

07 - 0139

Agricultural Utilization Research Institute

2007 Legislative Report



Agricultural Utilization Research Institute

I. Overview

The Agricultural Utilization Research Institute (AURI) is a nonprofit corporation created to improve the economy of rural Minnesota through the development of new uses and new markets for the state's agricultural commodities and processing coproducts. AURI provides scientific technical assistance, targeted network coordination and project management support for the creation of value additions to agricultural products. AURI collaborates with other Minnesota entities including universities, state agencies, economic developers, commodity groups and farm organizations in an effort to provide the best possible network of resources to promote value additions and rural economic development. These services are provided directly in Greater Minnesota, where they are often the most needed and hardest to find. AURI programs are geared to meet this mission with an emphasis on creating partnerships and eliminating duplication of services.

A. Operating Environment

The 2006 operating year was best characterized by ever strengthening relationships with partnering organizations and collaborators. AURI systematically met with stakeholders across the state to determine priority issues for those organizations. Those priority issues were matched against AURI's mission to determine how AURI resources could be most beneficial and provide the most impact to Minnesota. Those activities served to build AURI's relationship with its stakeholders to an unprecedented level of support.

AURI continued to operate the Center for Producer-Owned Energy (CPOE) in 2006, providing assistance to farmer-driven entities intent on utilizing agricultural products and coproducts to produce various forms of renewable energy. More than 20 projects focusing on biofuels, biomass, biogas, coproduct utilization and biodigestion received AURI assistance through the Center. Those projects directly impacted more than 7,500 producers across the state while helping Minnesota remain in a leadership position in the field of ag-based renewable energy.

Key to AURI's success has been the blending of unique facilities, expertise in value-added agriculture and a network of resources to offer assistance to Minnesota businesses and start-ups with ideas for new value-added uses. AURI staff provided more than 20,000 hours of direct assistance to over 160 Minnesota-based value-added ventures. This assistance included technical and market feasibility, product development assistance, process refinement, access to laboratory facilities and more. Services provided by AURI give the state's innovators access to unique resources designed to give them a leg up on the competition. (Please see Appendix A for a complete list of 2006 funded projects and Appendix B for projects receiving technical, laboratory or business assistance).

Complementing AURI's work with existing or emerging businesses are external initiatives identified by AURI stakeholders and staff. These initiatives evaluate emerging opportunities that offer the potential to utilize large quantities of agricultural commodities. In these instances, no commercial partner has been identified. This public information is designed to determine if emerging trends truly represent viable opportunities. Some of these initiatives were undertaken after having been identified by AURI stakeholders as priority issues.

Partners such as the Minnesota Corn Growers Association, Minnesota Soybean Grower Association, Minnesota Pork Board, Minnesota Farm Bureau Federation, Minnesota Farmers Union and other groups collaborate with AURI to most efficiently and effectively address the priorities of Minnesota agriculture.

Initiatives undertaken during 2006 include:

Biomass burner for commercial applications	Combustion of glycerin
Agronomic applications of DDGS syrup	Applications for ethanol coproducts
Biodiesel batch processing	Economics of pellet fuel production
Ag biomass harvesting	Beef steak evaluation
Cellulosic ethanol basics	Small scale ethanol plants
Biodiesel quality assistance	Biomass conversion methodology

Highlights of AURI initiatives and client projects include:

Distillers Dry Grains in Swine Rations

As the Minnesota ethanol industry continues to grow, the increased demand for corn is putting pressure on the state's livestock farmers, particularly the pork industry. As ethanol expands, so to does the amount of coproducts produced by those plants. In an effort to increase the utilization of distiller's dry grains, the primary coproduct of ethanol manufacturing, AURI is working collaboratively with university researchers to determine how increased inclusion of DDGS in swine diets affects animal performance and meat quality. Successful results would be beneficial to both ethanol and swine producers.

Solubles as Fertilizer

In addition to solid coproducts, ethanol manufacturing also produces a liquid leftover called solubles or syrup. As this product is high in nitrogen, an AURI initiative sought to determine if this abundant, low-value product could be beneficial as a liquid fertilizer. Initial tests were positive, which could create a value-added market for a relatively abundant coproduct, giving ethanol producers another potential revenue stream.

Gasification of DDGS

In addition to having a potential market as a feed ingredient, DDGS have a high energy value due to significant oil content. Several Minnesota ethanol plants have installed equipment that will allow them to use this leftover product as a fuel to produce synthesis gas. This alternative energy source is greatly reducing the need for natural gas in ethanol production.

