toward achieving greenhouse gas mitigation will result in the secondary benefit of improved environmental stewardship in conserving soil, protecting water quality, and recycling nutrients. The systems studied and put into practice will be analyzed for their socioeconomic viability, as the ultimate impact of the project will depend on the extent of farmer adoption, which is influenced by profitability, policy, and social barriers.

Expected impacts of the project include the documentation of new technology, farm practices, and systems that can mitigate multiple environmental problems and lead to measurable improvements in greenhouse gas storage, water use, and nutrient cycling on farms. In addition, the establishment of the research and demonstration sites and the interdisciplinary research team will provide significant institutional change at both the farm level and Washington State University, thereby increasing our ability to address complex ecological and social challenges facing the state, nation, and world.

The 5-year project will focus on dairy production, irrigated crop farming, and dryland grain farming, three farming systems of importance for Washington State and the world. The project goals are as follows: (1) assess the current situation regarding the global warming contribution of three farm systems; (2) develop strategies for changing the systems to maximize global warming mitigation; and (3) evaluate the actual and potential mitigation through demonstration sites and computer modeling. The project approaches will include technology research and development, socioeconomic analysis and systems modeling, on-farm implementation of demonstrations, and educational outreach. Key project tasks will include development of an improved anaerobic digester for treating dairy waste, development of whole farm nutrient management strategies and an associated decision support system for dairy farms, integration of reduced tillage and residue management to increase soil carbon storage, irrigation water management to improve N cycling, and outreach and education.

The project is unique in addressing multiple agricultural and environmental issues within actual farm systems. In addition, the unique nature of the project will place WSU in a competitive position to attract additional funding from sources such as the new USDA energy title and US Dept. of Energy renewable energy and global warming initiatives.

*Funding for the Climate Friendly Farming Project provided by:*



THE PAUL G. ALLEN CHARITABLE FOUNDATION