

Climate Friendly Farming™ Project Educational Outreach and Project Management

Year One Report

Project Component Leads: David Granatstein, Chris Feise, Chad Kruger

Introduction

The Climate Friendly Farming Project is an excellent example of sustainable agricultural systems research in the US. The research is interdisciplinary (crop and soil science, biological systems engineering, economics, etc.), involves a variety of research approaches (lab and field research on cropping systems, technology development, economic / policy analysis, market development, etc.) and is of significant duration (5 year project, building on earlier research programs with plans for continued research programming in the future). However, one of the key elements of this project is the integral role that extension / outreach efforts have in the project. In many cases, outreach is an afterthought and / or is “farmed out” to the Extension service for technology transfer to farmers and industry after the results of research are published in scientific journals. In this case, the research team has articulated that the transfer of research results to the agricultural industry and broader community is a high priority for this project.

The motivating force behind this project is “change on the ground” and impacts on our state, region, and globe. Traditional academic rewards, while still important to the individuals on the project, are of secondary importance to the research team. With this in mind, the project was designed to integrate an active extension program from the beginning to facilitate interaction with potential end-users and partners, the development of research concepts, design and evaluation of research ideas, as well as post-research dissemination of results. An active Extension program such as this can accelerate the transfer of information and technology to farmers, researchers, environmental groups, media and consumers – emphasizing the importance of partnership development as well as through traditional extension tools such as electronic and print media, “white papers”, workshops, conferences, website and demonstration site tours. Our desire and goal as the Outreach and Management Component of the Project is to develop the strategic partnerships that will enable us to “make things happen” and move the research from laboratory and research farms to the broader agricultural industry and communities.

The current personnel of the Outreach and Management team includes David Granatstein (Project Director), Chad Kruger (Director of Outreach and Communication), Chris Feise (Director of CSANR) and Cindy Murray-Armstrong (Assistant to the Director of CSANR). David is providing overall leadership to this work, Chris is facilitating strategic planning and administrative direction, Chad is responsible for day to day administration / outreach and Cindy is responsible for fiscal management.

Overall Goals

Coordinate and integrate the various research components of the Climate Friendly Farming Project, and accelerate the transfer of research and technology from the lab / field work to producers, industry and communities.

Specific Objectives

- 1) Coordinate and integrate the various research components into a comprehensive and *inter-disciplinary* “project”.
- 2) Develop effective partnerships with other individuals, agencies, organizations and industry to improve research and technology transfer.
- 3) Develop educational materials and programming to improve research and technology transfer.
- 4) Identify and secure additional sources of funding.

- 5) Provide leadership and vision for project enhancement to the research team and our partners.

Tasks Achieved in Year 1 by Objective (Milestones noted with *)

Coordinate and integrate the various research components into a comprehensive and interdisciplinary "project".

- Hosted twice monthly conference calls for research team.
- Hosted three "in person" research team meetings.
- Facilitated the budgeting process and equipment purchases for the various project components.
- Facilitated intellectual property discussions and plan of action for the research team.
- Facilitated a year-end assessment and evaluation process for the research team.

Develop effective partnerships with other individuals, agencies, organizations and industry to improve research and technology transfer.

