

# Environment and Natural Resources Trust Fund 2009 Phase 2 Request for Proposals (RFP)

---

**LCCMR ID: 098-D1**

---

**Project Title:** On-Farm Pelletizing Of Prairie For Sustainable Bioenergy

**Total Project Budget:** \$ \$68,000

**Proposed Project Time Period for the Funding Requested:** 2 years July 2009- Dec 2010

**Other Non-State Funds:** \$ \$6,000.00

**Priority:** D1. Renewable Energy Life Cycle Costs and Impacts

---

**First Name:** Tim

**Last Name:** Terrill

**Sponsoring Organization:** Winona Soil and Water Conservation District

**Address:** PO Box 39, 400 Wilson St  
Lewiston MN 55952

**Telephone Number:** 507-523-2171

**Email:** tim.terrill@mn.nacdnet.net

**Fax:**

**Web Address:** www.winonaswcd.org

---

**Region:**

**County Name:**

**City / Township:**

SE

Fillmore, Houston, Olmsted,  
Wabasha, Winona

**Summary:** The team will assess the economics of farm profitability for this system, and wildlife impacts of converting marginal cropland to perennial prairie vegetation for biofuel production.

---

**Main Proposal:** 0908-2-007-proposal-2009\_main\_proposal\_template.doc

**Project Budget:** 0908-2-007-budget-Copy of RFP\_2009\_Project Budget.xls

**Qualifications:** 0908-2-007-qualifications-Project Manager qualifications.doc

**Map:**

**Letter of Resolution:** 0908-2-007-resolution-Letter of Resolution.doc

---

# MAIN PROPOSAL

## PROJECT TITLE: On-Farm Pelletizing of Prairie for Sustainable Energy

### I. PROJECT STATEMENT

The primary focus of this project will be to assess the economic viability of pelletizing as an alternative to corn for direct burning in pellet stoves. The team will assess the economic and wildlife impacts of converting marginal cropland to perennial prairie vegetation for biofuel production, and host on-farm field days to share results.

The need for this project is evident in the increasing conversion of marginal lands to row crop production, resulting in excessive sediment, bacteria and pesticides in the Whitewater River. Upland land use is the primary factor affecting pollutant load, stream habitat, flooding and recreational suitability of the Whitewater River. Perennial cover, primarily on marginal lands and steep slopes, is vital for protecting soil and water resources, reducing pesticides, pathogens and sediment from runoff water, holding soil in place, increasing infiltration and reducing flooding. The potential for using perennial biomass to feed pellet stoves is an opportunity for local landowners to provide their own fuel supply as well as protect sensitive lands, protect water supplies and reduce flooding.

There is a risk to landowners when they choose to set aside land to be planted to perennial cover for biofuel use. There is a cost of establishment, as well as loss of income over the two to three year establishment period before the land cover is ready to be harvested. This project will remove some of the uncertainties and risks involved for landowners by providing a local, on the ground demonstration, and clarifying the economic costs and benefits landowners need to know as they make decisions regarding land use.

### II. DESCRIPTION OF PROJECT RESULTS

#### **Result 1: Agronomics: Management, Harvest, and Pelletizing Budget: \$24,000**

The Project Team, led by landowner Eric Kreidermacher, will maintain 40 acres of prairie; 20 acres was planted in June of 2007 and an additional 20 acres will be planted in 2009. On the 20 acres established, one plot is planted to a mix of prairie grasses, while the other is a mix of grasses and forbs. He will harvest in 2009, 2010 and 2011, as appropriate, and pelletize the biomass, utilizing the pellets for fuel. We will measure the biomass yields of the two sites and the BTU's produced for the analysis of the native grass pellets.