Biodiesel Industry Development

AURI and the Minnesota Soybean Research and Promotion Council partnered to commission a study to assess the economic feasibility of constructing new biodiesel production capacity in the state. The study assessed biodiesel marketing opportunities, availability of feedstock supplies, economics of stand-alone biodiesel plants and a combination of a bio-diesel plant in conjunction with a new soybean crush plant. The study also examined the economics of smaller scale diesel production facility in conjunction with an expeller or extrusion soybean crush plant. Vegetable oils and animal greases are the primary feedstock used in biodiesel production. Minnesota currently has excess soybean crush capacity in that half of the soybean meal produced in Minnesota must be exported out-of state.

Sugar to Ethanol

AURI's Center for Producer-Owned Energy (CPOE) and the Southern Minnesota Beet Sugar Cooperative commissioned a limited feasibility assessment of converting granular sugar to ethanol. This assessment was conducted at Corn Plus Ethanol of Winnebago, MN. Corn Plus is a conventional dry mill ethanol fermentation production facility capable of producing 51 million gallons of ethanol annually. This assessment sought to determine if additions of sugar would provide benefit to ethanol producers without affecting overall consumption of corn.

Shelf Stable Meats

This project will provide information to meat processors on the shelf stable requirements for jerky and sausages. We are also doing in-house research on different methods to reach the requirements. This project will impact the over 400 small to medium-sized independent meat processors in the state that rely on marketing value-added meat products directly to consumers.

Coproduct Utilization

One of AURI's most unique resources is the coproducts utilization program and pilot plant in Waseca. During 2006, this facility and program provided assistance to dozens of projects seeking to find innovative uses for low-value products like DDGS, crop residue, ag processing waste and more.

Assistance was provided in the development of pellet fuels, biomass fuels, compost products, agricultural carriers, mulches and more. Many existing and emerging ventures recognize the potential of adding revenue streams by utilizing their coproducts. Demand for assistance through the coproduct utilization program is strong and continues to grow at a rapid rate.

Animal Products

Of major importance to Minnesota's commodity producers is a healthy livestock industry. AURI works with Minnesota's meat processors on multiple fronts, including product development and utilization of offal or coproducts. AURI has also teamed up with Minnesota's livestock industry to test agricultural coproducts as feed ingredients, particularly as rising commodity prices have put pressure on livestock producers. Identifying ag processing coproducts that can be used as feed will be beneficial to livestock producers, grain farmers and agricultural processors.

Leadership in Renewable Energy

AURI has a nearly 20-year track record of working with ag-based renewable energy ventures. That leadership role resulted in AURI leading and participating in dozens of energy forums and conferences around the state. With expertise in biodiesel, ethanol coproducts as energy sources, glycerin, biomass and cogeneration, AURI presented information to a wide variety of groups across Minnesota. AURI also convened a collaborative meeting of interested organizations to jointly respond to large-scale research funding opportunities. AURI is also spearheading an effort called the Action Now Bioenergy Initiative, which is pulling together universities, state agencies, economic developers and industry to collaboratively respond to emerging renewable energy opportunities. This joint effort allows Minnesota groups to work together to advance renewable energy, rather than compete.

B. Additional Funding Sources

During 2006, AURI continued to operate on a very tight budget, with limited resources. The organization was able to utilize the remainder of funds awarded in 2005 through the USDA Agricultural Innovation Center grant, which established the Center for Producer-Owned Energy. Those funds expired on 12.31.06. Those funds were used to leverage additional funds from commodity groups, farm organizations and industry to support more than 20 renewable energy products utilizing agricultural commodities and coproducts. Additionally, AURI utilized some funds from the Xcel Renewable Energy Development Fund, which was also awarded in 2005.

All AURI and MNCPOE projects maintain a 1:1 cash match requirement. Funding and/or matching sources are raised from the client and other partners such as the Minnesota Soybean Growers Association, Minnesota Corn Growers Association and various other

commodity groups, farm organizations and economic entities across the state. In addition, efforts have been made to fortify relationships with federal partners. However, additional state funding is critical to maintain sustainability and to capitalize on future opportunities.

II. Organizational Priorities

AURI staff and programs place an emphasis on activities that have a greater chance of making a substantial impact on the utilization of Minnesota commodities. Projects are evaluated to ensure that resources are directed to allow for the maximum benefit to Minnesota agriculture. Further, AURI staff works with other partners to ensure efforts are not duplicated and that the client gets the best service possible.

