2005 Project Abstract

For the Period Ending June 30, 2008

PROJECT TITLE:	**3rd Crops for Water Quality – Phase 2**
PROJECT MANAGER:	**Linda Meschke**
AFFILIATION:	**Rural Advantage**
MAILING ADDRESS:	**1243 Lake Avenue, Suite 222**
CITY/STATE/ZIP:	**Fairmont, MN 56031-1942**
PHONE:	**507.238.5449**
FAX:	**507.238.4002**
E-MAIL:	**linda@ruraladvantage.org**
WEBSITE: (If applicable)	www.ruraladvantage.org
FUNDING SOURCE:	**Minnesota Environment and Natural Resources Trust Fund**
LEGAL CITATION:	**ML 2005, First Special Session, Chapter 1, Article 2, Section 11, Subdivision 9(e) Third Crops for Water Quality – Phase 2**

APPROPRIATION AMOUNT: $241,000

Note: The total appropriation for this project is $500,000. Rural Advantage received $241,000 and the University of Minnesota received $259,000. The University of Minnesota is submitting a separate report for their work.

Overall Project Outcome and Results (Rural Advantage)

The purpose of the project was to accelerate the adoption of 3rd crops to enhance water quality, accomplish TMDL goals, diversify cropping systems, supply bioenergy, provide wildlife habitat and improve economic vitality through demonstrations, research, and education. The term 3rd crop is used to represent a variety of crops beyond corn and soybeans such as hays, small grains, cover crops, native species, hazelnuts, grapes, etc. These crops provide multiple benefits to society in the form of improved water quality, reduced soil erosion, enhanced wildlife and pollinator habitat, water storage/ aquifer recharge, and carbon sequestered plus they provide economic return to the landowner. These are meant to be working lands.

Numerous outreach, education, and marketing activities were conducted to accelerate the adoption of 3rd crops. These ranged from one-on-one consultations to public events to conferences to feasibility development activities.

Through this project there were 51.5 acres of 3rd crops established on seven sites in the greater Blue Earth and Lower Minnesota River watersheds and 3rd crop demonstration sites of two acres each at Belle Plaine, Fairmont, Starbuck, and Roseau. Each site contains a diverse planting of various 3rd crops. Each site has a ten year easement to maintain the 3rd crop. We expect that there will be viable markets at the end of the easement term to maintain these sites in a 3rd crop use for the long term. 3rd crops demonstrated include native grass mixes for bioenergy [4 sites], pasture mix, native grasses for seed production and grapes. All were targeted to environmentally sensitive lands within their local geography.

There has been significant progress toward the acceleration of 3rd crop adoption in Minnesota as a result of this project and the collaborations with multiple partners. The University of Minnesota completed the research aspects of the 3rd Crop Project and is submitting a separate report for their portion of the funding.

Project Results Use and Dissemination (Rural Advantage)

Throughout the timeframe of this project there were over 200 outreach, education, and marketing activities conducted to accelerate the adoption of 3rd crops. These ranged from one-on-one consultations to public events to conferences to feasibility development activities. It is estimated that at least 12,000 individuals have been reached throught these efforts.

LCCMR 2005 Work Program Final Report
Rural Advantage Portion Only

Date of Report: **August 15, 2008**
LCCMR Work Program Final Report

I. PROJECT TITLE: **3rd Crops For Water Quality – Phase 2**

Project Manager: Linda Meschke
Affiliation: Rural Advantage
Mailing Address: 1243 Lake Avenue, Suite222, Fairmont, MN 56031-1942
Telephone Number: 507-238-5449 **Fax:** 507-238-4002
E-Mail: linda@ruraladvantage.org **Web Address**: www.ruraladvantage.org
Location: *Greater Blue Earth, Chippewa, Lower Minnesota and Roseau River Watersheds*

Total Biennial Project Budget: $ 500,000		**LCMR Appropriation:**	**$ 241,000.00**
Rural Advantage Portion:	**$241,000**	**Minus amount Spent:**	**$ 240,719.15**
University of MN Portion:	**$259,000**	**Balance:**	**$ 280.85**

Legal Citation: ML 2005, First Special Session, Chapter 1, Article 2, Section 11, Subdivision 9(e) Third Crops for Water Quality – Phase 2

Appropriation Language: Third Crops for Water Quality-Phase 2 $250,000 the first year and $250,000 the second year are from the trust fund to the commissioner of natural resources for cooperative agreements with Rural Advantage and the University of Minnesota to accelerate adoption of third crops to enhance water quality, diversify cropping systems, supply bioenergy, and provide wildlife habitat through demonstration, research, and education. This appropriation is available until June 30, 2008, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

II. FINAL PROJECT SUMMARY

The purpose of our project was to accelerate the adoption of 3rd crops to enhance water quality, accomplish TMDL goals, diversify cropping systems, supply bioenergy, provide wildlife habitat and improve economic vitality through demonstrations, research and education. The term 3rd crop is used to represent a variety of crops beyond corn and soybeans such as hays, small grains, cover crops, native species, hazelnuts, grapes, etc. These crops provide multiple benefits to society in the form of improved water quality, reduced soil erosion, enhanced wildlife and pollinator habitat, water storage/ aquifer recharge, and carbon sequestered plus they provide economic return to the landowner. These are meant to be working lands.

Through this project we were able to establish 51.5 acres of 3rd crops on seven sites in the greater Blue Earth and Lower Minnesota River watersheds. We have established two acre 3rd crop demonstration sites at Belle Plaine, Fairmont, Starbuck and Roseau. Each site contains a diverse planting of various 3rd crops. Throughout the timeframe of this project we have conducted over 200 outreach, education and marketing activities to accelerate the adoption of 3rd crops. We

estimate we have reached at least 12,000 individuals through these efforts. Jeff Jensen was hired and worked from the Rural Advantage office on these aspects of the project.
There has been significant progress toward the acceleration of 3rd crop adoption in Minnesota as a result of this project and our collaborations with multiple partners. Although people call 3rd crops different things [ie: alternative crops, perennials, productive conservation on working lands, working lands, working landscapes, etc.] there has been significant buy in to this thinking. It should be noted that the University of Minnesota completed the research aspects of the 3rd Crop Project and is submitting a separate report for their funding.

