



Wisconsin's Nutrient and Pest Management (NPM) Program works with a wide range of partners to promote agricultural practices for protecting water quality while maintaining profitable farms.

PROTECTING WATER QUALITY AND FARM PROFITS

The University of Wisconsin Nutrient and Pest Management (NPM) Program serves Wisconsin farmers and the agricultural professionals who assist them in making management decisions. The program links farmers and researchers to exchange knowledge on the profitability, practicality and environmental impact of crop production practices and cropping systems. This report contains a brief summary of accomplishments in 2014.

The NPM Program operates as a unit within both the University of Wisconsin-Madison's College of Agricultural and Life Sciences (CALS) and UW Cooperative Extension (UWEX). Founded in 1989 with state and fertilizer tax funding, NPM continues to develop and deliver essential outreach programs that address agriculture's impact on natural resources.

2014 Projects

NUTRIENT MANAGEMENT OUTREACH

NUTRIENT MANAGEMENT FARMER EDUCATION CURRICULUM:

The NPM Program is part of a team that develops, distributes, evaluates, and implements nutrient management education programs to Wisconsin farmers. Partners include UW-Discovery Farms, UW-Environmental Resources Center, the Wis. Dept. of Agriculture, Trade & Consumer Protection (WDATCP), county-based UWEX, Land Conservation Departments (LCD), Wisconsin Technical Colleges, and USDA-Natural Resources Conservation Service (NRCS), along with private sector agri-businesses. In 2014, nutrient management farmer education workshops were delivered in over 31 counties to over 640 producers farming approximately 174,000 acres. Over the past 15 years, approximately 5,360 producers farming over 1,554,390 acres in 55 counties have received in-depth education on nutrient management planning.

SNAPPLUS NUTRIENT MANAGEMENT SOFTWARE ASSISTANCE:

NPM continues to be involved in the refinement the SnapPlus nutrient management planning software program. Working with the SnapPlus team (UW-Soil Science and WDATCP), NPM staff assist in developing educational tutorial videos, updating the on-line help system and refining output reports to meet the needs of end users. New in 2014 was the development of two types of information manuals. One for SnapPlus trainers the other for SnapPlus users. Both are filled with important nutrient management reference materials including 22 new publications and factsheets. Over 1,000 manual requests were fulfilled by the NPM Program. NPM staff is also actively involved in SnapPlus training of farmers and others.



WISCONSIN WATERSHED ACTIVITIES:

- i) Farmer-led, performance-based watershed project in Polk, St. Croix, Pierce, Dunn, and Barron Counties with the goal of improving water quality in the Red Cedar and St. Croix River basins through reduced phosphorus and sediment loading. Project is serving as a prototype for managing TMDL watersheds across Wisconsin.
- ii) Exploration and ground-truthing of edge-of-field surface runoff monitoring protocols and technologies for assessing agricultural management practices on watershed water quality. Work performed in conjunction with UW-Platteville-Pioneer Farm.

SPRING GREEN-AREA NITROGEN (N) MANAGEMENT:

In response to degradation of public and private drinking water resources due to nitrate-N, NPM working with a team of county UW-Extension and UW soil scientists has surveyed farmers in the area on their N management practices. As a follow-up, a series of on-farm demonstrations featuring various N management practices will occur in the area. Practices features initially include: manure application timing (with and w/o Instinct), irrigation management, and UW corn N recommendations.

ON-FARM DEMONSTRATIONS & RESEARCH:

- i) Nitrogen fertilization of corn (MRTN) in Grant, Lafayette, and Fond du Lac Counties.
- ii) Sulfur needs of alfalfa in Green County.
- iii) Radish cover crop trials in Washington and Sheboygan Counties.

PEST MANAGEMENT

CONTINUING CUSTOM APPLICATOR PROGRAM (C-CAP):

NPM, in conjunction with the Wisconsin Agri-Business Association (WABA) and various CALS faculty and staff, continues to develop and deliver the Continuing Custom Applicator Program (C-CAP). This educational program increases the professionalism of custom pesticide applicators by broadening their knowledge of the products they use, available new technologies, customer service, and market.

