



Farmers in Wisconsin are facing increasing public pressure manage land and water resources carefully and increasing economic pressures as input costs escalate. For example, many more farms need nutrient management plans now than ten years ago because of local county ordinances or compliance with government programs. Farm families can improve profitability and reduce the detrimental impact of nitrogen and phosphorus on water quality by improving nutrient management practices, but this requires more management, time, and technical knowledge.

The University of Wisconsin Nutrient and Pest Management (NPM) program connects farmers and researchers to exchange knowledge on the profitability, practicality, and environmental impact of crop production practices and cropping systems. Specific examples of NPM activities are listed below.

NPM activities on three critical issues

Nutrient Management (NM)

In 2007:

- Farmer education curriculum on NM management principles and planning expanded to 23 counties.
- Adapted nutrient management instruction for Coulee Valley dairy, beef, sheep and chicken grazers
- With farm cooperators, ran small scale trials of nutrient management recommendations to fit specific farms and landscapes.
- Snap-Plus training provided on how to use software for NM plans.
- Revised and updated these key publications with Soil Science faculty: *Nitrogen Guidelines for Corn in Wisconsin*, *Soil Testing Basics*.

New in 2008:

- Can the evaluation of the farmer education curriculum be faster and more useful for counties and instructors?
- Can the demand for nutrient management plans be met?

Profitable pest management

In 2007:

- Initiated *Cut, Bale, Scout*, a practical, hands-on farmer program on leafhopper scouting for alfalfa.

- Organized a multi-state stakeholder group to address resistance management for key potato pests of the North Central Region.
- Worked with UW IPM faculty to write and publish: *Insect Resistance Management and Refuge Requirements for Bt Corn*, the *Pepper BioIPM Workbook*, and the *Carrot BioIPM Workbook*.

New in 2008:

- Do fungicide applications to corn silage pay?
- Can selective grass herbicide treatments improve wildlife habitat in CRP acres?

Sustainable farming systems

In 2007:

- Expanded the eco-label for fresh market potatoes to include conservation on non-agricultural acres.
- Collaborated on research and outreach about insect responses to crop plant nutrition in organic field crop production.
- Published brochure on restoration techniques and plant communities: *Establishing Natural Communities on Wisconsin Potato Farms*.

New in 2008:

- What are best seeding mixes and alfalfa varieties for potato leafhopper suppression in organic alfalfa?
- Will organic farmers find distance education learning opportunities beneficial?

On-farm collaborative research and outreach with farmers and Extension faculty

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. The program operates with integral support from the University of Wisconsin-Madison's College of Agricultural and Life Sciences (CAL S) and UW Cooperative Extension (UWEX).

NPM takes recommendations to farms, brings producer questions back to the campus, and facilitates data collection from working farms. A few examples from 2007 include:

- Maximum return to Nitrogen (MRTN) rate trials for corn systems on specific soils.
- Water quality impacts of headland stacking of turkey litter.
- Extent of the western corn rootworm variant in southern WI counties.
- Cooperating on yield trials of commercial organic corn and soybean varieties.
- NPM manages this web portal that provides news, contacts and educational resources from the plant science departments of the UW-Madison CAL S and UWEX. This website delivers the popular *Wisconsin Crop Manager* newsletter that features contributions from a wide spectrum of staff and faculty across departments including Horticulture, Agronomy, Entomology, Soil Science and Plant Pathology

Outreach Teaching and Learning Materials

NPM writes designs and produces outstanding materials for farmers. The program works with CAL S researchers and Extension specialists from many departments to create NPM publications. New publications in 2007 included:

- *Planting Winter Rye after Corn Silage: Managing for Forage* – Authorship with UWEX and Agricultural Research Station faculty
- *Soil Testing Basics* – NPM and Soils publication revised and updated
- *Nitrogen Guidelines for Corn in Wisconsin* – NPM card revised with new N recommendations from Soil Science Department
- *Sediment, Nitrogen and Phosphorus in Runoff from Single Crop Watersheds on Pioneer Farm* – NPM design in collaboration with Soil Science and UW-Platteville researchers
- *Insect Resistance Management and Refuge Requirements for Bt Corn* – authorship with UW Entomology and UWEX faculty
- *Pepper BioIPM Workbook* – Authorship with UW Entomology, Horticulture, Soils, and Plant Pathology faculty.
- *Carrot BioIPM Workbook* – Authorship with UW Entomology, Horticulture, Soils, and Plant Pathology faculty.
- *IPM Field Crop Scouting manual* – update and reprint
- *Establishing Natural Communities on Wisconsin Potato Farms* – brief overview of techniques and plant communities
- Win-PST, pesticide hazard rating guide expanded to include cherry, apple and cranberry options.

Complementary outreach materials in 2007 included:

- *Corn and Soybean Herbicide Chart* – groups herbicides by their mode of action to assist in herbicide selection and resistance management decisions (designed by NPM).
- Posters for organic farming conference:
 - Organic corn and soybean variety trials
 - Organic-approved corn seed treatments
 - Flame weeding
 - Planting soybeans into winter rye
- *Cut, Bale, Scout* - concise potato leafhopper scouting guidelines
- *Soybean Cyst Nematode DVD*
- *Poster: The role of natural habitats in Agroecosystems*
- *NPM Field Notes Annual Report 2006*

Grants received in 2007

Nutrient Management Grants:

Project: *Nutrient Management Fast Facts*

Funding: \$1,000

Collaboration: UWEX Nutrient Management Team

Product: Printing costs for new edition

Project: *Soil Testing Basics*

Funding: \$2,500

Collaboration: Wisconsin Certified Crop Advisors (CCA) Board

Product: Revise and reprint key publication on soil testing

Project: Water quality study of turkey litter stacking practices
Funding: \$6,880, Wisconsin Department of Natural Resources
Collaboration: Discovery Farms, WGNHS
Product: Monitoring to determine water quality impacts

Integrated Pest Management (IPM) Grants:

Project: Revitalizing potato leafhopper IPM in alfalfa through local farmer networks
Funding: \$9,922 (NPM portion), USDA North Central IPM Center
Collaboration: UW Entomology, UW IPM/Horticulture
Product: Co-leader of local “Cut, bale, scout” farmer groups

Project: Integrated Pest Management training
Funding: \$1,000
Collaboration: UWEX Conservation Training, NRCS
Product: Workshops for NRCS employees and technical service providers

Project: *Carrot and Pepper Biointensive IPM Workbooks*
Funding: \$12,000 (\$10,000 Stevenson/Plant Pathology international projects, \$2,000 from UW IPM)
Collaboration: UW Plant Pathology, UW Entomology, UW Horticulture, UW Soils
Product: Draft and produce IPM handbooks

Project: *Win-PST pesticide guide* upgrade
Funding: \$4,000
Collaboration: NRCS
Product: Revise and update water quality guide to include orchard, cranberry and vegetable crops.

Project: Resistance Management Initiative of the Potato IPM Working Group
Funding: \$30,000, USDA North Central IPM Center
Collaboration: UW Plant Pathology, UW Soils, MSU
Product: Education and tools for managing Colorado potato beetle and early blight resistance

Sustainable Farming Systems Grants:

Project: Crop plant nutrition and insect response in organic field crop production – Linking farmer observations to University research and extension
Funding: \$12,752 (NPM staff in 2007 from \$374,478 four year grant) USDA CSREES Integrated Organic Program
Collaboration: UW Entomology
Product: NPM provides communication, advisory committee coordination, and organic agronomic expertise

Project: Pesticide use and risk reduction in vegetable and fruit crops in Wisconsin
Funding: \$135,780 (Eco-potato portion), USDA CSREES Hatch
Collaboration: Center for Integrated Agricultural Systems, UW Horticulture

Product: Biointensive IPM education, ecosystem restoration and standards, and support for potato eco-labeling initiative.