IV. OUTLINE OF PROJECT RESULTS:

Cropping system-induced degradation of Minnesota waterways has had economic and ecological impacts including TMDL listings, hypoxia, habitat degradation, and drinking water impairments. This proposal, building on the success of the ongoing LCMR financed project "Native Plants and 3rd Crops for Water Quality", will accelerate the adoption of 3rd crops at a demonstration scale resulting in a long term impact on water quality and storage, wildlife habitat, renewable energy supply and rural economic vitality. The Project Team will 1) establish at least 59 acres of "working land" demonstration and research plantings; 2) determine ecological and economic benefits at field scale; and 3) accelerate the implementation of 3rd crop systems through outreach and market identification, coordination and development.

Result 1. "Establishment of 3rd Crop Plantings" Budget: $ 130,945

Description:
Activity 1 – With ten year easements, establish at least 59 acres of small scale plantings for on farm demonstration of 3rd crops, their productivity, and water quality impacts, including biomass to energy crops, in the Greater Blue Earth [Blue Earth, Watonwan and LeSueur Rivers] and/ or Lower Minnesota River Basins to measure water quality improvements and to supply fuel for the Koda Power plant. The Rahr Malting/ Shakopee Mdewakanton Sioux Community (SMSC) Energy partnership, called Koda Power, in Shakopee will begin building a biomass to energy facility in 2006 providing a market for biomass 3rd crops.

Technical assistance will be provided by Rural Advantage [RA], Third Crop Network [TCN] and local SWCDs for the landowner easements and establishment. In addition, there will be: a) 2 acre 3rd crop demonstration plots with at least twenty species each in the Blue Earth, Chippewa, Roseau and Lower Minnesota River Basins.

Small scale plantings for on farm demonstrations of third crops will be up to ~~five~~ ten* acres in size. Each planting will need to be conversion of land in corn/soybean production to a third crop. The third crop planted must be a perennial and will not be able to be rotated amongst the farmers total acres. The area converted must be environmentally sensitive lands.

*Per phone conversation with S. Thorton on June 4, 2007.

Landowners will be paid a percentage of the RIM Rate in exchange for a ten year easement on the site that is planted to a third crop. The rate will range from 50% of RIM for hay crops up to 75% of RIM for water storage/ wetland crops. The group providing the Technical Assistance

will receive 5% of the easement amount. Payment will be made once the crop is established.

The 2 acre 3rd crop demonstration plots will be to continue the four sites established during Phase I of the third crop project for an additional fifteen years. The Phase I sites were established and had a three year agreement. These sites will be used for field days to assist in disseminating the 3rd crop concept and benefits.

The Project Team will use diverse approaches (on farm demonstrations, workshops, presentations, web site and learning groups) to develop and deliver technical information/resources to producers, local agencies, landowners, agribusiness, teachers, NGO's, state and federal agencies and policy makers to define economic, marketing and policy issues that need to be addressed to accelerate adoption of 3rd crops.

Final Results:

This proposal, through implementation and demonstration, is designed to create a more sustainable system by providing transitional and risk incentives for establishing greater crop diversity which will increase land stewardship and accelerate economic opportunity within rural Minnesota.

A 3rd Crop program promotes the establishment and growing of crops other than corn and soybeans. This result would pay landowners a financial incentive to raise a 3rd Crop. Technical assistance and long term monitoring would be provided by Rural Advantage or the local SWCD. We have a broad definition of 3rd Crop that not only includes traditional agricultural crops, but also would promote the production of ecological and public goods such as pollution reduction [N, P and sediment], wildlife and pollinator habitat enhancement, carbon sequestration, nitrogen farming and water storage. Most 3rd Crops could be income generating. This additional income will help maintain these plantings in perennial use beyond the ten year easement commitment. Landowners meeting the following guidelines were eligible to enroll.

- Areas planted must convert land that is currently in a corn/ soybean rotation to a 3rd Crop. Cropping history can be verified with FSA aerial photos.
- Enrolled acres must be within the Greater Blue Earth River Watershed or the Lower Minnesota River Watershed.
- Acres enrolled must be environmentally sensitive.
- No net loss. You cannot get paid for what you are already doing. If you are already growing a 3rd Crop, you can add more acres but you must then maintain your original 3rd Crop acres throughout your contract.
- Technical assistance will be provided by the SWCD or Rural Advantage in the county where the project is located. The SWCD or Rural Advantage will be responsible for ensuring that the program criteria is maintained throughout the years of the project.
- Crops planted must be perennials. Alfalfa cannot be more than 10% of the seed mixture.
- Each agreement will have an operation and maintenance plan developed for the 3rd Crop.
- The 3rd Crop is not a land retirement program -- the land is expected to generate income. It is intended to create a working landscape that will build toward a more sustainable system --- environmentally, economically and socially.
- Agreements will be a 10 year [comparable to state cost share contract length] *recorded* easement.

- Minimum size is 1 acre. Maximum size per easement is 10 acres.

Our budget for this component was $100,945.00 and we estimated we would be able to establish 59 acres of third crops in the two target areas. During the timeframe of this project we saw significant land price increases [almost double] throughout the region. In addition, around the Mankato area and in the Lower Minnesota basin there was significant completion from housing growth. Because our payment schedule follows the RIM rate, which is based on the land values, our project dollars did not go as far as we wanted, but we were able to enroll 51.1 acres into this program. Payments were calculated using the following matrix.

3rd Crop Payment Matrix

3rd Crop	Length of Agreement 10 year Easement
Annual, Non-Row Crops small grain, cover crops, rotations supporting soybean cyst nematode control, cropping for pesticide reduction, etc.	*No Funding Available for this Option* 40% of RIM Rate
Perennial, < Five Years Native Plants, Grass Hay, emerging varieties, etc. You can rotate over your acres if in the plan.	60% of RIM Rate
Perennial, > Five Years Native Perennials, woody perennials, shrubs, pasture, fruits, Hazelnuts, Bioenergy Plantings w/ < 2 Species	70% of RIM Rate
Perennial, Long Term Native Perennials for local ecotype seed production, Woody Perennials, Willow, Cottonwood, Living Snowfence, Bioenergy Plantings w/ > 3 Species	75 % of RIM Rate
Perennial, Long Term Water Storage	75 % of RIM Rate

Note: The Reinvest In Minnesota [RIM] program is a statewide program of the Minnesota Board of Soil and Water Resources [BWSR]. The RIM Rate is calculated for each township or city across the state. The rate is equal to 90% of the assessed market value in your township/ city. This 3rd crop project pays a percent of the RIM Rate.