- Darryl and Steve Vander Haak, Vander Haak Dairy, LLC. Reached contractual research agreement with the Vander Haak's to conduct research and outreach utilizing their anaerobic digester.
- Developed a partnership with the Andgar Corporation of Ferndale, Washington to build out pilot models (10 cow and a mobile 25 cow) of our novel anaerobic digestion system, as well as post-digestion fiber processing equipment for treating fiber from existing digester designs. We have submitted three R & D grant proposals in cooperation with Andgar.
- We have partnered with the Institute for Washington's Future, the Washington Dairy Federation, the J & J Bosma Dairy, and Prometheus Energy Company to evaluate the feasibility of dairy anaerobic digestion in the Yakima Valley.
- We have partnered with the Yakima Valley Dairy Federation, Washington State Dairy Federation, Northwest Sustainable Energy for Economic Development, the Harvest Clean Energy Program of Climate Solutions, and the Institute for Washington's Future to plan an anaerobic digestion workshop in Sunnyside, Washington on February 25, 2005.
- We are partnering with the Center for Clean Air Policy to provide consultative advising related to agricultural mitigation of greenhouse gases related to their California project. Discussions related to an anaerobic digestion partnership in the Czech Republic and agricultural mitigation of greenhouse gases in developing countries is continuing.
- We are collaborating with the Washington Dairy Federation and the Yakima Clean Air Authority to develop a collaborative, consensus-based problem solving program to help dairies and communities in the Yakima Valley to resolve environmental and health related concerns caused by the dairies.
- We are collaborating with the Chengdu Biogas Institute (China) and Middle East Technical University (Turkey) in the development of a research and extension program on small-scale anaerobic digester applications.
- We are collaborating with WSU's Material Resources and the Compost Facility, Animal Sciences and the Vet Medicine to develop the Sustainable Waste to Energy Education Technology Center (SWEET Center). SWEET will be a comparative waste to energy / bioproducts research and education platform for a variety of technologies and waste management options.
- We are collaborating with the WSU Energy Program, Northwest SEED, the Washington Department of Ecology, and CTED (Community Trade and Economic Development) to develop a strategic roadmap for bioenergy development in the Pacific Northwest.
- We have a contractual research agreement with Multiform Harvest, Inc. to conduct research and demonstration of nutrient extraction through a struvite producing technology for the liquid effluent from an anaerobic digester.
- We are partnering with WSU's Laboratory on Atmospheric Research for the development of a comprehensive proposal to conduct research on the interface between soils/agroecosystem research and atmospheric research.

- We have partnered with WSU's International Programs Office to develop a program plan and proposal for a series of workshops related to climate change and sustainable agriculture in China.
- We partnered with the Center for Rural Affairs to host a listening session for the USDA's new Small Farm and Rural Community Prosperity NRI grant program. Approximately 25 researchers, educators, producers and businesspeople from the Pacific Northwest were able to provide comment to USDA National Program Leaders on the development of the new program.
- We are partnering with Community Consulting, Inc. and the Institute for Washington's Future to provide consultative advice and evaluation as they develop a state-wide Bioenergy Trade Group to support the development of on-farm bioenergy projects in Washington.
- We have developed an informal partnership with Phil Mote, Washington State Climatologist and member of the University of Washington's Climate Impacts Group to share research results and expertise and to explore potential research and outreach opportunities that are mutually beneficial.

Develop educational materials and programming to improve research and technology transfer.

- Climate Friendly Farming Website: <http://cff.wsu.edu>
- Developed Climate Friendly Farming logo
- Climate Friendly Farming Brochure
- Popular article completion*
 - "Change is in the Air" Feature article on Climate Friendly Farming published in the *WSU Connections Magazine*, the alumni magazine for WSU's College of Agriculture, Human and Natural Resource Sciences.
 - "Climate Friendly Farming Moves Into Energy Recovery" *Biocycle: Journal of Composting & Organics Recycling*. November 2004.
 - "Climate Friendly Farming and Energy" *Biocycle: Journal of Composting & Organics Recycling*. Forthcoming.
 - Various articles on the project published in: *Sustaining the Pacific Northwest, Tilth Producers' Quarterly*
- Climate Friendly Farming Research Briefs:
 - Anaerobic Digestion
 - Carbon Sequestration
 - Greenhouse Gas Emissions from Ag
 - The Economics of Climate Friendly Farming™
 - Climate Friendly Farming™ and Pacific Northwest Water Resources Organic Farming Climate Friendly?
- Presentations
 - Climate Friendly Farming and Renewable Energy. Presentation by Chad Kruger, Dave Sjoding and Craig Frear at the Spokane Ag Expo Farm Forum, Spokane, Washington. January 12, 2005.
 - 30 participants (growers, business people / project developers, agency personnel)
 - Two participants commented that the Climate Friendly Farming Presentation should have been the keynote presentation for the Farm Forum.
 - The Climate Friendly Farming project. Presentation by Chad Kruger and David Granatstein at the Pacific Northwest Vegetable Assoc. annual meeting, Pasco, Washington. Nov. 18, 2004.*
 - 25 participants (growers, researcher/extension personnel, agency personnel)
 - Climate Friendly Farming. Presentation by Chad Kruger, David Granatstein, Hal Collins and Dave Huggins to the CSANR Advisory Council, Ellensburg, WA. November 8, 2004.
 - 30 participants (growers, research / extension / administrators, NGO representatives)
 - Climate Friendly Farming and Renewable Energy. Presentation by Chad Kruger, Dave Sjoding and Craig Frear at the Northwest Renewable Energy Festival, Walla Walla, Washington. September 24, 2004.
 - 15 participants (agency personnel, NGO personnel, industry)

