Wisconsin’s Nutrient and Pest Management (NPM) Program works with a wide range of partners to promote agricultural practices for protecting streams, lakes, and groundwater resources 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 2011.

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.

2011 Projects

Nutrient Management Farmer Education Workshops:
The NPM Program is part of a team that develops and delivers 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. Collectively in 2011, nutrient management farmer education workshops were delivered in over 30 counties to approximately 500 producers farming over 148,000 acres. Cumulative accomplishments numbers from 2000 to 2011 show that, as a result of local delivery of these nutrient management farmer education workshops, over 3,700 producers farming approximately 1,126,000 acres in 53 Wisconsin counties have received in-depth education on nutrient management planning.

The guiding tool for these accomplishments is the Nutrient Management Farmer Education Curriculum developed by NPM, Discovery Farms, and the UWEX Nutrient Management Team. This curriculum, which was originally developed in 1999 and revised numerous times since, is a combination of classroom instruction, individual consultation, and on-farm field trials. The overall goal of this process is to involve farmers in the design of their own NM plans. The curriculum is endorsed by the WDATCP as the only mechanism for certifying farmers to write their own nutrient management plans.
Training for Nutrient Management Planners (TNMP) Workshops:
A biennial series of two-day workshops that provided in-depth training on the preparation of quality nutrient management plans was conducted in 2011. The program was designed primarily for production agronomists and county-based conservation staff. Two workshops were offered (Wausau and Madison) with a total of 50 participants. Partners included: UW-Madison Dept. of Soil Science, WDATCP, Wis. Dept. Natural Resources, USDA-NRCS, UW-Discovery Farms and the Wis. Certified Crop Advisor (CCA) Board.

SNAP-Plus Nutrient Management Software Assistance:
NPM continues to be involved in the refinement and educational delivery of the SNAP-Plus nutrient management planning software program. Working with the Snap-Plus team (UW-Soil Science and WDATCP), we assist in developing educational tutorials, updating the on-line help system and refining output reports to meet the needs of end users.

Wisconsin Watershed Water Quality Protection Projects:
NPM staff were part of a team involved in numerous watershed projects with the goal of improving area water quality. In the Dry Run Creek sub-watershed of the Willow River Watershed project in Dunn County, the NPM northwest regional specialist coordinated the delivery of nearly 40 nutrient management plans for area farms. This activity included Phosphorus Index (PI) inventories and manure spreader calibrations. In the nearby Willow River Watershed (St. Croix County) NPM worked with county conservation and local DNR staff to develop a Total Maximum Daily Load (TMDL) benchmark for area waters. We were also part of a team that collected data for a PI inventory of the Squaw Lake watershed in St. Croix and Polk Counties.

On-farm Demonstrations & Research:
1. No-till corn and soybean demonstration and promotion in Dunn County. Cooperators included the Dunn County Land Conservation Department and Excel Energy.
2. Dry kidney bean nitrogen rate response trials in Dunn County.
3. Manure nutrient crediting demonstration in Barron County.

Profitable Pest Management

Continuing Custom Applicator Program:
NPM, in conjunction with the Wisconsin Crop Production Association and various CALS faculty and staff, developed and delivered the Continuing Custom Applicator Program (C-CAP) in 2011. This educational program increases the professionalism of custom pesticide applicators by broadening their knowledge of the products and equipment they use, available new technologies, and customer service. Participant response was extremely positive and the program will be offered again in 2012.

Cut-Bail-Scout In-Field Workshops:
The Cut-Bale-Scout workshops are practical, hands-on, in-the-field, educational activities where farmers learn about potato leafhopper identification, field scouting techniques, treatment thresholds, and associated management techniques in alfalfa. This popular program started in 2006 and has continued every year since. Partners included the UW Integrated Pest Management (IPM) Program and County UWEX agents.

Corn Foliar Fungicide Trials:
NPM was a participant in some of the on-farm trials conducted across Wisconsin and coordinated by the UW Integrated Pest Management (IPM) Program to evaluate the effectiveness and economics of foliar fungicide use on corn grain or silage.
Wisconsin Crop Manager / Integrated Pest and Crop Management (IPCM) Website:
The NPM and IPM Program website (http://ipcm.wisc.edu) that delivers the popular Wisconsin Crop Manager newsletter featuring contributions from faculty and staff across UW-CALS departments underwent a significant update in 2011. A new style interface was introduced; however, all the traditional information is still there—along with new content such as our YouTube videos and Twitter feeds from UW-CALS specialists. This new website is also now compatible for browsing with a smartphone or tablet device.