We enrolled seven landowners for a total of 51.5 acres which is slightly below our goal. Increased land values with a set amount of funds for this component lead to the lesser amount of acres enrolled. Crops enrolled are:

Pasture Mix	10 acres	Steve Thompson- Martin County
Grapes	2.5 acres	Deloris Lau- Blue Earth County
Native Grasses	6.5 acres	Don/ Karen Davis- Watonwan County
Natives for Bioenergy	8.2 acres	Jerry Karau- Watonwan County
Natives for Bioenergy	10.0 acres	Lakeside Machine Shop- LeSueur County
Natives for Bioenergy	10.0 acres	Dick Gerhardt- Martin County

Natives for Bioenergy 3.9 acres Al Gerhardt- Martin County

Rural Advantage, working with local SWCD's, provided technical assistance to the landowners for site selection and design, species selection, and establishment. In addition, Rural Advantage staff checks the sites each year to ensure the site maintains their contract requirements. Some of the participating landowners were able to compliment the LCCMR funding through the Productive Conservation on Working Lands program offered by Three Rivers RC&D. This program offered up to $150 per acre [matched with $150 per acre] for establishment of productive conservation [3rd crops] plantings. Our LCCMR funding paid for the easement and the productive lands could assist with the establishment of these plantings.

This program has allowed us to get excellent examples of third crops out on the landscape and disbursed in southern Minnesota. We have been utilizing these plantings [and the ones from our 2003 LCMR project] for field days with landowners. We have invited speakers to these events and have had successful events with good participation. There is substantial risk to the landowner to convert to a different crop that is not subsidized by the Farm Bill. This program minimized the risk to landowners and there was significant interest. This type of short term program would be an excellent format for perennial bioenergy plantings in the future. It minimizes risk in the short term and enables economic stability in the long term for landowners.

We continue to maintain the four 2 acre Demonstration Sites that are established in the Lower MN, Blue Earth, Chippewa and Roseau River Watersheds. Each site has its own unique characteristic for the watershed it is in and is held with a fifteen year easement. The list, and collaborating partners, include:

Heritage Acres, Fairmont- Blue Earth River Watershed

Over 40 third crop species including lilacs, dogwoods, hazelnuts, small fruits, native legumes, miscanthus, grapes, etc..

Prairie Horizons Farm, Starbuck-Luverne and Mary Jo Forbord- Chippewa Watershed

Over 25 third crop species including native grasses, small fruits, dogwoods, hazelnuts, and bioenergy crops.

Minnesota Turf Seed Council, Roseau- Roseau River Watershed

Displaying a variety of native grasses for seed production and bioenergy from the straw and screenings.

Seven Story Farm, Belle Plaine- Heidi Morlock- Lower Minnesota River Watershed

Displaying a variety of 3rd crops for the urban market. Small fruits, hazelnuts, cut flowers, curly willows, vegetables, hazelnuts, wetland restoration, native grasses.

Each year the landowners cooperate in having a field day at each site. These are great learning tools with time for one on one level discussions with interested landowners. We try to cover the range of production methods from establishment to harvest. Sometimes we have been able to demonstrate specific methods such as propagating hazelnuts using mound layering. More detail is provided on outreach and education in Result 3.

Summary Budget Information for Result 1:	**LCMR Budget**	**$ 130,945.00**
	Spent	**$ 130,945.00**

Balance $ 0.00

Completion Date: June 30, 2008

Result 2 – "Agronomic, Hydrologic and Economic Research" Budget: $ 259,000

This result is now under a separate workplan for the University of Minnesota

Result 3 – "Education, Outreach, Marketing and Communication" Budget: $ 110,055

Activity 1 The Project Team will use diverse approaches (on farm demonstrations, workshops, presentations, web site and learning groups) to develop and deliver technical information/resources to producers, local agencies, landowners, agribusiness, teachers, NGO's, state and federal agencies and policy makers to define economic, marketing and policy issues that need to be addressed to accelerate adoption of 3rd crops.

Utilizing the various 3rd crop plantings we will hold field days on site. There will be at least 10 field days each year. At least five Power Point presentations will be given each year to producer, policy, or interested citizen audiences. 3rd Crop information will be continued to be available on the web at the BERBI website or under the Rural Advantage website when BERBI ends. The CINRAM [Center for Integrated Natural Resources and Agricultural Management] website at the University of Minnesota will also maintain information on third crops. We also will establish a display to be used at conferences, fairs and other community events to disseminate information on 3rd crops. All outreach activities will be carried out by the project team.

Activity 2 The Project Team will assist a Marketing Person with identify existing markets, coordinate producers with those markets and promote the development of new market opportunities including the production and use of biomass for energy production. A fulltime marketing position will be continued at the Rural Advantage office. This position will work directly with producers and industry to accelerate the advancement of third crops on the landscape.

The work of the marketing person will have many forms including one on one landowner discussions; work with groups of producers interested in a specific crop to develop enterprise opportunities; consult with potential business development clientele to form business ventures that process third crops; assist in the development of business plans, feasibility studies or organizational structures [such as a coop or limited liability company]. The marketing person will also be involved with the outreach component and assist in the delivery of 3rd crop information.

Final Results: Activity 1-

We collaborated with several partners to achieve our education, outreach, marketing and communication goals of the project. Main collaborators have included local SWCD's and County's, University of Minnesota, CINRAM, UMN- Extension, Three Rivers RC & D, Green Lands, Blue Waters, Greater Blue Earth River Basin Alliance [GBERBA], MN State University-Water Resources Center, Sustainable Farming Association, GrazeFest, Minnesota Turf Seed

Council, Friend of the Minnesota Valley, UMN- SWROC- Lamberton, UMN- SROC- Waseca and numerous cooperating landowners.