A. Value-added Priorities

There are many opportunities for value additions to Minnesota agricultural products. However, not all are created equal. With limited human and financial resources, AURI prioritizes efforts to maximize those resources and provide the most valuable services to Minnesota agriculture. Those value-added priorities include:

Energy and Coproduct Utilization

- Coproducts, Fats & Oils Technical Assistance
- Analytical, Process and Pilot Plant Services
- Project Development Services to Minnesota
- Operate the Minnesota Center for Producer-Owned Energy

Commodity Utilization, Food and Nonfood Uses

- On-site Technical Assistance in labs located across the state
- Project Development Services

Animal Product Processing and Product Development

- Technical Assistance On-site at USDA certified Meats Lab in Marshall
- Product Development Services in Crookston, Marshall and Waseca
- Project Development Services across Minnesota.

B. Targeted Clients and Projects

AURI exists to provide assistance to Minnesota-based ventures that offer innovative new uses for the farm products grown in the state and for the coproducts generated by agricultural processing. However, priority is placed on projects being developed by producer-owned cooperatives and established agricultural processors. These are not the exclusive focus of AURI activities, but strong consideration is given because they offer

some of the greatest potential for producer impact. Given AURI's limited resources, working with projects promising large impact or that bolster existing efforts in the marketplace presents an opportunity for getting the most bang for the buck. AURI continues to assist with start-up and entrepreneurial projects that might be considered smaller scale.

IV. Administrative Activities

Ongoing Objectives of AURI Administration

AURI operates in an ever-changing environment. To ensure that the right services are being offered and Minnesota's needs are met, AURI undertakes the following activities:

Capacity Development: AURI continually evaluates the services that are offered and evaluates that against the needs of the state in an effort to provide needed assistance without duplicating the efforts of other public institutions.

Project Management: AURI strives to maintain a balanced portfolio of projects reflecting both client services and proactive industry initiatives.

Collaborative Relationships: AURI staff meets annually with key stakeholders to discuss priority issues and emerging opportunities. AURI also works with partnering organizations to collaborate on projects in an effort to bring the best available resources together on behalf of a project.

Non Duplication of Services: Through the course of stakeholder and collaborator communication, AURI has refined services and expertise to avoid duplicating what is already offered to Minnesota businesses. AURI assistance dovetails with the other services provided in the state to help transition a project from concept to the marketplace.

Organizational Learning: AURI has a track record of nearly 20 years working with value-added project development in Minnesota. Through that time, characteristics of successful and unsuccessful projects have emerged. AURI reviews all projects to refine programs to avoid mistakes and offer the best service possible.

Program Evaluation: AURI programs are designed to foster best practices and optimal decision making for value-added ventures. All programs are evaluated using a program logic model to ensure they are as effective as possible.

Continual Identification of New Opportunities: AURI strives to identify new opportunities to be a leader in value-added agriculture. This includes project management and taking a leadership role in opportunity development.

V. Center for Producer-Owned Energy

AURI was awarded a grant from the USDA for the establishment of an Agricultural Innovation Center in 2004. AURI used the funds to create the Center for Producer-Owned Energy. This \$1 million brought a 1:1 match from AURI and other partners to establish farmer-driven projects for creating ag-based renewable energy.

Focus: The mission of the Center is to support the creation and development of producer-owned value-added businesses related to the production of renewable energy and the utilization of related coproducts. The emphasis is on programs that generate rural wealth and sustainability.

Collaboration: Over 50 different partners offered support and assistance in the development and implementation of the Center for Producer-Owned Energy. Collaboration is a key component of the development and operation of the Center. Partners include state, federal, public and private organizations.

Projects Identified: Appendix C lists the projects identified and implemented under the grant.

VI. Summary of Programs

AURI scientists and technologists provide a wide range of expertise, including feasibility evaluation, product development, coproduct utilization, process and product evaluation and product scale-up. In addition, AURI laboratory and pilot plant facilities are equipped to help with a variety of technical issues facing value-added projects. AURI also offers a network of appropriate resources to develop value-added projects.

A. Applied Technology Services (ATS): The Applied Technology Services program is intended to bring agriculturally-based products or processes to commercialization by using AURI technical personnel, labs and pilot plant services.

Technical Feasibility: A project may focus on a new or improved process, technology, or on the development of new value-added food or nonfood agricultural products. The project may include an evaluation of the product's technical soundness or quality.

Technical Staff: AURI technologists and scientists provide consulting and technical services related to product and process development, product

evaluation and testing, and sourcing of materials and equipment. These services are provided directly, either on-site or in AURI facilities.

