

11 - 0431



February 1, 2011

The Honorable Doug Magnus, Chairman
Senate Ag & Rural Economics Committee
75 Rev. Dr. Martin Luther King Jr. Blvd.,
Capitol Building 205
Saint Paul, MN 55155-1606

The Honorable Rod Hamilton, Chairman
House Ag & Rural Dev & Finance Committee
559 State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd.
Saint Paul, MN 55155-2463

RE: Minnesota Agricultural Fertilizer Research and Education Council Legislative Report

Dear Senator Magnus & Representative Hamilton:

In 2007, the Minnesota Legislature provided funding and direction to the Commissioner of the Minnesota Department of Agriculture (MDA) to facilitate, staff and support the establishment of the Minnesota Agricultural Fertilizer Research and Education Council. The legislation also directed the Commissioner to report to the House and Senate Committees with jurisdiction over agricultural finance. That report was submitted on February 1, 2009.

In 2009, the Minnesota Legislature established the funding mechanisms for the program. Starting on July 1, 2009 the Fertilizer Inspection Fee was increased by forty (40) cents per ton to support the Ag Fertilizer Research and Education Program. Starting on July 1, 2011, the Council will have the authority to spend up to \$800,000 per year to support soil fertility research and associated educational activities. Currently, the Council is funded by using 57% of the existing Fertilizer Inspection Fee as directed by Minnesota Laws Chapter 94, Article 1, Sect. 3, Subd. 5 (below). This language also directed the Commissioner to provide another update to the House and Senate Committees with jurisdiction over agricultural finance.

Please accept this brief update in fulfillment of that requirement. The statutory rider language regarding the content of the report is as follows:

Minnesota Laws Chapter 94, Article 1, Sect. 3, Subd. 5: Notwithstanding Minnesota Statutes, section 18C.131, \$800,000 the first year and \$800,000 the second year are from the fertilizer account in the agricultural fund for grants for fertilizer research as awarded by the Minnesota Agricultural Fertilizer Research and Education Council under Minnesota Statutes, section 18C.71. The amount appropriated in either fiscal year must not exceed 57 percent of the inspection fee revenue collected under Minnesota Statutes, section 18C.425, subdivision 6, during the previous fiscal year. **No later than February 1, 2011, the commissioner shall report to the legislative committees with jurisdiction over agriculture finance. The report must include the progress and outcome of funded projects as well as the sentiment of the council concerning the need for additional research funds.**

February 1, 2011

Page Two

The Minnesota Agricultural Fertilizer Research and Education Council (AFREC) has worked very hard and cooperatively to organize themselves and proceeded with the charge as directed by the Legislature in a fair and open manner. Council's timelines and accomplishments are included in Attachment 1. Meeting minutes, by-laws, and memberships are available on the AFREC website (<http://www.mda.state.mn.us/chemicals/fertilizers/afrec.aspx>).

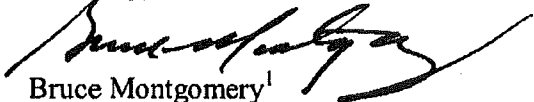
Attachment 2 includes a listing of all 24 projects that have been funded since 2008. The listing includes the principal investigator, the organization, budget allocations by year, and the current status. Since AFREC's conception, it has awarded \$1,220,343 for soil fertility research and associated educational outreach.

Attachment 3 and 4 provide a project briefing and a brief status report for 2008 and 2010 projects, respectively. In early 2011, the Council reviewed another round of proposals and selected seven additional projects. These projects are listed in Attachment 2. MDA staff have just begun working on the contracts and associated work plans. A shared goal of both MDA and the Council is to have the contracts in place by April 1 in time for field work activities.

Finally, the Legislature directed the Commissioner to report on "the sentiment of the council concerning the need for additional research funded through an industry check off fee". The temporary funding history for \$1.2 million from 2008-2011 is explained in Attachment #1. Comparing the annual averages to the new operating costs in FY 12, the Council has been basically operating at 38% of their maximum spending authority. At the December, 2010 AFREC meeting, the Council discussed their projected spending needs. The general consensus was that it is too early to tell if \$800,000/year will be sufficient but most members were pleased with their new spending authority, the accomplishments already achieved, and the future direction of the program.