Since beginning this project we have held the following outreach/ education activities:

- "Conservation on Wheels" to promote 3rd crops at County Fairs. We had a display at Winnebago, Waseca, Faribault, Blue Earth County, Emmet, Freeborn, Jackson, Sibley, Kossuth, Brown, Watonwan, Cottonwood and LeSueur Counties. [2005, 2006].
- 3rd Crop Meeting at Lamberton SWROC w/ UMN – Extension [2005]
- Miscanthus and Renewable Energy Field Day @ Luverne [2005, 2006, 2007]
- Martin County Ag Picnic and 3rd Crop Tour [2005, 2006, 2007]
- Sustainable Business Planning Workshop for 3rd Crop Producers [2006]
- RUSLE2 Training for CCA's, SWCD and Farmers [2006]
- 3rd Crop Winter Series [4 - 3rd crop meetings in Feb. & March] [2006, 2007, 2008]
    - 12 held/ 500+ attendees
- Learning Groups Meeting [2005, 2006, 2007, 2008]
- 2 Grazing Workshops & 4 Pasture walks [2006, 2007]
- 3rd Crop Walk N Talks [summer field days] 25 held/ 1000+ attendees
- 3rd Crop Display [wide variety of public events] 56 events/ 5000+ reached
- 3rd Crop Presentations [local to International conferences] 120+/ 5000+ reached
- Rural Advantage Website www.ruraladvantage.org
- Display at Mill City Farmers Market, Minneapolis
- Terrestrial Carbon Farmer Outreach Meeting [2007]
- One on one landowner consultations [at least 500]

Programs covered a wide range of 3rd crop topics. Examples include hazelnut management, natives for seed production, bioenergy crops, agri-tourism, enterprise development, grape production, carbon sequestration, cuphea, grazing/ pasture management, agroforestry, miscanthus, ornamental woody plants and farmers markets. The venue varied from on the farm to area meeting facilities to conferences. We have observed a growing interest in 3rd crop opportunities. With rising commodity prices comes increasing concerns about risk from the current commodity paradigm. There are a significant number of producers who will consider growing third crops. Our challenge is to figure out how to make them economically competitive. Local grown renewable energy is our opportunity for perennials to compete with commodity crops.

In southern Minnesota, and throughout the United States, there is much a buzz about alternative energy- especially corn grain or stover to ethanol. Farmers, governments, business and industry are quick to jump on the ethanol 'train' and perceive it to be the answer to rising energy prices. But, corn requires excessive energy and water to grow and process. Rural Advantage and their partners have been developing a new paradigm, called "The Madelia Model", to get people to think beyond ethanol and toward an alternative energy solution that can provide *multiple benefits* including a more sustainable solution for rural communities economically, environmentally and socially. Since 2003 we have been developing the Madelia Model concept and in February 2007 released the "Madelia Bio-Based Eco-Industrial Assessment" report which provides a framework we will be building from. This report is available online at

http://www.agobservatory.org/library.cfm?refid+97573.

The premise of the Madelia Model is that ***from a 25 mile radius around your community you can grow, or collect from natural or industrial sources, enough biomass to fuel your community and provide feedstock for bio-based processing***. The model looks at being able to supply locally grown biomass which will provide a market for perennial crops [3rd crops] on the landscape resulting in improved water quality and other ecological services plus create jobs in rural areas. The energy crop we support is native grasses which would provide additional ecological benefits such as clean water, carbon sequestration and improved wildlife habitat and diversity. The Madelia Project is a model for how we can do renewable energy, water quality improvements and rural revitalization right.

A landowner growing perennial biomass could expect to receive a biomass production payment from the renewable energy facility. For most landowners, the production payment itself will not be enough to drive change on the landscape. There needs to be something more to compliment the production payment.

Rural Advantage has developed, over the last year and a half, a *concept* for how perennial biomass crops can compete economically with corn and soybeans. While our interests are around supplying native prairie mixes for bioenergy relative to the Madelia Model, this concept is readily transferable to other productive conservation on working lands crops across the state. This concept compliments the biomass production payment, from the energy facility, with an Ecological Commodity Payment Package [ECoPayPack] that supplies a payment to the landowner based on the ecological services or public benefit provided when you convert from an annual crop to a perennial crop that is managed in a sustainable way.

Once developed, this concept could easily be adapted to allow existing perennial plantings to receive a payment for the ecological services they provide. The concept is a market based approach for an aggregator to "package'' together payments for various ecological services and then pay out a single payment to the landowner. Ecological services that there are currently markets for include carbon, greenhouse gas emission reductions, nitrogen and phosphorous reductions, habitat improvement, sustainability standards, green space and aquifer recharge/ water storage. While these programs are not developed in Minnesota, they all exist now in other places in the world. We have received other funds to develop this concept and will be pursuing that over the next several years.

Our website has been published and contains several 3rd Crop resources available on it. These include materials we or our partners have developed and other resources we have found to be valuable. As new resources are available we add them to the site.

Final Results: Activity 2-

Jeff Jensen is our Marketing Assistant and was paid from this grant starting July 1, 2006. He is employed 40 hours per week and works out of the Rural Advantage office in Fairmont. Jeff researches new market opportunities and enterprise development for various 3rd crops, attend conferences promoting 3rd crops, communicate the 3rd crop concept to the media, connects producers with information, conducts field days and workshops, and works with landowners. In addition to the outreach and education components he has done the following market specific

activities.

- ✓ Assisted with an application for a feasibility study for growing flax for high value omega eggs. [This application did not get funded.]
- ✓ Provided leadership to the evolution of the commercial hazelnut growers/market in Minnesota. A Minnesota Hazelnut Growers Association has formed and developed a ten year strategy to commercialize hazelnuts.
- ✓ Prepared a feasibility study on pelleting prairie grasses for added market value.
- ✓ Assisted with the development of a feasibility study for an anaerobic digestion system to utilize biomass feedstocks. [part of the Madelia Model]
- ✓ Development of the ECoPayPack [Ecological Commodity Payment Package] concept to add value to 3rd crops that provides significant ecological services.
- ✓ Development of the Madelia Model to demonstrate a market strategy to get perennials on the ground. We are currently in the early stages of *building* the Madelia Model.