AURI Pilot Plants and Labs: These unique facilities are available to Minnesota businesses to assist in product and process development, scale-up, nutritional assessment and production for market assessment. Facilities include a fermentation and microbiology lab, food product development kitchen, fats and oils lab, animal product development lab and a coproduct utilization lab.

B. Product Development Services Program (PDS): This program is intended to produce new or improved value-added products. The PDS program is focused on developing—in concert with AURI staff—a salable product, process or production technology to enhance a feasible product. AURI personnel, labs and pilot plants are available to assist Minnesota clients by:

- Providing entrepreneurial resources to value-added startups
- Providing informational and technical assistance
- Providing high-quality process and product development
- Fostering project development through collaboration

In addition to obtaining cost-sharing for services beyond AURI's capacity, clients utilizing this program must be actively involved in a team project with AURI technical and scientific staff. All AURI grants require a 1:1 match contribution by the client or other funding entity.

C. Distribution Enhancement Program (DEP): This program is intended to bring agriculturally based, value-added products or processes to market at an introductory level. The DEP grant program focuses on enhancing an active AURI project that demonstrates a need for enhanced distribution.

D. Green Field Energy Program (GF): This technical assistance services program is available to agricultural producer groups to evaluate the market and technical feasibility of developing and producing agriculturally based renewable forms of energy or coproducts. Green Field promotes the establishment of producer-owned energy entities that don't currently exist or were only recently organized. A network of specialized technical assistance providers, working in concert with and coordinated by the Center, provide the core services for this program on a cost-share basis with applicants. All proposed projects must have needs related to market feasibility and business development to be eligible for the program.

Determining feasibility is the ultimate goal in evaluating potential new renewable energy ventures. Renewable energy and coproduct technologies that will be

considered for feasibility evaluation and further development under this program may include:

- New technology development;
- Adapting or perfecting existing technology; or
- New value-added energy product development

E. Renewable Technology Assessment Program (RTAP): The RTAP program is a technical services program available to existing agricultural producer-owned organizations to evaluate the market and technical feasibility of developing or perfecting technologies related to the production of agriculturally-based renewable forms of energy or coproducts. A network of specialized technical assistance providers, working in concert with and coordinated by the Center, provide the core services for this program on a cost-share basis with applicants.

Determining feasibility is the ultimate goal in technology evaluation and development. Renewable energy and coproduct technologies that will be considered for feasibility evaluation and further development under this program may include:

- New technology development;
- Adapting, perfecting and maximizing existing technology; or
- New value-added energy products development

VII. Project Activity, FY 2006

Appendix A: Funded Projects

Appendix B: Technical, Pilot Plant and Laboratory Services Projects

Appendix C: Center for Producer-Owned Energy Implemented Projects

Appendix A

Agricultural Utilization Research Institute Projects Funded During State Fiscal Year 2006

Project Title	Funding
MULTI-MN. Slim	\$ 349.73
Ag Residues-Characterizing Ag Utilization of DDGS	\$ 343.84
Small Food Processors Training	\$ 26,000.00
Value Added Ag Challenge	\$ 6,000.00
Value Added Forums	\$ 361.56
LAMB-help launch reduced fat meat	\$ 694.88
Wool Utilization of raw wool as landscape mulch	\$ 5,000.00
SOYB- Central MN Soybean Processors	\$ 2,822.00
CORN-Corn Utilization Research	\$ 25,000.00
MULTI-Feas/Optimal size Biodie	\$ 29,199.35
CORN-Stover Test Burner	\$ 4,000.00
Glycerin Use in Combustible Fuels	\$ 5,000.00
Brochures/Informational Report	\$ 2,084.00
COPROD-Bio Fuel Development	\$ 2,577.41
SOYB-MN Fats & Oils Initiative 05	\$ 1,080.00
CORN-Corn Burner	\$ 15,000.00
COLLAB – Characteristic Evaluation of Cuphea Oil and Cuphea Biodiesel	\$ 3,000.00
BIOD-Isolation/Microbial Conta	\$ 1,063.00
Biodiesel Wind Generation	\$ 2,254.82
West River Dairy	\$24,035.87
New Harvest Ethanol	\$40,950.00
Rural Energy Marketing	\$ 107,996.98
Grass Screenings Gasification	\$ 155,279.49
Southern MN Beet Sugar Cooperative	\$ 24,829.73
Ottertail Ag Enterprises, LLC	\$ 1,500.00
Small Dairy Methane Digester	\$ 71,600.00
Biodiesel ATV	\$ 18,983.48
Biodiesel in Mississippi Towboats	\$ 30,000.00
Pulp Gasification	\$ 38,346.46
Crop Rotation Canola Disease	\$ 20,000.00
Strawberry Production System	\$ 5,850.01
Reduce Pesticide Use/Greenhouse	\$ 2,615.70
Genetics/Blotch resistance	\$ 28.68
Biol-Control Sweet Corn/Soybeans	\$ 12,365.62
Control Aster Yellow	\$ 10,939.21
Septoria Speckled Leaf	\$ 4,000.00
Aster Yellows in Sm Grain	\$ 2,100.50
	\$ 30,000.00
Total Funded Projects - FY 2006	\$ 733,252.32