- Climate Friendly Farming. Poster display at the Northwest Renewable Energy Festival, Walla Walla, Washington. September 24 & 25, 2004.
 - 800 participants (growers, industry, agency personnel, NGO personnel, students, community members)
 - Festival organizers commented that our display was one of the highlights of the festival.
- Climate Friendly Farming. Presentation by David Granatstein to the Western Region SARE Administrative Council in Spokane, Washington. August 10, 2004.
 - 30 participants (growers, agency personnel, research / extension personnel)
- Gaseous N Losses in potato production and Biofuel Variety Trials presentations by Hal Collins at the Paterson Irrigated Field Day in Paterson, Washington. July 8, 2004.
 - 110 participants (growers, certified crop advisors, industry, research / extension personnel, agency personnel)
- Climate Friendly Farming Presentation by David Huggins at the Palouse Conservation Field Day in Pullman, Washington. June 24, 2004.
 - 200 participants (growers, certified crop advisors, industry, research / extension personnel, agency personnel)
- Tour / presentation on Palouse Conservation Research Station by David Huggins for the USDA Agricultural Systems Listening Session in Pullman, Washington. June 23, 2004.
 - 20 participants (agency personnel, research / extension personnel, industry, NGO personnel)
 - USDA Program Leader Diana Jerkins expressed excitement over the comprehensive and progressive nature of the research project. She further commented that the Climate Friendly Farming Project should be a model for future agricultural systems research funded by USDA.
- Climate Friendly Farming and Pacific Northwest Water Resources. Presentation by Chad Kruger at the WSU Extension Water Resources Colloquium in Pullman, Washington. April 20, 2004.
 - 25 participants (research / extension personnel, politicians)
- Media
 - Hosted the Deputy Secretary of the USDA, Jim Mosely, for a news conference for the award of a Conservation Innovation Grant and a lab tour and presentation on our anaerobic digestion research in Pullman, Washington. September 16, 2004.
 - 30 participants (administrators, media, research / extension personnel, agency personnel, students)
 - Deputy Secretary Mosely and State Conservationist Gus Hughbanks both expressed high praise and appreciation for the tour and presentation.
 - Held a Ground-Breaking Ceremony and news conference for the Vander Haak Dairy Digester Project in Lynden, Washington. June 21, 2004.
 - 70 participants (politicians, media, growers, community members, agency personnel, industry)
 - Business Week printed our Letter to the Editor emphasizing the potential role of Climate Friendly Farming in responding to global climate change.
 - We provided an Op-Ed piece on the idea of local green tags to support bioenergy development for the Sustainable Industries Journal.
 - Team members were interviewed for a variety of newspaper, internet and radio stories.

Identify and secure additional sources of funding.

