

RESEARCH		
AFREC Research Projects	http://www.mda.state.mn.us/chemicals/fertilizers/afrec.htm	<ul style="list-style-type: none"> • Advancing Improved Management of Nitrogen in Minnesota with Best Management Practices (BMP) Publications • Minimizing Nitrate Loss to Drainage by Optimizing N Rate and Timing for a C-C-S Rotation • Impact of Phosphorus Fertilization Strategies on Efficiency of Nitrogen Use by Corn Rotated with Soybean • Efficient Nitrogen Fertilization of Wheat Grown in Minnesota • Fertilizer Requirements for Native Perennial Plants Harvested for Biomass • Drainage Control to Promote High Crop Yields and Diminish Nutrient Losses from Agricultural Fields in Minnesota
MDA Drainage Demonstrations	http://www.mda.state.mn.us/protecting/bmps/drainage/demos.htm	<p>Goals:</p> <ol style="list-style-type: none"> 1. Evaluate water quality response of field scale subsurface tile drainage to rainfall and snowmelt events; 2. Validate Best Management Practices (BMP's) for crop response and corresponding environmental benefits; 3. Evaluate pesticide and nutrient losses through a pattern tile system with typical weed control and nutrient management strategies; 4. Evaluate & demonstrate new technologies on a "field scale" to determine water quality benefits; and 5. Conduct educational events and promote water quality improvement strategies on tile drained cropland in southern Minnesota.
	http://www.mda.state.mn.us/protecting/conservation/practices/consdrainage.htm	Conservation drainage technology refers to several emerging technologies and methods that provide the benefits of conventional agricultural drainage (namely, removal of excess water from fields) while reducing nitrates and other potential pollutants carried via drainage water to nearby waterways.
	http://www.mda.state.mn.us/protecting/conservation/drainage-ops.htm	Drainage opportunities

Nutrient Management Initiative	http://www.mda.state.mn.us/protecting/soilprotection/nmi.htm	The NMI program provides a framework for farmers to evaluate their own nutrient management practices compared with nutrient rate guidance promoted by the USDA-NRCS. Results will assist the USDA-NRCS in assessing their nutrient management guidance on a regional scale.
U of M Southern Outreach Center	http://sroc.cfans.umn.edu/Research/index.htm	Search for “nutrient management”
U of M SW Outreach Center	http://swroc.cfans.umn.edu/research.html	Description of current research in crops, soils, long-term and cropping systems, and environmental monitoring
Minnesota State University--WRC	http://cset.mnsu.edu/wrc/	The Water Resource Center works cooperatively with Minnesota State University, Mankato faculty and students conducting applied research in areas of water and land resources. Projects include local, state, and federal partnerships to gather and interpret data of environmental significance. The Minnesota River Basin Data Center is a major WRC project. This data clearinghouse plays a central role in shaping public policy, determining needs, and setting priorities to enhance the condition of the Minnesota River.
U of M N Research	http://www.tc.umn.edu/~jahernan/research.html	<ul style="list-style-type: none"> • Maximizing the economic benefits of manure to reduce nutrient loading • Economically Optimum Nitrogen Rates in South Central Minnesota • Statistical Analysis of Landscape-Scale Experiments: Removing Spatial Variability and Determining Spatial Response and Management Classes • Estimating Uncertainty of Economically Optimum Fertilizer
	http://www.co.dakota.mn.us/EnvironmentRoads/EnvirProtect/Agriculture/FarmNitrogenIrrigatedCorn.htm	U of M on-farm nitrogen research in irrigated corn
	http://agronomy.cfans.umn.edu/sites/1e65c3d9-ce73-46af-a196-12323314ecc5/uploads/NITROGEN_RATE_GUIDELINES_FOR_CORN_IN_MINNESOTA2_2.pdf	NITROGEN RATE GUIDELINES FOR CORN IN MINNESOTA

<p>U of M publications</p>	<p>http://www.cyfernet.mes.umn.edu/Corn/nitrogen.html</p>	<p>Fact Sheets</p> <p>Best Management Practices for Nitrogen Use in Minnesota</p> <p>Best Management Practices for Nitrogen Use in Northwestern Minnesota</p> <p>Best Management Practices for Nitrogen Use in South-Central Minnesota</p> <p>Best Management Practices for Nitrogen Use in Southeastern Minnesota</p> <p>Best Management Practices for Nitrogen Use in Southwestern and West-Central Minnesota</p>
		<p>(May, 2002)</p> <p>Corn Yields - Potsdam N Validation Trial (January, 2002)</p> <p>News Releases</p> <p>New nitrogen rate recommendations for corn (September, 2008)</p> <p>Sidedressing nitrogen produces highest corn yields (June, 2008)</p> <p>Nitrogen management tips for 2008 corn (September, 2007)</p> <p>On-farm Research Results from Northwest and West Central Minnesota</p> <p>Corn Nitrogen Rate Fertility Trials in NW and WC Minnesota (2008)</p> <p>Corn Nitrogen Rate Fertility Trials in NW Minnesota (2007)</p> <p>Research Results from Southeast Minnesota</p> <p>Recent Publications and Abstracts</p>

		<p><u>Best Management Practices for Nitrogen on Coarse Textured Soils</u></p> <p><u>Soil N Test for N Recommendations in Corn</u></p> <p><u>Using the Soil Nitrate Test in Minnesota</u></p> <p><u>Understanding Nitrogen in Soils</u></p> <p><u>Validating Nitrogen Rates for Corn on Farm Fields in Southern Minnesota</u></p> <p><u>Supplemental Nitrogen Worksheet for Corn</u> (908 KB PDF)</p> <p><u>Fertilizer Urea</u></p> <p><u>Using Anhydrous Ammonia Safely on the Farm</u></p>
		<p><i>Crop eNews Articles</i></p> <p><u>Nitrogen Management for 2008 Corn</u> (September, 2008)</p> <p><u>Nitrogen Efficiency in Corn Production: it's Better Than it Used to Be</u> (September, 2006)</p> <p><u>Late Season Applications of Nitrogen</u> (March, 2006)</p> <p><u>The Basal Stalk Nitrate Test for Corn</u> (August, 2005)</p> <p><u>Nitrogen Status of Corn Fields</u> (June, 2005)</p> <p><u>Nitrogen Credit Contribution by Alfalfa to Corn</u> (January, 2005)</p>
		<p><u>The Value of Free Advice: N Recs after the Rains last Spring</u> (November, 2004)</p> <p><u>Fall Soil Sampling for Nitrate-N</u> (September, 2003)</p> <p><u>In Season Nitrogen for Corn</u> (January, 2003)</p> <p><u>Anhydrous Ammonia This Fall?</u> (October, 2002)</p>

		<p>Soil Nitrate: Fall 2002 (October, 2002)</p> <p>Considerations for Fall Nitrogen - 2002 (September, 2002)</p> <p>Nitrogen Loss: Same Song, Second Verse (July, 2002)</p> <p>Was Fall Nitrogen Lost? (July, 2002)</p> <p>Optimum Nitrogen Rates for Corn after Soybeans Using Farmer's Fields in Southern Minnesota</p>
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SURVEYS		
Public Opinion		
Minnesota State University Water Resource Center (Shannon Fisher)	http://mrfdc.mnsu.edu/reports/basin/mrb_suvey_nov%2005.pdf	Of citizens in the Minnesota River Basin This survey will assist with public perception about water quality close to home that also affects hypoxia in the gulf.
Water Quality Monitoring		
Water Resources Center	http://mrfdc.mnsu.edu/reports/report.html	annual report on monitoring results from the Minnesota River