The Wisconsin Crop Manager is produced weekly during the growing season with semi-monthly and monthly releases during the winter months.

Sustainable Farming Systems

Healthy Grown Potatoes and Healthy Farms Expansion:
The Healthy Grown Potato program is 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 landscapes in Wisconsin. Over 10% of the Wisconsin fresh market potato industry currently participates in the Healthy Grown program. Additionally, over 400 acres of land owned by participants in the Healthy Grown program have been restored to natural areas.

The Healthy Grown concept has expanded into the other crops (such as snap beans, sweet corn, peas and carrots) found in the typical potato farm rotation. This “Healthy Farms” model works to increase the sustainability of crop production on a whole-farm level that includes environmental, economic and social aspects of farming operations. Healthy Farms is supported by growers and the processing industry and is being used as an example of grower-led sustainability efforts which can influence market needs and awareness.

National Sustainable Certification Efforts:
In 2011, NPM staff, along with UW faculty specialists, worked with local, regional, national, and international entities programs on agricultural sustainability. NPM is working most closely with the Wisconsin Institute for Sustainable Agriculture (WISA) and the National Initiative for Sustainable Agriculture (NISA). Objectives of these efforts include the expansion of the Healthy Grown/Healthy Farms concept to other cropping systems including cash grain (corn and soybean), cranberries, and fruit crops. A main focus of this work is the development of sustainability protocols. These protocols serve to document sustainability efforts, encourage continual advances toward sustainability, and communicate these advances to the public and supply chain partners. Overall, these efforts are helping growers to meet the sustainability demands of consumers, processors, retailers, national and international markets.

Organic Farming Systems Education & Outreach:
NPM 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. WOAC promotes and identifies research, education, and policy needs of organic farmers, processors, marketers, retailers and consumers.

Additional NPM activities on organic farming included assisting the Midwest Organic and Sustainable Education Services (MOSES) with development and delivery of the annual Organic Farming Conference.
Cover Crops:
NPM Program staff continued efforts on cover crop use and management in 2011. Traditional programming such as promoting the use of winter rye following corn silage and legumes such as red clover following short season crops (small grains, peas, or snap beans) for soil conservation and nitrogen production continued. Other cover crop activities conducted in 2011 were:

1. Collaboration with other UWEX colleagues to develop a Wisconsin version of the Midwest Cover Crops Council Cover Crops Selector Tool. This is a web-based program, maintained by staff at Michigan State University, designed to aid farmers, educators and crop advisors in identifying options for cover cropping practices.

2. Development of a cover crops workgroup (within the UWEX Team Grains) that conducted two professional development trainings on cover cropping practices for conservation professionals, Extension agents and certified crop advisors.

3. Demonstration plots at the Arlington Research Station of winter rye no-till planted after corn silage harvest and liquid dairy manure applications.

4. Tillage radish cover crop demonstrations and on-farm research trials. NPM staff were part of a team that conducted numerous field trials using a radish cover crop following winter wheat in eastern Wisconsin. Objectives include determining the effect of a tillage radish cover crop on corn yield, soil compaction, and nitrogen management – including the potential for radish to scavenge excess nitrogen from the soil and release it to the following years’ crop. NPM staff assisted soil science faculty with the development of a tillage radish on-farm research protocol.

Mobile Applications (Apps)
The year 2011 marked the first release by the NPM Program of mobile applications (apps) for hand-held devices. Two apps were produced: a nitrogen (N) price calculator and a Wisconsin N rate calculator for corn. The N price calculator allows users to compare the price of various forms of N fertilizer products, which vary in N content and are sold on a price per ton basis in terms of cost per pound of N. Multiple N fertilizer products can be compared on the same screen and the cheapest source of N can be identified. The corn N rate calculator delivers economic optimum N recommendations for corn following UW recommendations that consider the cost of N fertilizer and anticipated price for corn. A third app - the IPM toolkit - is in the works. This app will feature pest and disease identification, scouting tips, agricultural news feeds, etc.