<b>Deliverable</b>	<b>Completion Date</b>
1. Plant 20 acres to native grasses and forbs (in-kind)	June 2009
2. Maintain the native plantings throughout the grant period	Ongoing throughout grant period
3. Harvest the biomass in 2009-2011	Ongoing
4. Assess biomass yield of the native grass and grass/prairie plantings	Ongoing
5. Pelletize the biomass and measure the heat produced during combustion	Ongoing

#### **Result 2: Economic Assessment of Pelletizing for farm profitability Budget: \$24,000**

The project team, led by the Winona Soil and Water Conservation District, will contract for an economic study of the efficiency of pelletizing native grasses for farm profitability. We will utilize the information obtained in Result 1 to determine the economic costs and benefits of this process, including the cost and return from planting, land rent, harvesting, pelletizing, transportation, and BTU production to determine if this is a cost efficient practice for local landowners. Finally, we will compare traditional corn to perennial biomass BTU's for direct burning in a boiler. We will compile the findings of the economic assessment into an accessible report, disseminate the findings to the local public, and conduct a farm field day for sharing the results.

<b>Deliverable</b>	<b>Completion Date</b>
1. Conduct an economic study of the on-farm pelletizing process	April 2011
2. Compile a report of findings and disseminate to the local public	June 2011
3. Host a field day on-site to share results	June 2011

**Result 3: Assess Multiple Environmental Impacts****Budget: \$10,000**

The Project Team, led by Bruno Borsari of Winona State University, will coordinate a survey of the habitat changes that occur during the conversion of cropland to prairie and through annual harvest of the biomass. He completed a preliminary survey of the site, looking at insect and bird species richness in 2007. He will continue this survey in 2009-2011 with two students. This project will be included in the curriculum for WSU students in the Agro-ecology field.

<b>Deliverable</b>	<b>Completion Date</b>
1. Survey insect and bird populations in 2009-2011	June 2011
2. Compile a report of species richness impacts from prairie production for biofuel	June 2011
3. Present paper at Energy & Sustainability Conference	June 2009

**Result 4: Project Coordination****Budget: \$ 10,000**

The Winona Soil and Water Conservation District Manager will provide project coordination, and grant and funds management. The duties of the project coordinator will include: coordination of all partners, projects, and cultivation of partnerships; information and education, managing project data, disseminating results and submitting reports to LCCMR and partner.

<b>Deliverable</b>	<b>Completion Date</b>
1. Project Coordination- Winona SWCD	June 2011
2. Information and Education- Winona SWCD	June 2011
3. Present paper at Energy & Sustainability Conference	June 2009

**III. PROJECT STRATEGY AND TIMELINE****A. Project Partners .**

Bruno Borsari, Winona State University Biology Department; Mike Wenz, Winona State University Economics Dept- Economic and multiple benefit study; Tim Terrill, Winona Soil & Water Conservation District- Project Coordination; Eric Kreidermacher- Farm, Agronomic study; Linda Dahl, Whitewater River Watershed Project- grant writing.

**B. Project Impact**

This project will immediately affect other farmers in the surrounding area, as they have expressed willingness for the project to pelletize grasses for them to heat their own homes.

**C. Time**

The Project will be a 2 year project.

**D. Long-Term Strategy (if applicable)**

NA

## Project Budget

### IV. TOTAL PROJECT REQUEST BUDGET

<u>BUDGET ITEM</u>	<u>AMOUNT</u>	<u>% FTE</u>
<b>Personnel:</b> 2 years with no benefits		
Bruno Borsari- Assess Multiple Environmental Impacts	\$ 10,000	10%
Eric Kreidermacher- Agronomics: Management, Harvest, and Pelletizing	\$ 24,000	30%
Michael Wendt- Economic Assessment of Pelletizing for farm profitability	\$ 24,000	30%
Tim Terrill- Project Coordination	\$ 10,000	10%
	\$ -	
<b>Equipment/Tools:</b> Tools provided as in kind NA	\$ -	
<b>Acquisition (Including Easements):</b> NA	\$ -	
<b>Restoration:</b> NA	\$ -	
<b>Other:</b> NA	\$ -	
	\$ -	
<b>TOTAL PROJECT BUDGET REQUEST TO LCCMR</b>	<b>\$ 68,000</b>	