Solid economic data is available for some 3rd crops but not for others. Since economics plays such a primary role in farm decisions it was decided to gather up information on the economics of some 3rd crops. Partnering with Dave Bau, U of M Extension Economist, as well as Gary Wyatt, U of M Extension Educator, and Dean Current, U of M co-director of CINRAM and his two graduate students Narayan Dhakar and Annalisa Hultberg, we met to discuss what crops to include and how to put together some solid economic information to compare to corn and soybeans.

The 9 crops chosen are: alfalfa, grass hay, switchgrass, native grass polyculture, miscanthus, hybrid poplars, hybrid hazelnuts, woody decorative florals, and willow. Our initial desire to comprise enterprise budgets for each of these crops was quickly determined to not be feasible. Too much variability exists in the production practices of some crops, while others have no immediate market, still others have no (or few) production figures. In lieu of crop enterprise budgets we decided to take a step back and gather further information on some of these crops and develop some crop production guides that would include as much economic data as is available.

Work with hybrid hazelnuts continues and reached another high point in the second half of 2007. Support and organization has been needed for new and existing growers for some time. There is a group of hazelnut growers who share their experiences- both successes and failures- on a regular basis. This has lead to a strong core of hazelnut growers across southern Minnesota with about 32 families involved. While Rural Advantage continues to be a leading supporter and partner in the development of hybrid hazelnuts as a commercial 3rd crop, a more formal growers group was really needed and has been formed called the Minnesota hazelnut Grower Association.

About the same time, one of our project partners, Don Wyse with the U of M saw the need to bring together growers, researchers, breeders, and other interested individuals from across the Midwest to strategize and develop a roadmap for the commercialization of hazelnuts in the Midwest. Leaders and representatives from University of Minnesota, University of Wisconsin, University of Nebraska, Rutgers University, as well as growers from MN, WI, and IA participated in the session. Discussion identified 4 key areas for commercialization of hazelnuts.

They included:

1. Hazelnut Breeding & Propagation
2. Hazelnut Industry Infrastructure & Marketing
3. Hazelnut Agronomics & Production Systems
4. Development of Harvesting & Processing Equipment

Within each area 5 and 10 year goals were discussed and an overall strategic plan was developed to guide the development of a hazelnut industry in the Midwest. The strategic plan is attached to this report.

Summary Budget Information for Result 3:	**LCMR Budget**	**$ 110,055.00**
	Spent	**$ 109,774.15**
	Balance	**$ 280.85**

Completion Date: June 30, 2008

V. TOTAL LCMR PROJECT BUDGET: [7/1/05 TO 6/30/08]

All Results: Personnel:	**$315,680**	1.0 FTE/Rural Advantage; 1.0 FTE Waseca SROC; 1.5 FTE/ Forestry; 1.0 FTE Agronomy
All Results: Development:	**$130,945**	59 acres of easements [10 yr]
All Results: Other:	**$ 53,375**	travel; supplies; outreach; signs, printing; promotion of 3rd crops

TOTAL LCMR PROJECT BUDGET: $500,000

VI. Other Funds and Partners:

A. Project Partners: Rural Advantage–Meschke, $241,000; UMN Agronomy–Wyse, Scheaffer, Jordan $61,000; CINRAM/Applied Economics-Current $42,000; Forest Resources-Brooks, $96,000; Waseca SROC-Johnson $60,000; Koda Power-Ellison, $0

B. Other Funds Being Spent during the Project Period: [Selected Projects]
DOD and IREE- UMN Biorefining Center $400,000 Value Added Technologies to Utilize Crops
General Mills & UM- Biorefining Center $300,000 for spectrometer for biomaterial study
UM BioTech Institute- $43,000 Value Added Processing of Minnesota Cereal Crops
Koda Power- $25,080,000 investment in Engineering, Boiler and Turbine for Shakopee Plant

C. Required Match: None

D. Past Spending: [Selected Projects]
BERBI - 2003 LCMR "Native Plants and 3rd Crops For Water Quality" $622,000
U of MN - CSREES "Improving Water Quality and Enhancing Hydrologic Stability of the Minnesota River through Agroforestry and Other Perennial Cropping Systems" $556,500
BERBI -Bush Foundation $140,000 BERBI - McKnight Foundation $ 30,000
BERBI- EPA Section 319 – Accelerated Implementation $300,000
IREE – UMN- Production of Bio-energy & Bio-Products from Alfalfa & Willow $25,000
IREE- UMN- Sustainable Fuel Sourcing Systems for Biomass Energy Production $24,500
UMN - Greater Blue Earth Turbidity TMDL $179,000
DOD- Biorefining Center $560,000 Value added technologies for utilizing crop byproducts/residues