2011 Publications
The NPM Program writes, designs, and produces useful information for farmers in various formats. The program works with CALS researchers and UWEX specialists from numerous departments to create NPM publications. A listing of 2011 titles follows:

- BioIPM Snap Bean Workbook
- BioIPM Cole Crop Workbook
- Cover Crops and Crop Insurance*
- Integrated Approach to Potato Early Dying Management: Lessons Learned and Next Steps
- What's on your seed?
- Know How Much You Haul (reprint)
- e-Pub: Frost Seeding Red Clover in Winter Wheat
- e-Pub: Nematodes: The Overlooked Yield Robbers in Corn and Soybean
- Planting Winter Rye after Corn Silage: Managing for Forage (reprint)

* Publication available at [http://www.aee.wisc.edu/mitchell](http://www.aee.wisc.edu/mitchell)
Other publications available for download at [http://ipcm.wisc.edu/](http://ipcm.wisc.edu/) or contact the NPM Program office.

2011 YouTube Videos
The NPM and the Integrated Pest Management (IPM) Programs along with staff from UW-CALS continue to develop short You-Tube videos on agricultural management topics and practices. Videos produced in 2011 are listed below:

- Spider Mites in Soybean
- Slugs in Corn and Soybean
- Black Cutworm in Corn
- Armyworm in Corn and Wheat
- Japanese Beetle in Corn and Soybean
- Soybean disease: Northern stem canker
- Soybean weed scouting: Late season, part 1
- Soybean weed scouting: Late season, part 2
- Soybean weed scouting: Control of volunteer corn
- Winter Wheat Disease Risk Assessment
- Potassium Deficiency in Soybean
- How narrow should corn rows you go?
- Corn Yield Estimates and their Predictive Value
- Soybean Drought Stress in Late Season
- Wisconsin’s pre-sidedress nitrate test (PSNT)
- Soybean Emergence and Germination Common Issues
- Cover Crops Following Winter Wheat
- Identification of the Wis. Invasive Plants: Wild Parsnip
- Identification of the Wis. Invasive Plants: Poison Hemlock
- Identification of the Wis. Invasive Plants: Perennial Pepperweed
- Identification of the Wis. Invasive Plants: Japanese Hop

All of the IPCM videos can be viewed on our YouTube channel at [http://youtube.com/uwipm](http://youtube.com/uwipm)
2011 Grants

Title: Nutrient Management Programming: 2011 UWEX & UW-Madison-CALS Budget Request
Sponsor: Wis. Dept. of Agriculture, Trade & Consumer Protection
Funding: $483,745 ($120,906 = NPM portion)
Collaborators: UW-Soil Science, UW-Discovery Farms, UW-Environmental Resources Center
Objectives: Deliver educational programming to increase the adoption of agricultural management practices for maximizing the economic efficiency of supplemental crop nutrients while protecting the quality of Wisconsin’s water resources. This work is part of a WDATCP initiative to advance the state’s nutrient management planning efforts. The UW partners assist this initiative by providing the research, outreach, training, and tools for greater development and implementation of nutrient management plans.

Title: Nutrient Management Programming: 2012 UWEX & UW-Madison-CALS Budget Request
Sponsor: Wis. Dept. of Agriculture, Trade & Consumer Protection
Funding: $650,000 ($119,302 = NPM portion) (pending)
Collaborators: UW-Soil Science, UW-Discovery Farms, UW-Environmental Resources Center
Objectives: See 2011 grant objectives (above).

Title: Crop Plant Nutrition and Insect Response in Organic Field Crop Production: Linking Farmer Observation to University Research and Extension
Sponsor: USDA CSREES Integrated Organic Program
Funding: $400,000+ over 4 years ($20,170 per year = NPM portion)
Collaborators: UW-Entomology, UW-Marathon County, Arlington Agricultural Research Station
Objectives: Field research and educational outreach project examining the influence of soil fertility management on pest and beneficial insect activity in organic crop rotations.