Project: The role of natural habitats in agroecosystems: Evaluating the benefits and establishing standards for restored non-crop lands.

Funding: \$23,640 (Eco-potato staff in 2007 from \$449,900 3 yr grant) USDA CSREES NRI

Collaboration: UW Nelson Institute, UW Entomology

Product: Project manager of graduate student researchers and primary contact with potato growers.

IPCM Advisory Committee

NPM shares a joint advisory committee with the Integrated Pest Management (IPM) and Pesticide Applicator (PAT) programs. Meeting twice yearly, the following Advisors from farms, organizations, government agencies, and UW provide vital oversight and perspective to the allied programs. Current members are listed below. Their contact information is available at:

<http://ipcm.wisc.edu/Contacts/tabid/55/Default.aspx>

Farmers:

Tom Bramschreiber - Bangor

Lois Loff – Dane

Herman Miller – Lodi

Jim Zimmerman – Rosendale (also WI Corn Growers)

Agricultural or Environmental Organizations:

Denny Caneff – Wisconsin River Alliance

Mike Carter – Wisconsin Potato and Vegetable Growers Association (WPVGA)

Margaret Krome – Michael Fields Agricultural Institute

Jeff Polenske (Co-Chair) – Wisconsin Association of Agricultural Consultants (WAPAC),

Michael Turner – Wisconsin Crop Production Association (WCPA)

Wayne Wells – Midwest Food Processors Association & Hartung Brothers

Agencies:

Lori Bowman – Wisconsin Department of Agriculture, Trade and Consumer Protection (WDATCP)

Terry Lohr - Wisconsin Department of Natural Resources (WDNR)

Pat Murphy – USDA Natural Resources Conservation Service (NRCS)

Gordon Stevenson – Wisconsin Department of Natural Resources (WDNR)

Jim VandenBrook – Wisconsin Department of Agriculture, Trade and Consumer Protection (WDATCP),

UW/UWEX faculty:

Chris Boerboom (Advisory Committee Co-Chair) – Agronomy

A.J. Bussan – Horticulture

Jed Colquhoun – Horticulture

Shawn Conley – Agronomy

Eileen Cullen – Entomology

Paul Esker – Plant Pathology
Laura Ward Good – Soil Science
Russell Groves – Entomology
Carrie Laboski – Soil Science
Birl Lowery – Soil Science
Brent McCown – Institute for Sustainable Agriculture
Pete Nowak – Nelson Institute of Environmental Studies
Mark Powell – Dairy Forage Research Center
Mark Renz – Agronomy

Directory of NPM

The NPM program is based in the University of Wisconsin College of Agricultural and Life Sciences with UW Cooperative Extension responsibilities and support. The NPM organization includes:

- Campus based NPM staff experienced in developing and delivering statewide educational or certification programs, in publishing practical outreach materials, and in developing coalitions of diverse interests.
 - Scott Sturgul, Nutrient Management Specialist/NPM Program Manager
 - Roger Schmidt, Technology & Design, NPM/IPM
 - Mimi Broeske, Publishing & Graphics Editor
- NPM regional staff expert at teaching, on-farm validation of research-based recommendations, and serving as regional resources to producers and organizations working on agricultural and environmental issues.
 - Paul Kivlin, Northwest Region, UW-River Falls
 - Richard Proost, NPM Agronomist, UW-Madison
 - Kevin Shelley, Southcentral Region, UW-Madison
 - Karen Talarczyk, Southwest Region, Lancaster Ag Research Station
- The UW Eco-Potato project (2 staff) working in partnership with potato producers and environmental organizations toward more ecologically sound potato and vegetable production systems.
 - Deana Knuteson, Eco-Potato BioIPM Coordinator
 - Kit Schmidt, NPM and Eco-Potato program support
- Faculty Directors
 - Chris Boerboom, NPM Co-Director, Professor of Agronomy
 - Birl Lowery, NPM Co-Director, Professor of Soil Science

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