Please let me know if you need any additional information or details regarding any aspects of the Minnesota Agricultural Fertilizer Research and Education Council.

Sincerely,



Bruce Montgomery¹
Fertilizer Management Unit Supervisor
Pesticide and Fertilizer Management Division

BM:jh

cc: Larry Muff, Chair, MN Agricultural Fertilizer Research and Education Council
David Fredrickson, Commissioner, Minnesota Department of Agriculture
Greg Buzicky, Director, MN Pesticide and Fertilizer Management Division

¹ Minor spelling and edits were made by the author on the web version of this report.



Attachment #1

Updates, Achievements, and Future Challenges Regarding the Ag Fertilizer Research and Education Council (AFREC)

- The Council officially began on 1/1/08 and associated activities with developing by-laws and operating procedures were reported in the 1/30/2009 Legislative Report;
- The Council has issued three separate Requests for Proposals (each fall in the years 2007, 2009, and 2010) which allocated \$1.2 Million for 24 soil fertility research and education projects (see attachments for listings, locations and funding amounts);
- Temporary allocations from two different sources provided the \$1.2 Million: 1) \$552,000 (General Funds) in Fiscal Year 2008 (denoted as FY08); and 2) Funding directly out of MDA's existing fertilizer tonnage in FY10 (\$414,200) and FY11 (\$254,143);
- The collection of dedicated AFREC fees (40 cents per ton of fertilizer) began on 7/01/09; the first annual allocation of \$800,000 (maximum level) will be available via the Council in FY12;
- The three Requests for Proposals (RFPs) generated over \$3.3 Million in requests from 47 grant applications;
- The Council has demonstrated its ability to identify common soil fertility research goals across a very diverse state with multiple cropping systems and move forward with critical decision-making and funding selection;
- The Council and MDA have partnered successfully and developed a strong track record for issuing the RFPs, evaluating and selecting projects in a timely fashion, and awarding the contracts within a three-month window in time for the spring field season;
- Council members have devoted significant time into the program. At a minimum, the Council meets 3-4 times per year with the following meeting schedule: Meeting 1-Listen to new project proposals (January); Meeting #2- Deliberate over funding allocations (February); Meeting 3-Organizational and planning issues (August); and Meeting 4-Annual Updates for current projects (December). Frequently issues occur that require additional conference calling and/or subcommittee meetings;
- The Council has done an outstanding job in providing ample opportunity and contact time during the project selection process. So far, the Council has reviewed and listened to an oral presentation from every applicant during the three open RFP periods (47 applications);

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- Legislative housekeeping changes were made during the 2009-10 Session which provide MDA granting authority for up to five years on AFREC projects which allows multi-year experiments which is critical in soil fertility research.
- Associated Statutes laid out a council member replacement framework to insure that new members and fresh ideas are introduced. Approximately 60% of the members have been rotated since the Council's conception on 1/1/08;
- Project Managers (primarily from the University of Minnesota and USDA-Agricultural Research Service) have been extremely accommodating in providing oral and written research reports and budget updates;
- The Minnesota Crop Production Retailers Short Course has provided excellent opportunities to showcase the AFREC projects. In 2010, there was a dedicated half-day session focused on AFREC. Typically, 500+ ag chemical retailers, crop consultants, state and federal agency staff and researchers attended this annual event;
- During public presentations and media opportunities, researchers have clearly identified AFREC when it is the funding source. AFREC has also received significant exposure at the UM Winter Crop Days, the Farm and Power Show, and other producer orientated educational events;
- Each AFREC funded project is required to provide an oral annual update to the Council. Annual reports and associated presentations are available on the web when possible and these materials have been used for numerous winter workshops for producers and ag professionals;
- On UM funded projects, Sponsored Projects Administration (SPA¹) and MDA have developed boiler plate granting forms and a good working relationship. A quick reporting interview form has also been developed to speed up quarterly billing statements and reduce the reporting requirements by the project managers;

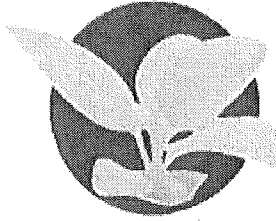
¹ SPA is the University of Minnesota system-wide office authorized to submit research proposals and receive awards from external sources on behalf of the Board of Regents of the University of Minnesota. SPA is also the fiduciary for the U on grant-related matters.