APPENDIX B

Agricultural Utilization Research Institute Project Technical Assistance State Fiscal Year 2006

Project Number	Team Leader	Project Title	Hours Expended
2001065T	DTIMMERM	BEEF-Kim Vig Inc. Market	10.00
2001094T	CGEHRKE	PORK-Pastures Pork	160.50
2002040T	CGEHRKE	BEEF-R&P Gourmet Beef	14.25
2002091T	ADOERING	Utilization of DDGs	188.50
2002093T	MSPARBY	Small Food Processors Training	64.00
2002106T	DTIMMERM	COPROD-Animal Co-Products Utilization	13.00
2002108T	MNORRIS	BEANS-DD Value Added IP	9.00
2003036T	CGEHRKE	MULTI-Lamb shop Gyros	82.50
2003042T	MNORRIS	MULTI-Eval. Oils as Fuels for Turbines	13.50
2003052T	DTIMMERM	PORK-Health Ben/Extruded Soybean	9.00
2003053T	CWADHAWA	CORN,POULT,PORK-Tamales	7.75
2003076T	CWADHAWA	MULTI-Gluten Free Products	42.90
2003082T	CWADHAWA	HONY-Commercial of Hot Wing Sauce	43.00
2003095T	ADOERING	COPROD-Ag. Fiber Carriers	121.00
2003110T	CGEHRKE	BEEF-Gelbvieh Breed Nutritional Info	78.75
2003117T	ADOERING	ETH-Ethanol Co-Prod./Livestock	6.50
2004023T	CGEHRKE	BEEF-Value-Added Beef Cuts	36.50
2004024T	MNORRIS	COPROD-Value-Added Co-Products	7.50
2004026T	DTIMMERM	SOYB-Environmental Dust Control	55.00
2004030T	DTIMMERM	FSMIP Time	66.00
2004032T	MSPARBY	WOOL-Raw wool/landscape mulch	6.50
2004040T	CWADHAWA	WHT/FLAX-Low Carb Breads	19.00
2004041T	MSPARBY	SOYB-Central MN Soybean Processing	49.00
2004045T	DTIMMERM	ELK-Elk Meat Marketing	7.50
2004047T	ADOERING	CODROD-Bio-Mat for Livestock	31.50
2004048T	DTIMMERM	CORN-Corn Utilization Research	48.50
2004050T	CGEHRKE	BEEF-Scottish Highland Organic	192.00
2004053T	MSPARBY	MULTI-Feas/Optimal size Biodie	21.50
2004054T	DTIMMERM	MULTI-Hybrid Biodiesel/Wind Application	17.50
2004058T	CWADHAWA	TRANS FATS-Information Brochure	15.00
2004062T	MSPARBY	FIBR-Fiber Consortium	29.00
2004064T	DTIMMERM	COLLAB-Berkshire Marketing	7.00
2004065T	DTIMMERM	BEEF-SW MN. Natural Beef	13.50
2004067T	MSPARBY	CORN-Cellulose Conversion	9.00
2004070T	MSPARBY	CORN-Stover Test Burn	14.00
2004071T	ADOERING	BEANS-Navy Bean Cull Opportunities	22.50
2005001T	RPATZER	Glycerin in Combustible Products	86.50
2005002T	DLEMKE	Brochures/Informational Report	85.50
2005003T	RHILLIAR	COLLAB-MULTI-Biobased Product Procurement	72.25
2005009T	ADOERING	COPROD-ETH-Biomass Pellet Fuel	14.50
2005010T	CWADHAWA	WHT-FLAX-Super Bakery	7.50
2005013T	ADOERING	COPROD-Bio Fuel Development	100.00
2005014T	CGEHRKE	MULTI-Auri Meat Lab Act. 2005	105.50

APPENDIX B

Agricultural Utilization Research Institute Project Technical Assistance State Fiscal Year 2006