E.TIME: July 1, 2005 through June 30, 2008 to allow two full growing seasons

VII. DISSEMINATION:

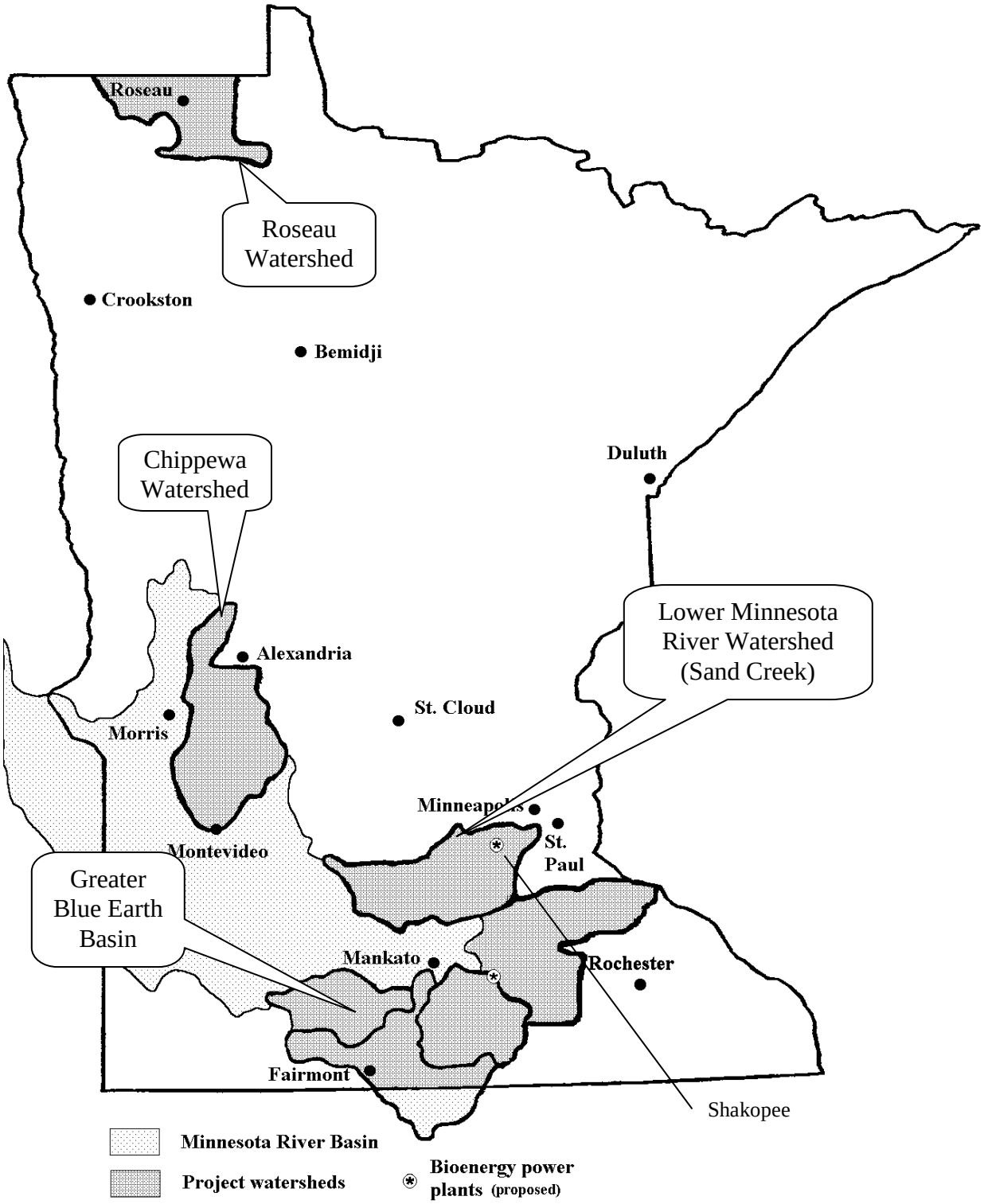
VIII. REPORTING REQUIREMENTS:

Periodic work program progress reports will be submitted not later than December 31 and June 30 each year of the project. A final work program progress report and associated products will be submitted by August 15, 2008.

VIII. N/A

Attached :

Hazelnut Development Initiative


Roseau
Roseau Watershed
Crookston
Bemidji
Chippewa Watershed
Duluth
Lower Minnesota River Watershed (Sand Creek)
Alexandria
St. Cloud
Morris
Minneapolis
St. Paul
Montevideo
Greater Blue Earth Basin
Mankato
Rochester
Fairmont
Shakopee
Minnesota River Basin
Project watersheds
Bioenergy power plants (proposed)

Hazelnut Development Initiative
Strategic Planning Meeting
November 19, 2007

University of Minnesota
St. Paul Campus
220 Skok Hall
St. Paul, MN

Contact:
Donald Wyse, Co-director
Center for Integrated Natural Resources and Agricultural Management

Wysex001@umn.edu
651 470 9878

The following document includes 10 year goals and a strategic action plan for a Midwestern hazelnut industry.

Table of Contents

Hazelnut Breeding and Propagation—10 Year Goals

Year 1	Year 5	Year 10
Develop criteria to determine suitable superior plant material. Identify suitable existing hazelnut plants to be entered into clonal replicated evaluation trials	Identify improved/superior hazelnut plants for clonal propagation for replicated evaluation trials	Continual system for active development and identification of superior hazelnut germplasm for designated production regions
Initiate research for the development of micropropagation of hazelnuts	Continue to develop micropropagation techniques for hazelnuts	Developed ability to produce supply of hazelnut plants to meet market demand
Research development of vegetative propagation techniques for nursery operators and on-farm propagation	Conduct on farm trials to improve vegetative propagation of hazelnuts and evaluate plants produced by different propagation needs	Producers will have the ability to vegetatively propagate hazelnuts on their farm
Develop sites and develop capacity for replicated trials to evaluate elite hazelnut germplasm	Establish on farm yield trials to evaluate specific seedling populations, micropropagated plants and other vegetatively propagated hazelnuts from selected ideal hazelnut germplasm	Extensive test plantings of seedlings and vegetative propagated hazelnut germplasm with the production data available to the public
Organize hazelnut research consortium in the Midwest with representation from Badgersett, Forest Agriculture, Ohio State, Rutgers, Purdue, Oregon, U of MN, Michigan State University, Iowa State, UW-Madison	Midwest hazelnut research consortium organized and functioning	Research program supported by a hazelnut research consortium to provide support by for regional hazelnut industry
Initiate intensive genetic improvement program to improve nut quality, nut/kernel size, kernel percentage, oil content, growth habit, etc.	Expand hazelnut breeding and germplasm collection and evaluation programs	Hazelnut breeding programs have capacity to produce superior hazelnut cultivars with ideal traits for Midwestern hazelnut industry
Research Partners	DOE, SARE, R&E, Graduate Students, Regional Development	
Capacity Building	Transfer ability to vegetatively propagate hazelnuts to producers	

Hazelnut Breeding and Propagation—Outline for Strategic Action —Who will do what and when?