Challenges Ahead

- **Establishment of Research and Educational Priorities:** The Council would like to lead future research efforts rather than merely reacting to individual proposals. The Council has expressed considerable interest in developing clear and visionary funding priorities that accurately address current research needs and provide leadership to Minnesota agriculture. However it is extremely difficult, if not impossible, for the Council members to keep current with research advancements. Additionally, the Council does not have sufficient access to technical assistance outside of the land grant university system to develop comprehensive research priorities. The Council recently attempted to find outside technical support through the RFP process in the last funding round. That effort was unsuccessful. The Council will need to further address this issue prior to the next funding cycle;
- **Identifying Producer Priorities:** The Council has also expressed a strong need for soliciting their own organizations for direction on research and education. Some of the organizations fund substantial research through their own check-off programs and have developed excellent methods and opportunities for this type of interaction. For some of the smaller organizations, this type of feedback and networking will be difficult and alternative methods to obtain producer input will need to be developed.
- **Producer Awareness:** Although there is no scientific assessment available, it is highly likely that many Minnesota producers are not aware of the program. The Council recognizes this problem but questions the use of AFREC funds for self-promotion. In the meantime, MDA and the UM have developed several fact sheets for the commodity groups and fertilizer retailers to distribute.
- **Support from MDA:** Considerable MDA staff time is required to keep the grants, budgeting, RFP management, Council support, etc at the current level. This program currently requires MDA to provide 0.25 FTE for grants and associated accounting and approximately another 0.25-0.50 FTE for technical support, planning, project reviews and Council advisory responsibilities.

Attachment 2. Summary of All Projects Funded by AFREC, Principal Investigator, Organization and Funding Levels by Year.