Project Number	Team Leader	Project Title	Hours Expended
2005015T	CWADHAWA	WHT-BEEF-Sanbusa Service	38.50
2005017T	DTIMMERM	CORN-Snack Food, Product Processing	28.00
2005019T	MSPARBY	CORN-Corn Clothes Collaboration	6.00
2005026T	EWENE	BEANS-Gluten-Free Food	23.75
2005027T	DTIMMERM	CORN-Corn Cob Recovery & Utilization	30.00
2005029T	RPATZER	COLLAB-Biodiesel Test. Assessment	76.50
2005031T	RPATZER	COLLAB-Util. of Cuphea for Biodiesel Production	8.00
2005033T	ADOERING	COPROD-DDGS Evaluation	8.00
2005034T	RPATZER	MULTI-Biodiesel Lab Quality Assurance	223.50
2005037T	CGEHRKE	POULT-Turkey Valley Farms	75.50
2005040T	CGEHRKE	MULTI-Circle Pines Sausage	77.00
2005043T	RPATZER	MULTI-In Situ-Biodiesel Product	85.50
2005045T	ADOERING	CAR-Carrot/Vegetable Treats	20.00
2005046T	ADOERING	COPROD-Midwest Agri Fuels	19.50
2005047T	ADOERING	WHT-Horse Bedding	80.00
2005048T	CWADHAWA	MULTI-Standardize Egg Roll	6.00
2005049T	EWENE	PORK-NutriPro Biosystems, Inc.	11.00
2005050T	MSPARBY	FIBR-Straw Paper	77.50
2005052T	CGEHRKE	PORK-BBQ Rib Shelf-life testing	16.00
2005053T	ADOERING	COPROD-Pellet Formation	56.00
2005054T	RPATZER	SOYB-Melt Pt/Humidity/Soy Candles	6.00
2005056T	CWADHAWA	WHT CORN- Dev. Health Mixes	6.00
2005057T	ADOERING	CORN-Ultimate Analysis of Corn	76.00
2005058T	ADOERING	COPROD-Eval/Co-Prod in Litter	8.00
2005059T	CWADHAWA	DAIRY-Tran Fats & Nutri/Cheese	33.80
2005060T	MNORRIS	Xcel Biodiesel & Wind Grant	12.50
2005061T	MNORRIS	S.W. MN State Un. - Mike Rich	9.50
2005062T	CGEHRKE	POULT-Labeling	8.50
2005063T	DTIMMERM	SOYB-MN Fats & Oils Initiat 05	97.00
2005064T	ADOERING	FLAX-Straw Opportunities	28.75
2005065T	ADOERING	COPROD-Seed Cake/Block	7.50
2005066T	ADOERING	COPROD-Biobased Mosquito Repellant	28.00
2005067T	CWADHAWA	TMATO-Lakeview Greenhouses	9.50
2005068T	CWADHAWA	MULTI-Ethnic dishes	15.00
2005069T	CWADHAWA	DAIRY-Nutrit. labels/milk Prod	76.00
2005070T	ADOERING	BEANS-Feed Block Binder	31.00
2005071T	ADOERING	COPROD-Dry Biomass Fuel Refining	47.00
2005072T	MNORRIS	AURI Client Survey	24.00
2005073T	MSPARBY	SOYB-GreenRange Energy	53.50
2005074T	CWADHAWA	MULTI-Enhanced Functionality	10.00
2005075T	ADOERING	COPROD-Ash Evaluation/Opportunities	46.00
2005076T	DTIMMERM	SOY-Peak Power Biodiesel Study	7.00
2005077T	RPATZER	SOYB-Extruded Meal to Biodiesel	119.00

APPENDIX B

Agricultural Utilization Research Institute Project Technical Assistance State Fiscal Year 2006

