

To: Potential producer participants
From: Chad Kruger, Dave Muehleisen & Craig Frear
Date: November 16, 2005
Re: Producer participation in small-scale biogas demonstration project

Thank you for your interest in participating on what we believe will be a highly innovative project that helps make small-scale applications of biogas technology more viable in our region. We believe that your participation will help make our proposal to Western SARE extremely competitive. This memo outlines the basics of our project plan, identifies some of the key questions and issues we need to resolve during the project and indicates what will be required from you for a successful project. I have also included a brief feedback form that will help us think through the most viable technology pathways for your circumstances.

CSANR, in partnership with WSU's Department of Biological Systems Engineering has made a significant investment in building research and extension capabilities in anaerobic digestion over the past 3 years, and it has been one of our goals to broaden that capacity to include small-scale biogas technology to better serve the Center's historical constituency of organic and sustainable, small-scale farms.

The purpose of this proposed project is to evaluate the performance of existing small-scale biogas technology (primarily of Asian design) on a variety of small-scale farms around Washington State. This evaluation will provide insight to our research team on how to improve design and performance elements to meet the needs of small farms in our region. The project will begin with an initial workshop to describe available technology, how to construct and operate it, and how it will fit with existing farm operations. We will then assist participating producers design, construct and startup a digester on their farm. The core of the project will be evaluating the performance of these systems in various agro-climatic zones and farming operations, identify potential improvements to the design, and demonstrating the technology to farmers and other interested individuals. The project will result in a set of published case-studies on the experiences and a final workshop on lessons learned and new ideas for improving the technology. We will use the results of this project to refine research questions and directions for further development and improvements to the technology, as well as to create a base of experience and knowledge in the use of small-scale biogas technology for educational outreach.

Some of the key issues that we have currently identified that this project will help resolve are: 1) how to deal with cold-climate effects on the biological processes (ie. physical and biological solutions); 2) how to improve digestion processes (ie. mixing mechanisms, improved bacterial growth, etc.); 3) how to best fit a biogas plant into existing farm operations (ie. what feedstocks, how to site the facility, how much operational / maintenance needs you can handle, etc.); and 4) what are the potential desirable uses for the biogas and other co-products from the digester (ie. water heating, greenhouse heating, stoves for cooking / food processing, etc.).

The key to a successful project will be your participation. WSARE will not allow any expenses related to the construction or installation of any "permanent" facilities on a producer's farm. This means that you will need to cover the costs related to materials necessary for building your biogas plant. Our early estimates are that this will require between \$500 and \$1000 depending on

various circumstances (size, insulation, material type, design, etc.). Based on your feedback form, we will provide a more specific estimate on a case by case basis. There are many potential designs that you could utilize to best meet your individual needs and we will help you think through your options. In addition to the cash, you will be responsible for the actual construction, maintenance and operation of your biogas plant – how much time is required will depend on design choices, etc. We will provide technical assistance and consultation on the design and construction of your system. The proposed WSARE funding will be primarily used to cover the costs of our technical expert, Mr. Pandey, to consult with you on your system, evaluate the performance of the systems, and work on engineering solutions to improve the technology. We need a minimum of three participating farmers, but welcome as many as have interest. The direct time Mr. Pandey has for consultation with each individual will be affected by the total number of participating producers.

Please email / fax the following form back to me if you are still interested in participating. If you have any questions, please contact Chad at the number below. We are very hopeful that we will have a successful proposal.

Thank you,

Chad, Dave and Craig

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Washington State University helping farmers develop and implement systems and practices that mitigate global climate change.

Name _____

Address _____

Phone _____ Fax _____ Email _____

Describe your farm and what your interests are in a biogas plant

What specific uses for the biogas are desirable?

What uses for the other products (fiber, nutrient-rich liquid) do you desire?

Do you have any questions?