Title: Vegetable Risk Reduction
Sponsor: USDA-CSREES Special Extension Project
Funding: $315,840 ($162,267 = NPM portion)
Collaborators: UW-Horticulture, UW-Entomology, UW-Plant Pathology, UW-Soil Science
Objectives: Biointensive IPM education through the development of workbooks and hands-on tools.

Title: Potato Pest Management
Sponsor: USDA-CSREES Special Extension Project
Funding: $265,920 ($136,519 = NPM portion)
Objectives: Biointensive IPM education, ecosystem restoration and standards, support for potato eco-labeling (Healthy Grown) initiative.

Title: Vegetable Production Sustainability
Sponsor: Wisconsin Institute for Sustainable Agriculture (WISA)
Funding: $72,368 ($10,000 = NPM portion)
Collaborators: UW-Entomology, UW-Plant Pathology, UW-Horticulture
Objectives: Growing sustainability and advancing whole farm certification systems for Wisconsin Vegetable Farmers.

Title: Development of an IPM Toolkit app for the iPhone
Sponsor: North Central Region (NCR) Integrated Pest Management (IPM) Center
Funding: $10,000
Collaborators: UW-Plant Pathology, UW-IPM Program
Objectives: Mobile device application (app) that will make news articles, videos, and publications from the IPCM website available on iPhones and iPads.
Awards & Recognition

American Society of Agronomy: Extension Educational Materials Program – Certificate of Excellence for Cover Crops Following Winter Wheat or Corn Silage Harvest (Video).
“In recognition of the development of outstanding agronomic educational material in the category of audio visual.”

“For educational program technology and relationship-based innovation with statewide, regional and national impact in the Integrated Crop and Pest Management field, and for leadership in developing an integrated, comprehensive and timely resource for the people of Wisconsin.”

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 UW provide vital oversight and perspective to NPM and its allied programs.

- Lori Bowman, WDATCP
- Tom Bramschreiber, Farmer from Bangor, WI
- Mike Cerny, WI Soybean Marketing Board
- Bob Karls, WI Soybean Program
- Margaret Krome, Michael Fields Agricultural Institute
- Mary Anne Lowndes, WI DNR
- Duane Maatz, WI Potato and Vegetable Growers Association
- Herman Miller, Farmer from Lodi, WI
- Pat Murphy, USDA-NRCS
- Jeff Polenske (Co-Chair), WI Association of Ag Consultants & Polenske Agronomic Consulting Inc.
- Rob Poehnelt, WI Crop Production Association
- Jim VandenBrook, WDATCP
- Wayne Wells, Hartung Brothers
- Ken Williams, UWEX Waushara County
- Jim Zimmerman, WI Corn Growers Association
- Jed Colquhoun, UW Horticulture
- Shawn Conley, UW Agronomy
- Eileen Cullen, UW Entomology
- Vince Davis, UW Agronomy
- Paul Esker, UW Plant Pathology
- Dan Heider (Co-Chair), UW Horticulture
- Laura Ward Good, UW Soil Science
- Russ Groves, UW Entomology
- Carrie Laboski, UW Soil Science
- Paul Mitchell, UW Ag & Applied Economics
- John Panuska, 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

Welcome Paul Mitchell:

In November of 2011, Paul Mitchell agreed to become a faculty Co-Director of the NPM Program. Paul is an associate professor in the University of Wisconsin-Madison’s Department of Agricultural and Applied Economics. Paul’s research and outreach programs focus on the farm-level economics of crop production, emphasizing pest management, risk management, and specialty crop economics.

Paul joins Carrie Laboski as a NPM Program Co-Director. Carrie joined the program in 2010 replacing Birl Lowery, who moved into UW-CALS administration. Carrie is an associate professor in the Department of Soil Science where she specialized in soil fertility research and education.
NPM Program Directory

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).

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Farewell to Karen Talarczyk and John Stier:

In January 2011, Karen Talarczyk, NPM's southwest regional specialist, retired from the program. Karen started with NPM in 1990 and served the agricultural and conservation community of southwest Wisconsin for 22 years.

John Stier, NPM Faculty Co-Director since 2009, left both the NPM Program and the University of Wisconsin-Madison's Department of Horticulture for a faculty position with the University of Tennessee in 2011.