PROFITABILITY OF ALTERNATIVE MANAGEMENT STRATEGIES FOR WESTERN CORN ROOTWORM:

A series of large-scale, on-farm demonstrations and management comparisons of various strategies for controlling corn rootworm. At each site, the profitability of alternate management practices versus the standard practice of relying solely on Bt corn varieties is made.

FOOD SYSTEMS

COVER CROPS RESEARCH, EDUCATION & OUTREACH:

Development and instruction of cover crop demonstration and training. Also fielding inquires and providing advice on cover crop selection and management. This includes recommendations of cover crop species, planting dates and seeding rates to match the planting window and supplemental forage and soil conservation needs. Included an October 8 cover crop field day at Arlington Ag Research Station.

FRAC SAND MINING SITE RECLAMATION:

A frac sand mining reclamation site restoration project was initiated in 2014. This project, located in Chippewa County, is in cooperation with the county Land Conservation Dept., UW-River Falls, and a mining company. The intent is to investigate the remediation of mining sites to agricultural land use. The 2014 site was converted to pasture. Plans for 2015 call for a conversion to corn production on a new site.



HEALTHY GROWN / HEALTHY FARMS:

The Healthy Grown® – which was expanded to the Healthy Farms - Program has been a national model of sustainable production systems, exemplifying integrated pest management and reduced pesticide systems for potato production. There is also an innovative ecosystem conservation component to restore privately owned landscaped in Wisconsin. Utilizing the Healthy Farm concept, additional commodities are developing sustainability standards. NPM staff are involved in efforts for pea, sweet corn, and soybean (via NSSI). Major support for this work through a USDA-Specialty Crop Research Initiative grant.

ORGANIC FARMING SYSTEMS RESEARCH, EDUCATION & OUTREACH:

The NPM Program is part of a UW team from UW-Entomology, Horticulture, and Agronomy conducting multi-year field research and associated educational outreach on the influence of soil fertility management on pest and beneficial insect activity in organic field crop rotations. In addition, NPM staff, along with UW faculty, represent UWEX on the Wisconsin Organic Advisory Council (WOAC). WOAC was convened by the Secretary of WDATCP and is composed of leaders in Wisconsin's organic industry.

ON-FARM DEMONSTRATIONS & RESEARCH:

- i) Cover crop (barley, clovers, and mixtures) plots in Sheboygan County.
- ii) Radish cover crop trials - Washington and Sheboygan Counties
- iii) Frac sand and gravel mining reclamation – Chippewa County
- iv) Land rolling - St. Croix & Pierce Counties

OUTREACH & COMMUNICATION

MOBILE APPLICATIONS:

- i) Wisconsin Crop Calculators: An app that lets corn growers estimate corn grain yields, corn maturity dates, and corn silage price adjustments for moisture.
- ii) Legume & Manure Nutrient Credit Calculator: Enter parameters regarding your alfalfa stand and/or manure application and find the appropriate amount of nutrients to credit against your base fertilizer recommendations.
- iii) Nitrogen Fertilizer Loss Estimator (In Development): This app qualitatively estimates the potential for nitrogen fertilizer loss from a field based on parameter such as soil texture, application timing, form of nitrogen fertilizer, rainfall, and other environmental conditions.
- iv) The following apps were upgraded in 2014:
 - Nitrogen (N) Price Calculator: This app allows users to enter the price per ton of a N fertilizer product and then see the price in terms of cost/lb N. Various N fertilizer products can then be compared on the same screen.
 - Wisconsin N rate Calculator for Corn: This app delivers economic optimum N recommendations following UW recommendations (MRTN approach).
 - Integrated Pest Management (IPM) Toolkit: This app makes UW IPM news, videos, pest photos, and timely information (pest thresholds, threats, etc.) easily accessible to mobile device users.