### V. OTHER FUNDS

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
<b>Remaining \$ From Previous Trust Fund Appropriation (if applicable):</b> NA	\$ -	<i>Unspent or Not Legally Obligated</i>
<b>Other Non-State \$ Being Leveraged During Project Period:</b> Productive Conservation on Working Lands grant (federal)- \$6,000;	\$ 6,000	<i>Secured</i>
<b>Other State \$ Being Spent During Project Period:</b> NA	\$ -	
<b>In-kind Services During Project Period:</b> AURI- in kind technical assistance for pelletizing; Linda Dahl- Whitewater Watershed- \$300 in kind grant writing; David Wilson- Driftless Area Initiative Coordinator- Erin Tegtmeier- UMN Experiment in Rural Cooperation; Linda Grover, Anne Morse- Winona Economic Development; Tom Vanderlinden- U of M extension; Tex Hawkins- USFWS; Winona State University, Winona Soil & Water Conservation District- undetermined in kind committee member time.	\$ 300	Secured
<b>Past Spending:</b> List money spent or to be spent on this specific project, cash and/or in-kind, for 2-year timeframe prior to July 1, 2009 U of M Regional Sustainable Development Partnership & SE CERTS- \$5,000 grant; Pelletizing Equipment purchased and warehouse for containment- \$180,000	\$ 185,000	Secured

## Project Manager Qualifications

Tim Terrill will be the project manager for the LCCMR grant named Alternative Bioenergy project. For over seven years Tim has worked on 3 different Federal 319 grant projects in the state of Iowa. These grants ranged for \$300,000 to \$400,000 and required multiple, simultaneous activities. Now working in Winona Minnesota as a District Manager, Tim has a B.S. in Biology and the combined experience of performing: an Information and Education Campaign, Best Management Practice implementation, administrative work, employee supervision; coordination of private and public activities, coordination of multiple federal and state programs and partners; cultivation of partnerships; coordination of a 28 member Clean Water Alliance; managing project data; writing monthly, quarterly, annual, and final reports; facilitated meetings and managed contract data. Some of Tim's accomplishments include:

1. Was involved as a participant in a group of environmentally conscious people and successfully helped generate 1.5 million dollars toward water quality. Through negotiations with city officials, money was generated from the budgets from all 11 cities in Dickinson County, and a greater understanding of water quality was understood by city council members.
2. District was awarded the 2003 Iowa Governor's Excellence Award- Special designation for Water Quality for my coordination of the Rock Valley Watershed Project. This award recognizes Iowa groups who have excelled in environmental sustainability, demonstrating leadership, innovation and a comprehensive environmental ethic in managing natural resources.
3. Volunteered as a facilitator for the REAP Assembly, to form goals and vision for the future.
4. One project was chosen out of seventy-seven watershed projects to represent Iowa to EPA region 7 for community involvement in watershed management. Tim gave a presentation to EPA and the land grant universities of KS, IA, NE, and MO to demonstrate the sociology of getting local citizens involved in watershed management. The information from his and three other case studies were analyzed by sociologists and EPA to develop a report to guide other watersheds to find common tactics for community involvement.
5. Was appointed to work with a Quality Improvement Team for the State of Iowa to develop Section 319 application guidelines for all County SWCD's to follow. The process involved matching up EPA's grant objectives with the Iowa's objectives, and fusing the watershed protocol document with the application guidelines to develop a consistent, seamless, grant application for the Section 319 non point source program.

For this project, Tim will coordinate and work with multiple partners. This involves working and coordinating with University researchers, economists, technical assistance personnel, producers, businessmen, county government, economic development, watershed professionals, and field staff to accomplish the deliverables of the LCCMR grant.