What	Who	When
Identify ideal plants for use in vegetative propagation studies	Regional hazelnut producers, University of Mn, private and public breeders	Continue current activities and expand effort in 2008
Develop regional hazelnut variety trial consortium	WI-Fishbach, Forest Agriculture Enterprises, McCown, MN-Erickson, Wyse, Adams	Organize in January 2008
Develop proposal to support hazelnut micropropagation research and development	A team of hazelnut producers, breeder public and private breeders and other university personnel will coordinate effort	Initiate team development in January 2008

Hazelnut Industry Infrastructure and Marketing – 10 Year Goals

Year 1	Year 5	Year 10
Identify hazelnut producers. Organize hazelnut producers to develop statewide/regional hazelnut growers' organizations or networks	Develop operating capacity of state hazelnut organizations through membership dues and the creation of operating committees	Have regional hazelnut network in place with resources to provide exchange of information and to represent needs of the hazelnut industry to obtain greater resources
Initiate a network of information sharing with existing growers and potential new growers with internal quality control	Create committees to organize policy, education, research and marketing activities for the state organizations	Use regional network to share information, attract resources, influence policy, and conduct continuing education programs
Facilitate educational meetings on development of hazelnut production and marketing. Develop body of knowledge necessary to address concerns of hazelnut industry	Develop best management practices that will result in a reliable supply of hazelnuts for aggregate marketing	Hazelnut markets developed to support wholesale aggregation, diversified markets, value added markets and regional branding
Organize policy discussions to support hazelnut industry and draft policy briefs. Review new farm bill to identify opportunities for funding hazelnut development	Use policy briefs to influence a state and federal agriculture policy and legislation	Federal and state policies in place that support the hazelnut industry
Create system to identify research needs and develop process to develop action plans	Develop support for research agenda from state, federal, local and private sources	Have in place a continuing long term research program for hazelnut industry
Resources and Partners	Aveda, General Mills, Ferrero Roche (Ontario), etc.	
Capacity Building	Develop skills necessary to organize hazelnut industry	

Hazelnut Industry Infrastructure and Marketing—Outline for Strategic Action —Who will do what and when?

What needs to be done?	Who will do it?	When will it be done?
Initiate development of state network for hazelnut producers	Local hazelnut growers, NGOs and University of MN Extension	Start in late 2007 through June 2009
Conduct information sharing meetings that are recurring at both the state and regional level	Local growers, NGOs and University of MN Extension	Now and continual
Develop marketing strategy options	University of MN Food Science Department, State Agencies and private sector	During year 1
Identify research priorities and expand research to support growers needs	Grower research network, University of Minnesota, and private sector.	Now and continual

Hazelnut Agronomics and Production Systems—10 Year Goals

Year 1	Year 5	Year 10
Facilitate collection of hazelnut grower knowledge and experiences and put it into a format as a production manual for dissemination to producers	Continue development of grower developed production information with the release of the second or third edition of production manual	High quality producer based hazelnut production information available to new and established hazelnut producers in several different formats
Compile and develop hazelnut establishment, fertilization, irrigation, coppicing, weed management, harvesting information from a wide range of resources for use by producers and researchers	Develop YouTube clips (www.youtube.com) and other creative venues for presenting information to producers and policy makers. Develop/produce DVD focusing on hazelnut best management practices	High quality best management practice information available to producers, including suitable cultivars, weed management, pest control, cover crops, intercropping, fertility, establishment, irrigation, harvesting, etc.
Use MN Hazelnut Council's survey to identify research and education priorities to guide the development of research and education proposals for support of grower-implemented on-farm research. Conduct grant writing workshops for hazelnut producers. Write grant to obtain funds to support on-farm research	First and second round of on-farm research and education projects initiated and preliminary reports published. Capacity for funding hazelnut research and education is well developed, with a part-time staff person coordinating funding and management of research projects	A continuous funding stream is available for education and on-farm research, with a full time staff position to coordinate the efforts of the hazelnut growers group
Resources Partners	Muli-state growers group, SARE, MISA, CINRAM, University of MN, Rutgers, University of Nebraska, University of Wisconsin—Madison, Iowa State University, Wisc. and UMN-Extension, FFA, 4-H, LCCMR, DNR, Foundations, MPA, NRCS, USDA, DOE	A Upper Midwest hazelnut network or council to coordinate and support hazelnut initiatives in the region
Capacity Building	Organize hazelnut growers that are familiar with on-farm research methods and develop grant-writing skills. Develop capacity to develop and share information through conferences, workshops, websites, and publications	

Hazelnut Agronomics and production Systems—Outline for Strategic Action —Who will do what and when?

What	Who	When
Organize BMP review team to develop a BMP information package and disseminate the information via websites and in print	Grower group, Badgersett, Extension-WI and MN, Rural Advantage	Initiate in January 2008
Prioritize information gaps and research priorities via grower survey	MN Hazelnut Growers Association, Rural Advantage, Extension, Badgersett, CINRAM	Dec 2007 through 2008
Act on finding of grower survey by writing grant proposals to fund research and education priorities	MN Hazelnut Growers Association, Rural Advantage, Badgersett, CINRAM, UMN-Extension	Initiate discussion in January 2008
Develop grant writing workshop or attend grant writing workshops sponsored by LSP for producers and others engaged in the hazelnut industry	SARE, CINRAM, UMN-Extension, Rural Advantage, MN Hazelnut Growers Association	Initiate discussion in January 2008

Development of Harvesting and Processing Equipment-10 Year Goals

Year 1	Year 5	Year 10
Identify potential harvesting and processing equipment developers and manufactures	Three Upper Midwestern processing and marketing centers in operation with prototype harvesting and processing equipment available at each site for use by producers	Six regional harvesting and marketing centers will be in operation with equipment available for use by hazelnut producers to harvest and process hazelnuts
Identify funding sources for development of processing and marketing centers and develop proposal requesting funds	Use resources to develop harvesting and processing equipment	Develop and maintain continual funding to support development of harvesting and processing equipment
Identify sources of hazelnuts for use in development and evaluation of harvesting and processing equipment	Develop prototype mechanical husker that will husk green hazelnuts with 90% husk removal. Develop dryer system for early harvested hazelnuts	Producers have access to mechanical husker that will husk green with 90% hush removal
Identify source of hazelnuts and equipment for use in development of husker and dryer	Develop prototype machine for cracking, sorting, and separating hazelnuts	Producers will have access to machines for cracking, sorting, and separating hazelnuts
Identify sources of hazelnuts and oil presses that could be developed for use in development of oil presses for hazelnuts	Develop prototype oil press for hazelnuts	Oil press available to hazelnut producers
Resources and Partners	Identify groups that have need or resources to develop harvesting and processing equipment: Forest Agriculture Enterprises, Kansas pecan Growers, Lee Pothast, Micheal McNeill, Pendragon Specialties, Heartland Nuts and UMN Agricultural Engineering Dept. and others	
Capacity Building	Develop relationships with TEW—manufacturing, Legislative contacts, energy industry contacts	

Development of Harvesting and Processing Equipment—Outline for Strategic Action —Who will do what and when?