Project ID	Titles for Projects Starting in Spring, 2008	Principal Investigator	Organization	Cropping Year 2008	Cropping Year 2009	Cropping Year 2010	Cropping Year 2011	Cropping Year 2012	Cropping Year 2013	Total AFREC Award	Current Status as of 12/31/10
R2008-01	Zinc and Sulfur Fertilization for High Yield Corn Production	Vetsch	UM-Southern Research and Outreach Center	\$ 12,720	\$ 14,237	\$ 3,020				\$ 30,197	Completed and project extended one year to 4/2009-01
R2008-03	Minimizing Nitrate Loss to Drainage by Optimizing N Rate and Timing for a C-C-S Rotation	Randall	UM-Southern Research and Outreach Center	\$ 3,334	\$ 16,925	\$ 12,493	\$ 3,538			\$ 35,860	Workitem on track
R2008-07	Impact of phosphorus fertilization strategies on efficiency of nitrogen use by corn rotated with soybean	Kaiser	UM-Dept. Soil, Water and Climate	\$ 24,280	\$ 30,397	\$ 28,407	\$ 9,327			\$ 96,721	Contract extended three months to complete Annual Report.
R2008-08	Efficient management of nitrogen fertilizer for wheat grown in Minnesota	Kaiser	UM-Dept. Soil, Water and Climate	\$ 33,333	\$ 36,119	\$ 7,579				\$ 77,431	Workitem on track
R2008-10	Fertilizer requirements for native perennial plants harvested for biomass	Sheaffer	UM-Dept. of Agronomy and Plant Genetics	\$ 22,020	\$ 27,454	\$ 5,574				\$ 55,928	Completed on budget.
R2008-12	Drainage control to promote high crop yields and diminish nutrient losses from agricultural fields in Minnesota	Strack	UM-Southern Research and Outreach Center	\$ 47,286	\$ 36,929	\$ 9,133				\$ 87,328	Completed. Approx. \$11,000 unspent and back to General Funds.
R2008-13	Tillage and Sulfur Management for Corn in Fine Textured Soils	Strack	UM-Southern Research and Outreach Center	\$ 29,257	\$ 19,260	\$ 20,280	\$ 24,729			\$ 89,226	Workitem on track
R2008-16	Validating topdress K fertilizer recommendations in an alfalfa-corn rotation	Russell	USDA-ARS	\$ 18,306	\$ 23,300	\$ 26,000	\$ 6,473			\$ 64,279	Workitem on track
R2008-02	Advancing Improved Management of Nitrogen in Minnesota With Best Management Practices (BMP) Publications	Lamb	UM-Dept. Soil, Water and Climate	\$ 35,590						\$ 35,590	Completed. Approx. \$2,800 unspent and back to General Funds.
All 2008 Funded Projects				\$ 252,806	\$ 197,867	\$ 203,186	\$ 48,840			\$ 552,000	
Project ID	Titles for Projects Starting in Spring, 2010	Principal Investigator	Organization			Cropping Year 2010	Cropping Year 2011	Cropping Year 2012	Cropping Year 2013	Total AFREC Award	Current Status
R2009-01	Development of a Website for Nutrient Management Education Materials	Lamb	UM-Dept. Soil, Water and Climate			\$ 12,200	\$ 7,000	\$ 800	\$ -	\$ 20,000	
R2009-08	On Farm Assessment of Critical Soil Test P Values in Minnesota	Kaiser	UM-Dept. Soil, Water and Climate			\$ 44,233	\$ 30,949	\$ -	\$ -	\$ 77,802	
R2009-04	Minnesota Long-Term Phosphorus Management Trials: Phase 1, the Build Period	Sims	UM-NW Research and Outreach Center			\$ 50,543	\$ 17,068	\$ -	\$ -	\$ 127,991	
R2009-03	Nitrogen Uptake, Distribution, and Utilization in Hard Red Spring Wheat Varieties	Sims	UM-NW Research and Outreach Center			\$ 41,674	\$ 41,050	\$ -	\$ -	\$ 84,574	Quarterly reports submitted, all projects are progressing as planned.
R2009-05	Zinc and Sulfur Fertilization for High Yield Corn Production	Vetsch	UM-Southern Research and Outreach Center			\$ 20,478	\$ 1,125	\$ -	\$ -	\$ 21,613	
R2009-02	Enhancing Continuous Corn Production in Conservation Tillage with Starter Fluid Combinations and Placements	Vetsch	UM-Southern Research and Outreach Center			\$ 26,243	\$ 5,612	\$ 5,913	\$ -	\$ 38,108	
R2009-11	Effect of Bioenergy Crop Residue Removal on Secondary and Micronutrients in Minnesota Soils	Allen	UM-Dept. Soil, Water and Climate			\$ 24,012	\$ -	\$ -	\$ -	\$ 24,012	
All 2010 Funded Projects						\$ 225,265	\$ 184,784	\$ 6,123	\$ -	\$ 414,200	
Project ID	Titles for Projects Starting in Spring, 2011	Principal Investigator	Organization	2008	2009	2010	Cropping Year 2011	Cropping Year 2012	Cropping Year 2013	Total AFREC Award	Current Status
TBD	Development, Updating, and Publishing of Bioenergy Management Guides	Lamb	UM-Dept. Soil, Water and Climate				\$ 12,450	\$ 3,150	\$ -	\$ 18,500	
TBD	Optimal Utilization of Phosphorus, Potassium, and Sulfur Fertilization in Corn-Soybean Rotations	Kaiser	UM-Dept. Soil, Water and Climate				\$ 25,849	\$ 31,124	\$ 4,881	\$ 61,874	
TBD	Evaluation of Critical Potassium Levels in Minnesota Soils	Kaiser	UM-Dept. Soil, Water and Climate				\$ 20,000	\$ 29,000	\$ 3,928	\$ 43,928	
TBD	Rate and Timing of P and K Fertilization in Corn-Soybean Rotations in Minnesota	Kaiser	UM-Dept. Soil, Water and Climate				\$ 23,626	\$ 14,491	\$ -	\$ 43,027	
TBD	Harvest Uptake of Four Spring Wheat Varieties Grown Under Varying Nitrogen Stress	Kaiser	UM-Dept. Soil, Water and Climate				\$ 21,578	\$ -	\$ -	\$ 21,578	
TBD	Potassium Fertilization Requirements for Intensively Managed Midwestern Soils	Sheaffer	UM-Dept. of Agronomy and Plant Genetics				\$ 38,227	\$ -	\$ -	\$ 38,227	
TBD	Yield, Yield Quality, and Plant Health Parameters from Starter Applications of Macroelements in Northwest Minnesota	Shue	UM-Dept. of Agronomy and Plant Genetics				\$ 7,500	\$ -	\$ -	\$ 7,500	
TBD	Effect of Bioenergy Crop Residue Removal on Secondary and Micronutrients in Minnesota Soils (continuation)	Allen	UM-Dept. Soil, Water and Climate				\$ 20,327	\$ 2,276	\$ -	\$ 22,585	
All 2011 Funded Projects							\$ 174,637	\$ 71,023	\$ 8,202	\$ 274,143	
All AFREC Funded Projects				\$ 202,804	\$ 197,467	\$ 326,469	\$ 408,184	\$ 77,216	\$ 8,203	\$ 1,220,343	