Project Number	Team Leader	Project Title	Hours Expended
2005078T	MSPARBY	COLLAB-Compost Barn	133.50
2005080T	DTIMMERM	SOYB-Peak Power Cost/Biodiesel	12.00
2005T	MNORRIS	Discovery 2005	1658.00
2006001T	DTIMMERM	COLLAB-SUGAR- Industry-Wide support	88.50
2006002T	CGEHRKE	COLLAB-Offal Capabilities/Utilization	170.25
2006003T	CGEHRKE	MULTI-Auri Meat Lab Act.-2006	101.50
2006004T	MSPARBY	COLLAB-Local Foods Initiative	90.50
2006005T	RPATZER	COLLAB-Amino Acid Profile	25.50
2006006T	MSPARBY	COLLAB-Val.add AG Impact Study	8.50
2006007T	ADOERING	COLLAB-App/of Syrup Derived from Ethanol	29.00
2006008T	CGEHRKE	PORK-Marinated, Uncured Ham	100.00
2006010T	DTIMMERM	COLLAB-Distillers Dried Grains	29.00
2006013T	CGEHRKE	COLLAB-Meal Lab Brochure	12.00
2006014T	RPATZER	MULTI-Renew.Fuels Troubleshoot	437.50
2006018T	ADOERING	COPROD-Soybean Straw Evaluation	47.00
2006019T	ADOERING	COPROD-Coaltec - XCEL grant	126.25
2006020T	ADOERING	FIBR-Liquefaction of Agricultural Fibers	77.00
2006021T	CWADHAWA	SUGR-Country Mix Product Devel.	8.50
2006022T	MSPARBY	HAY-Midwest Forage Council	34.50
2006024T	CWADHAWA	APPLE-Adding value to apples	6.00
2006025T	ADOERING	BEETS-SUGAR-Agronomic Opportunities	22.50
2006026T	CGEHRKE	BEEF-Steak evaluation	79.00
2006027T	ADOERING	TMATO-Heating/Ag. Biomass	12.75
2006028T	ADOERING	COPROD-Biomass Test Burn	11.25
2006029T	MSPARBY	CORN-Corn Burner	47.50
2006030T	RPATZER	COLLAB-Char. Eval/Cuphea Oil	94.50
2006031T	CGEHRKE	PORK - Sausage Recipes	118.50
2006033T	CGEHRKE	BEEF-PORK- Bird Feed	30.00
2006035T	DTIMMERM	SOYB-Thermal Prod Soybe Crush	56.00
2006036T	CWADHAWA	SUGR-Gourmet Sauce/dip	5.50
2006039T	CWADHAWA	SOYB-SUGR-Value add salad dressing	12.00
2006040T	RHILLIAR	MULTI-Pork,Beef, Chicken Meats	17.00
2006041T	ADOERING	COPROD-Specialty Feed Development	24.50
2006042T	MSPARBY	FIBR-Chippewa Valley Ethanol	46.00
2006044T	CWADHAWA	WHT,SUGR-Healthy Donuts & bake	35.75
2006045T	CGEHRKE	BEEF-Shelf Stable	103.00
2006046T	RPATZER	BIOD-Glycerin tests/ASTM	87.50
2006048T	MSPARBY	AURI-Bioscience conference	82.50
2006049T	DTIMMERM	PORK-Distillers Dried Grains	43.00
2006050T	RPATZER	BIOD-Isolation/Microbial Contaminants	25.50
2006051T	CGEHRKE	BEEF-Shelf Stable Testing	78.75
2006052T	CGEHRKE	POULT-Nutritional Labeling	42.00
2006053T	EWENE	MULTI-Vegetable Digester	28.00