Additional funding related to the project totals \$1,262,920. Sources include:

- Whatcom County for fiber research (\$110,000)

- Washington Department of Ecology for straw management/crop rotations to reduce burning (\$63,000)
- Columbia Plateau Wind Erosion/Air Quality Project for flex cropping and chem fallow potentials (\$90,000) and assessing adoption of Best Management Practices (\$15,000)
- Farming and the Environment (Kellogg Foundation) for a policy forum (\$25,000)
- NRCS Conservation Innovation Grant for co-product demonstration from anaerobic digestion (\$683,920).
- Washington Department of Ecology for a mobile anaerobic digester (\$100,000) plus a match from other WSU departments (\$66,000)
- Institute for Washington's Future for evaluating a dairy anaerobic digester feasibility study (\$5,000)
- Washington Technology Center for research leading to the commercialization of Dr. Chen's novel approach to anaerobic digestion (\$105,000)

Submitted proposals for which we have not received notification include:

- USDA CSREES International Science & Education Program (\$100,000) for sustainable agriculture and biogas workshops in China
- USDA CSREES NRI Small Farm & Rural Community Prosperity (\$500,000) for evaluation of community economic impacts and cost-benefit analysis of bioenergy production
- USDA SBIR (with Andgar Corporation) animal waste management (\$80,000) for research leading to the commercialization of Dr. Chen's novel approach to anaerobic digestion
- Pacific Northwest Solutions to Environmental and Economic Problems - STEEP (2 proposals) for precision agriculture and organic cropping systems.
- Vulcan, Inc. (\$200,000) for small-scale applications of anaerobic digestion technology in developing countries and (\$140,000) for combining small-scale AD with water purification and other technologies.

Proposals submitted, but not funded

- EPA Collaborative Science & Technology Network for Sustainability – (\$300,000) for research and outreach on Climate Friendly Farming agroecosystems.
- WSARE Research & Education (Pre-proposal) – (\$130,000) for Climate Friendly Farming Handbooks.
- USDA NRI Managed Ecosystems Program – (\$607,000) for Coupling Environmental Sensing and Process Modeling for Site-Specific Regulation of Nitrogen Flow in Wheat-Based Systems.
- USDA - Pest Management Program (RAMP) for reducing the Risk Associated with Direct Seeded Wheat Through Innovative Mechanical and Cultural Management of Weeds, Diseases and Crop Residues.

Provide leadership and vision for project enhancement to the research team and our partners.

- We (The Center for Sustaining Agriculture & Natural Resources) have been selected by the *Voices of Vision* documentary series to feature the Climate Friendly Farming Project and our other work in a future program episode.
- It became apparent early on in our outreach efforts that the emerging bioenergy industry (power, fuels, and products) and the development of specific bioenergy projects and businesses would be a significant driver of adoption for many of the Climate Friendly Farming technologies and practices we are researching. Dave Sjoding of the WSU Extension Energy Program joined the Climate Friendly Farming Research Team to provide insight and strategic direction to the Project's efforts to interface with this issue. Sjoding is leading our efforts to define our team's expertise and role in the developing bioenergy community and to determine how to best position our project to impact the direction of bioenergy development in the region.

- The Project was nominated by WSU Extension and selected by the National Association of State Universities and Land Grant Colleges (NASULGC) to be a featured exhibit at the 2005 Food and Agricultural Science and Education Exhibition/Reception on Capitol Hill on March 1, 2005.
- We have initiated contact with Louie Tupas, the newly appointed Program Leader for agriculture and climate change at USDA. Tupas has encouraged members of our research team to participate as panel moderators and presenters at the upcoming USDA CSREES conference on Agriculture and Climate Change. Tupas has also encouraged us to continue engaging USDA as he creates the new climate change program. This is a critical opportunity as most of the federally funded research in agriculture and climate change has been directed to the Midwest (through the Consortium for Agricultural Soils Mitigation of Greenhouse Gases – CASMGS). This is an excellent opportunity for us to partner with USDA and CASMGS to increase the scope of agriculture related climate change research to include regions and farming systems outside of the Midwest.