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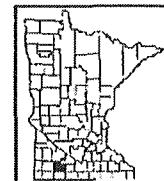
2008 Project Overview

The Council awarded \$552,000 to nine projects which started in the spring of 2008. The projects are categorized into the following four topic areas:

A. Nitrogen, Phosphorus, and Potassium Production Research (\$294,353)

1. Impact of Phosphorus Fertilization Strategies on Efficiency of Nitrogen Use by Corn Rotated with Soybean

Dr. Daniel Kaiser, UM & Southwest Research and Outreach Center,
AFREC Funding: \$96,721, Project Duration: 4/2008 to 3/2011

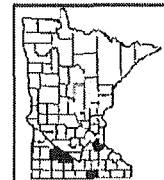


Project Brief: Soaring fertilizer prices have producers wondering if higher phosphorus (P) soil test levels are needed to maximize their nitrogen fertilizer inputs. New research will examine how phosphorus management strategies affect nitrogen use and the potential interaction with soil variability across the field.

Project Outcome: field research completed, writing final report

2. Fertilizer Requirements for Native Perennial Plants Harvested for Biomass

Dr. Craig Sheaffer, University of Minnesota,
AFREC Funding: \$55,928, Project Duration: 4/2008 to 6/2010

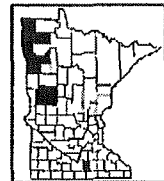


Project Brief: Despite the great amount of interest in raising alternative energy crops, little is known on how to fertilize them. This project will determine fertilizer requirements for native perennials in a number of locations across Minnesota

Project Outcome: Project completed - report on-line at MDA website

3. Efficient Management of Nitrogen Fertilizer for Wheat Grown in Minnesota

Dr. Daniel Kaiser, UM & Northwest Research and Outreach Center,
AFREC Funding: \$77,431, Project Duration: 04/2008 to 12/2010

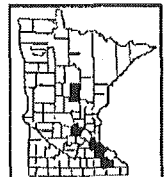


Project Brief: Improved varieties and greater yield potentials create the need for updating the nitrogen recommendations for spring and winter wheat.

Project Outcome: Project extended 3 months, field work completed

4. Validating Topdressed K Fertilizer Recommendations in an Alfalfa-Corn Rotation

Dr. Michael Russelle, USDA-Agricultural Research Service & UM,
AFREC Funding: \$64,273, Project Duration: 04/2008 to 03/2011



Project Brief: Potassium is crucial for top alfalfa yields and persistence, but K prices have tripled. This on-farm project will determine the optimum K rate in the last year of alfalfa, and on both N and K fertilizer needs for the following corn crop.

Project Outcome: field research completed, writing final report

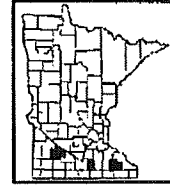
B. Sulfur and Micronutrient Production Research (\$119,449)

5. Zinc and Sulfur Fertilization for High Yield Corn Production

Jeff Vetsch, UM Southern Research and Outreach Center,
AFREC Funding: \$30,197 Project Duration: 04/2008 to 03/2010

Project Brief: With record setting corn yields over the past decade, there is a lot of interest in micronutrients for high yielding conditions. Effects of sulfur and zinc applications in starter-band and broadcast applications will be determined.