YOUTUBE VIDEOS:

More YouTube educational videos featuring UW-CALS specialists were prepared and released in 2014. They include:

- Down in the Soil Pit (series of three)
- Corn Rootworm Scouting
- Corn Rootworm Management
- Demonstration of the IPM Toolkit Mobile Application
- Charcoal Rot in Soybean (in progress)
- Brown Stem Rot in Soybean (in progress)
- Created six new SnapPlus tutorial videos to add to the 17 previously created videos on the SnapPlus channel on YouTube:
 - SnapPlus: Using DataDump to Create Custom Reports
 - SnapPlus: Using the Daily Log Screen
 - SnapPlus: Tips and Tricks
 - SnapPlus: Interactive Mapping Using the MMAS
 - SnapPlus: How to Make Soil Sample Bag Labels
 - SnapPlus: Editing in the Daily Log Import

WISCONSIN CROP MANAGER NEWSLETTER AND IPCM WEBSITE:

The NPM and IPM Program website that continues to deliver the popular Wisconsin Crop Manager newsletter featuring contributions from faculty and staff across UW departments including Agronomy, Entomology, Soil Science, Plant Pathology, and Horticulture. Wisconsin Crop Manager is produced weekly during the growing season with semi-monthly and monthly releases during the winter months.

PUBLICATIONS:

- Determine Your Soil Test Potassium and Phosphorus Categories
- Soil Fertility Guidelines for Pastures in Wisconsin
- Agricultural Apps for Android and Apple Devices
- Nutrient Management Planning Workbook
- SnapPlus Prep: Understanding the Information You Need to Write a Nutrient Management Plan Using SnapPlus Software
- Soil Sampling for SnapPlus
- Things You Might Have Heard about UW Recommendations
- Why Soil Sample?
- Nutrient Management Planning: Is it Worth It?
- Sampling Manure for Analysis
- What is the Phosphorus Index?
- SnapPlus Fast Facts
- BioIPM Strawberry Workbook
- Design and layout of:
 - 2014 Winter Wheat Trials
 - 2014 Soybean Variety Test Results
 - 2014 Corn Variety Trials



TECHNICAL ADVISORY COMMITTEE MISSION & MEMBERSHIP:

The NPM Program shares a joint technical advisory committee with the Integrated Pest Management (IPM) and Pesticide Applicator Training (PAT) programs. Meeting twice a year, the following advisors from farms, organizations, government agencies, and the UW provide vital oversight and perspective to NPM and its allied programs.

- Lori Bowman, WDATCP
 - Tom Bramschreiber, WI Farm Bureau
 - Tom Bressner, WI Agri-Business Association
 - Mike Cerny, WI Soybean Marketing Board
 - Tamas Houlihan, WI Potato and Vegetable Growers Association
 - Bob Karls, WI Soybean Program
 - Margaret Krome, Michael Fields Agricultural Institute
 - Mary Anne Lowndes, WI DNR
 - Herman Miller, Farmer from Lodi, WI
 - Pat Murphy, USDA-NRCS
 - Jeff Polenske (Co-Chair), WI Association of Ag Consultants & Polenske Agronomic Consulting Inc.
 - Jim VandenBrook, WI Land & Water Association
 - Wayne Wells, Hartung Brothers
 - Sara Walling, WDATCP
 - Ken Williams, UWEX Waushara County
 - Jim Zimmerman, WI Corn Growers Association
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- Jed Colquhoun, UW Horticulture
 - Vince Davis, UW Agronomy
 - Dan Heider (Co-Chair), UW Horticulture
 - Laura Ward Good, UW Soil Science
 - Carrie Laboski, UW Soil Science
 - Paul Mitchell, UW Ag & Applied Economics
 - Brian Luck, UW Biological Systems Engineering
 - J. Mark Powell, UW Dairy Forage Research Center
 - Mark Renz, UW Agronomy
 - Matt Ruark, UW Soil Science
 - John Shutske, CALS & UWEX
 - Damon Smith, UW Plant Pathology
 - Vacant, UW Entomology

AWARDS

- American Society of Agronomy (ASA) – 2013 and 2014 Extension Education Materials Certificates of Excellence Awards:
 - 1) Mobile Applications: *Integrated Pest Management (IPM) Toolkit; Corn Crop Calculator*
 - 2) Audio Visual (You Tube video): *Basic Soil Sampling for Wisconsin Agriculture*
 - 3) Audio Visual (Display): *The National Sustainable Soybean Initiative (NSSI): How Grower Driven Sustainability Programs Can Enhance US Soybean Production & Markets*



NPM PROGRAM DIRECTORY

The NPM Program operates as a unit within both the University of Wisconsin-Madison's College of Agricultural and Life Sciences (CAL S) and UW Cooperative Extension (UWEX).

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