What	Who	When
Develop task force to research the development of processing equipment necessary for commercial marketing of hazelnuts	Roy Cerling Scott Josiah NFS Staff Forest Agriculture Enterprises	Now through first 6 months of 2008
Develop funding task force to identify funding sources to support the development of hazelnut processing equipment	Jason Fishbach WI RC&D's MN RC&D's Nancy Adams Donald Wyse	Now through first 6 months of 2008
Develop capacity to source a supply of hazelnuts that can be used to test processing equipment	MN and WI Hazelnut growers groups	Now through first 6 months of 2008
Identify individuals that can provide leadership for the development of regional processing and marketing centers	Forest Agriculture Enterprises, MN and WI producer groups, Heartland Nuts and more, etc.	First half of 2008

Hazelnut Development Initiative
Strategic Planning Meeting
November 19, 2007

University of Minnesota
St. Paul Campus
220 Skok Hall
St. Paul, MN

Parking for meeting—take Buford Ave on the St. Paul Campus to Buford Circle to the Pay Lot on Upper Buford Circle in front of Skok Hall (see map)

8:30-9:00 Refreshments

9:00-12:30 Hazelnut Efforts to Date (Breeding, Propagation, Establishment, Harvesting, Processing and Marketing Issues) As a presenter in the program please present the concerns or issues that you feel need to be addressed to commercialize hybrid hazelnut production in the Midwest.

Introductions and Welcome: Donald Wyse, Center for Integrated Natural Resources and Agricultural Management

Plant Breeding and Selection:

OVERVIEW: Hybrid Hazelnut Development in the Midwest, Phil Rutter, Badgersett Research Corporation (45 min)

Rutgers Hazelnut Breeding Program: Tom Molnar, Rutgers University (45 min)

Hazelnut Selection in Nebraska, Scott Josiah, University of Nebraska/Arbor Day (30 min)

Plant Propagation:

Mark Shepard, Forest Agriculture Enterprises (30 min)

Lois Braun, Don Wyse, Dean Current, University of Minnesota (15 min)

Deb McCown, Knight Hollow Nursery (15)

Others,

BREAK

Hazelnut Production:

Nancy Adams, MN hazelnut producer (10 min)

Norm Erichson, MN hazelnut producer (10 min)

Micheal McNeill, Iowa hazelnut producer (10 min)

Roy Cerling, MN hazelnut producer (10 min)

Dennis Gibson, MN hazelnut producer (10 min)

Others.

Hazelnut Processing and Marketing:
Reginaldo Haslett-Marroquin, processing/marketing (15 min)
Jason Fischback, Living Forest Cooperative Growers (15 min)
Jeff Jensen, Rural Advantage (15 min)
Others

12:30 – 1:00 Lunch Student Union St. Paul Campus

1:00 – 2:30 Discussion of Hazelnut Development Priorities (What needs to be done?)

- Breeding—germplasm development
- Vegetative propagation—microprop, etc.
- Establishment
- Markets
- Development of harvesting and processing equipment: picker, husker, cracker, sorter by size, sorter to separate meat from shells, oil press.
- Funding—state, federal, foundations

2:30-2:45 BREAK

2:45 – 4:00 Outlining a Strategic Plan (Who will do what and when?)

- 1 year plan, breeding, propagation, establishment, development of harvesting and processing equipment, funding
- 5 year plan, breeding, propagation, establishment, development of harvesting and processing equipment, funding
- 10 year plan, breeding, propagation, establishment, development of harvesting and processing equipment, funding

Attachment A: Budget Detail for 2005 Projects - Rural Advantage

15-Aug-08

FINAL Report

Proposal Title: 3rd Crops For Water Quality -- Phase 2

Project Manager Name: Linda Meschke, Rural Advantage

LCMR Requested Dollars: $ *500,000* **Rural Advantage Portion $241,000**

2005 LCMR Proposal Budget	**Result 1 Budget:**	**Amount Spent 8/15/2008**	**Balance 8/15/2008**	**Result 2 Budget:**	**Amount Spent** *(date)*	**Balance** *(date)*	**Result 3 Budget:**	**Amount Spent 8/15/2008**	**Balance 8/15/2008**	
	Establishment of 3rd Crop Plantings			*Agronomic, Hydrologic and Economic Research*			*Education, Outreach, Marketing and Communication*			
BUDGET ITEM										**TOTAL FOR BUDGET ITEM Unspent**
PERSONNEL: Marketing Person-- 1.0 FTE $18.40/ hr x 4160 hours - salary							**$ 76,544.00**	**$ 76,544.00**	**$ -**	**$ -**
PERSONNEL: Staff benefits – includes FICA 6.2%; Medicare 1.45%; Retirement 5.1% and Health Insurance 12.25%							**$ 19,136.00**	**$ 19,136.00**	**$ -**	**$ -**
On Farm Demonstration Sites -- 59 acres @ $1700	**$ 100,945.00**	**$ 100,945.00**	**$ -**							**$ -**
2 acre Demo Plots $250/A x 8 acres x 15 yrs -- Long Term Agreement	**$ 30,000.00**	**$ 30,000.00**	**$ -**							**$ -**
Outreach Expenses -- Field Days, Workshops, Publications, Promotion/ Advertising, Display/ Booth Space Rental							**$ 6,500.00**	**$ 6,500.00**	**$ -**	**$ -**
Signage							**$ 1,250.00**	**$ 969.15**	**$ 280.85**	**$ 280.85**
Printing							**$ 1,000.00**	**$ 1,000.00**	**$ -**	**$ -**
Other Supplies *(list specific categories)*										
Travel expenses in Minnesota 4213 miles x $0.445 x 3 years							**$ 5,625.00**	**$ 5,625.00**	**$ -**	**$ -**
COLUMN TOTAL	**$ 130,945.00**	**$ 130,945.00**	**$ -**	**$**			**$ 110,055.00**	**$ 109,774.15**	**$ 280.85**	**$ 280.85**