Project Outcome: received additional funds to extend project 1 crop year

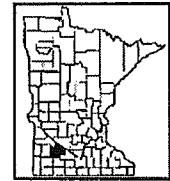


6. Tillage and Sulfur Management for Corn in Fine Textured Soils

Dr. Jeff Strock, UM Southwest Research and Outreach Center,
AFREC Funding: \$89,252, Project Duration: 04/2008 to 03/2012

Project Brief: This project will investigate the impacts of different tillage systems sulfur mineralization and the need for supplemental S on corn.

Project Outcome: still ongoing- work plan on track



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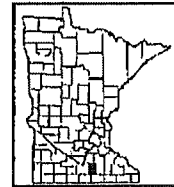
C. Agricultural Water Quality Impacts (\$123,198)

7. Minimizing Nitrate Loss to Drainage by Optimizing N Rate and Timing for a C-C-S Rotation

Dr. Gyles Randall, UM Southern Research and Outreach Center,
AFREC Funding: \$35,860, Project Duration: 07/2008 to 03/2011

Project Brief: With the potential to see more corn-corn-soybean rotations, a long-term study site at the Southern Research and Outreach Center (Waseca) will provide new fertilizer recommendations and information on the water quality percolating through the tile drains.

Project Outcome: field work completed, writing final report

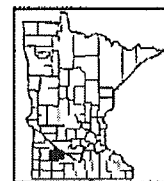


8. Drainage Control to Promote High Crop Yields and Diminish Nutrient Losses from Agricultural Fields in Minnesota

Dr. Jeff Strock, UM Southwest Research and Outreach Center,
AFREC Funding: \$87,338, Project Duration: 04/2008 to 03/2010

Project Brief: A field-scale demonstration in Redwood County will provide farmers the unique opportunity to learn about the impacts of controlled drainage techniques on yields and drainage losses.

Project Outcome: Project completed - report on-line at MDA website



D. Ag Fertilizer Related Educational Programs (\$15,000)

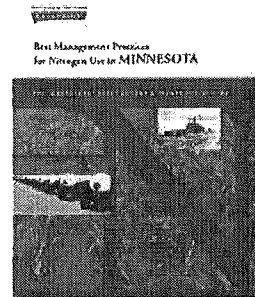
9. Advancing Improved Management of Nitrogen in Minnesota With Best Management Practices (BMP) Publications

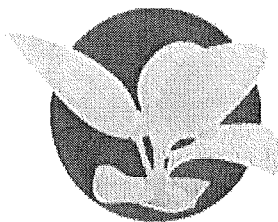
Dr. John Lamb, UM and SROC,

AFREC Funding: \$15,000, Project Duration: 04/01/2008 to 09/30/2008

Project Brief: The new nitrogen BMPs were just released and with the financial assistance from the Council, this critical management information is now getting into the hands of thousands of producers.

Project Outcome: project completed. Six publications printed. Materials were released through Extension Service and MDA.





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2010 Project Overview

The Council awarded \$414,200 to seven projects which started in the spring of 2010. The projects are categorized into the following three broad topic areas:

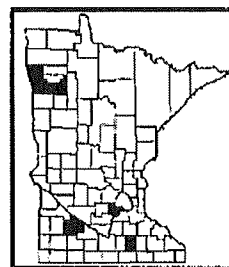
A. Nitrogen, Phosphorus, and Potassium Production Research (\$312,467)

1. On-Farm Assessment of Critical Soil Test P Values in Minnesota

Dr. Daniel Kaiser, UM & SW Research and Outreach Center,
AFREC Funding: \$97,802 Project Duration: 4-2010 to 3-2012

Project Brief: Investigation of how differences in soil chemical properties affect crop yield responses at different soil test phosphorus levels, especially between calcareous and non-calcareous soils.

Project Outcome: Project was awarded funding for the first two years of a four-year project. Project Manager will reapply for a continuation. Current work plan on track.