APPENDIX B

**Agricultural Utilization Research Institute
Project Technical Assistance
State Fiscal Year 2006**

Project Number	Team Leader	Project Title	Hours Expended
2006054T	ADOERING	COPROD-Sunrise Agra Fuel	94.00
2006055T	ADOERING	COPROD-Biomass Fuel Evaluation	20.00
2006056T	CGEHRKE	PORK-Shelf Life Study	59.00
2006057T	RHILLIAR	COLLAB-NW MN Outreach Mtgs.	44.00
2006060T	CGEHRKE	BEEF-Hot Dog Recipe	24.00
2006061T	RPATZER	BIOD-Biodiesel Training Sessions	7.50
2006062T	DTIMMERM	SOYB-Soybean Process& BioDiesel	16.00
2006063T	RHILLIAR	SOYB-Biobased Stakeholders Work	16.00
2006064T	ADOERING	Co-Prod-Biomaxx Log Formation	23.00
2006STAKE	MNORRIS	Stakeholder Analysis/Priorities	67.75
2006T	MNORRIS	Discovery 2006	4306.75
99056T	MNORRIS	MULTI-Minnesota Slim	13.00
AIC	EOLSON	AIC Administrative Work	194.00
AIC001T	DTIMMERM	SOYB/CORN Hybrid Biodiesel/Wind	63.00
AIC002T	MSPARBY	AIC002 TIME/Energy-Animal Waste to Biogas	56.25
AIC002TD	MSPARBY	Energy-Animal Waste to Biogas	89.00
AIC004T	MNORRIS	CORN//BRLY-New Harvest Ethanol	14.25
AIC004TD	MNORRIS	CORN//BRLY-New Harvest Ethanol	37.00
AIC006T	WHANSEN	TIME/CORN-Ethanol Production Utilization	94.00
AIC006TD	DTIMMERM	CORN-Ethanol Production Utilization	48.50
AIC007T	MNORRIS	TIME/BIOFUELS-Biomass Derived Fuels	24.75
AIC007TD	MNORRIS	BIOFUELS-Biomass Derived Fuels	9.00
AIC008T	MSPARBY	TIME/FIBR-Grass Screenings Gasification	17.00
AIC008TD	MSPARBY	FIBR-Grass Screenings Gasification	49.50
AIC009T	DTIMMERM	TIME/SUGR-Utilizing Excess Beet Fiber	134.75
AIC009TD	DTIMMERM	SUGR-Utilizing Excess Beet Fiber	13.00
AIC011TD	DTIMMERM	WIND-Community-based Wind	5.00
AIC012T	TMELIN	CORN-Ottertail Ag Enterprises	96.00
AIC013T	WHANSEN	TIME/DAIRY-Small Dairy Methane Digester	85.00
AIC013TD	DTIMMERM	DAIRY-Small Dairy Methane Digester	15.50
AIC014T	MSPARBY	TIME/SOYB Biodiesel ATV	9.25
AIC014TD	MSPARBY	SOYB Biodiesel ATV	175.75
AIC015T	MNORRIS	TIME/COLLAB-Global Ag Biomass Study	21.00
AIC015TD	MNORRIS	COLLAB-Global Ag Biomass Study	42.00
AIC016T	WHANSEN	TIME/SOYB-Biodiesel in River Towboat	72.00
AIC016TD	WHANSEN	SOYB-Biodiesel in River Towboat	82.50
AIC018TD	MSPARBY	ETH-Central MN Ethanol Coop	41.45
AIC019TD	DTIMMERM	WIND-Community Wind Handbook	11.00
AIC020T	DTIMMERM	TIME/WIND-Community Wind Handbok	31.50
AIC020TD	DTIMMERM	WIND-Community Wind Handbook	79.25
AIC021TD	MSPARBY	SBEET-Pulp Gasification	64.25
AIC022TD	DTIMMERM	SOYB-Natural Gas Replacement	23.00
AICFEDTIME	MNORRIS	AIC Direct Employee Hours	3652.50

APPENDIX B

**Agricultural Utilization Research Institute
Project Technical Assistance
State Fiscal Year 2006**

Project Number	Team Leader	Project Title	Hours Expended
AICTIME	MNORRIS	AIC Staff In-Kind	1860.75
PRO2005T	EWENE	PRO TIME FOR 2005	14.00
PRO2006T	EWENE	PRO 2006	9.00
XCELTIME	MNORRIS	Xcel Biodiesel	224.75
Total Direct Project Hours:			20,178.15

Appendix C

AIC Project Status Update

#	Project Name	# of Producers
AIC001	Biodiesel Wind Generation	2,859
AIC002	West River Dairy	10
AIC003	Agri-Energy	
AIC004	Agassiz Energy	8
AIC005	Bixby Energy	
AIC006	Ethanol Production Utilizing Corn Stover	5
AIC007	Biomass Derived Oils for Turbo Generation	
AIC008	Grass Screenings Gasification	30
AIC009	Utilizing Excess Beet Sugar in Ethanol Production	580
AIC010	Southwest MN Investment Group (Pipestone)	
AIC011	Community Wind North	
AIC012	Ottertail Ag Enterprises	876
AIC013	Small Dairy Methane Digester	10
AIC014	Biodiesel ATV	MSGA
AIC015	Global Agricultural Biomass Study **	Industry-wide
AIC016	Biodiesel in Mississppi River Boats	6
AIC017	Biomass in Combustion Systems	
AIC018	Central Minnesota Ethanol Cooperative	850
AIC019	Community Wind Handbook	
AIC020	Community Wind Handbook	
AIC021	Pulp Gasification	2,900
AIC022	Biomass as a Natural Gas Replacement	withdrawn
AIC023	Renewable Energy Presentations	
AIC024	Biodiesel Coproduct Development	MSGA
AIC025	Combustion of Glycerin Emissions Eval.	MSGA
AIC026	Utilizing Low Oil DDGS	750

Total 8,884

* Please note that the # of producers may increase significantly if some feasibility studies prove favorable.

Acronym Definitions

MCRPC	MN Corn Research & Promotion Council
MSRPC	MN Soybean Research & Promotion Council
MSGA	MN Soybean Growers Assn.
CDR	Center for Diesel Research (U of Minnesota)
SMBSC	Southern MN Beet Sugar Cooperative
CMEC	Central MN Ethanol Cooperative
SWMNF	Southwest Minnesota Foundation
MnSP	MN Soy Processors