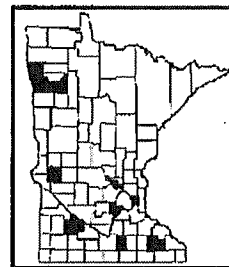


2. Minnesota Long-Term Phosphorus Management Trials: Phase 1, the Build

Dr. Albert Sims, NWROC, SWROC, SROC, & UM
AFREC Funding: \$127,991 Project Duration: 4-2010 to 3-2012

Project Brief: To establish field trials at multiple locations across Minnesota to compare the economic and environmental impact of the "build-up and maintain" phosphorus fertilizer recommendation philosophy

Project Outcome: Project was awarded funding for the first two years of a five-year project. Project Manager will reapply for a continuation. Current work plan on track.

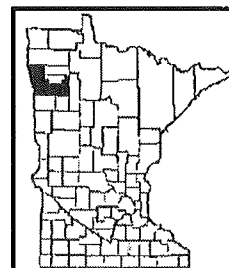


3. Nitrogen Update, Distribution, and Utilization in Hard Red Spring Wheat Varieties

Dr. Albert Sims, Northwest Research and Outreach Center,
AFREC Funding: \$86,674, Project Duration: 4-2010 to 3-2012

Project Brief: Conduct research trials that evaluate nitrogen uptake and plant distribution among several genetically unique wheat varieties.

Project Outcome: Project was awarded funding for the first two years of a three-year project. Project Manager may reapply for a continuation after data analysis on first two years. Current work plan on track

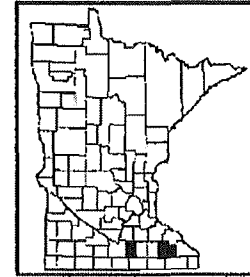


B. Sulfur and Micronutrient Production Research (\$83,733)**4. Zinc and Sulfur Fertilization for High Yield Corn Production**

Jeff Vetsch, UM Southern Research and Outreach Center,
AFREC Funding: \$21,613 Project Duration: 4-2010 to 3-2011

Project Brief: With record setting corn yields over the past decade, there is a lot of interest in micronutrients for high yielding conditions. Effects of sulfur and zinc applications in starter-band and broadcast applications will be determined.

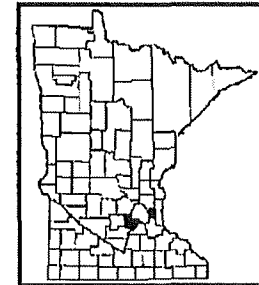
Project Outcome: This project is a one-year continuation and added some climatic variables not originally observed in 2008 and 2009. Work plan on track to be completed 3-2011.

**5. Effect of Bioenergy Crop Residue Removal on Secondary and Micronutrients in Minnesota Soils**

Dr. Deb Allan, University of Minnesota
AFREC Funding: \$24,012 (2010) and \$22,585 (2011), Project
Duration: 4-2010 to 3-2012

Project Brief: Bio-energy removal of crop residue affects soil nutrient cycling. This project assesses the impact of corn stover removal on the amounts and availability of several soil nutrients for crop uptake.

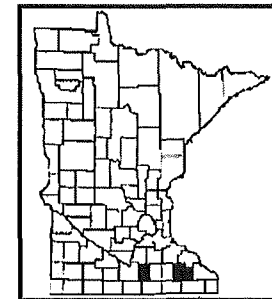
Project Outcome: This project received partial funding to get the 2010 field work started. Additional year of funding recently approved for 2011. Current work plan on track to be completed by 3-2011.

**6. Enhancing Continuous Corn Production in Conservation Tillage with Starter Fluid Combination and Placements**

Jeff Vetsch, Southern Research and Outreach Center
AFREC Funding: \$38,108, Project Duration: 4-2010 to 4-2013

Project Brief: Reduced tillage practices pose challenges for fertilizer management strategies in rotations dominated by corn. This project will establish set of research plots that evaluate various combinations of liquid fertilizer products and application methods.

Project Outcome: Work plan on track.

**C. Ag Fertilizer Related Educational Programs (\$20,000)****7. Development of a Website for Nutrient Management Education**

Dr. John Lamb, UM and SROC,
AFREC Funding: \$20,000, Project Duration: 4-2009 to 4-2012

Project Brief: Design and develop a real-time website that will host and catalog UofM research and Extension summaries pertaining to soil nutrient management.

Project Outcome: Existing nutrient management educational materials have been scanned, and website design is underway. Work expected to be completed ahead of schedule.

