

FEBRUARY 2008

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fruit, vegetable, and
wildlife IPM

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urban residents

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IPM newsManaging resistance
in potato pestsNORTHEASTERN IPM CENTER
NortheastIPM.org

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In Hot Water

Portable immersion system thwarts pests of ornamental plants

In the \$10 billion U.S. nursery industry, getting stock plant cuttings off to a pest-free start can prevent costly infestations and pesticide treatments later. A new machine, now being refined for commercial use, controls numerous pests in these young plants with an exceptionally low-risk treatment: *hot water*.

Nursery managers propagate many plant species using cuttings from stock plants, but stock plants can have small infestations of pests that are difficult to detect, such as mealybug, thrips, aphids, or spider mites. Insecticide use is problematic during this early growth stage: conventional applications are impractical on unrooted plants, and alternatives such as dipping cuttings in pesticide-filled tanks can pose risks to employees.

Stanton Gill leads a University of Maryland Cooperative Extension team that developed a prototype of the hot-water immersion system with Northeast IPM funds. The device heats large amounts of water quickly and maintains the specified temperature while it circulates water around large numbers of plant cuttings.

"There's a small temperature window," Gill says, "at which insect pests die and plant material is tolerant." Testing the effects of high water temperatures on various plant and pest species, the team identified temperatures and treatment times that kill pests without damaging plants.

The results convince Gill that the new device has strong potential for controlling scales, mites, and aphids. "We've had particular success with controlling minute cypress scale on Leyland cypress and soft scale on holly." The team is also exploring the system's potential for plant disease control.

The immersion system is being refined for commercial use, with easy controls and an affordable price tag. Once the hot water immersion system is available to the nursery industry, it will increase the safety of workers,



The hot water immersion system effectively treats pests such as cottony Camellia scale (top) and miscanthus mealybug (bottom). These pests can cause severe damage to landscape plants if left untreated. Photos by Suzanne Klick.

who would otherwise have to dip plant cuttings in pesticides. The device will also potentially reduce losses from plant damage, as well as the costs of pesticide used to control insects as plants grow.

To learn more about this project, contact Stanton Gill at sgill@umd.edu.

REGIONAL IPM NEWS

In September 2007, the USDA's Cooperative State Research, Education, and Extension Service (CSREES) granted nearly \$4 million to support Northeastern IPM Center operations over the next four years. The Center administers nearly \$1 million annually through grants for IPM research and extension throughout the region.

The IPM Center serves as a regional hub where groups such as growers, regulators, scientists, consumers, government agencies, pest control companies, and environmental organizations can share information and work together toward safe, affordable pest management. The Center gives growers and consumers a voice in setting priorities and shares information to support good pest management decisions.

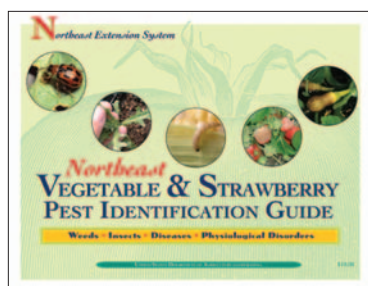
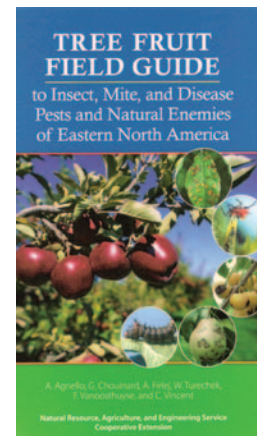
The Center, which is jointly administered by The Pennsylvania State and Cornell Universities, has been making the most of land-grant science and education to benefit the public and the environment since 2000.

How-To Books & Resources

...supported with
Northeast IPM funds!

Fruit and vegetable guides

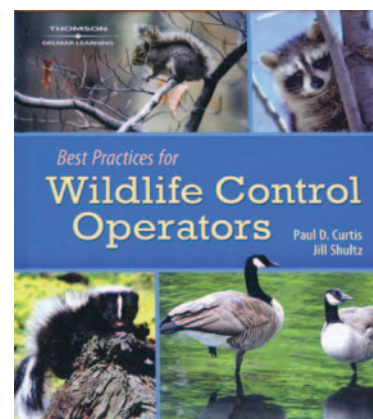
Tree Fruit Field Guide to Insect, Mite, and Disease Pests and Natural Enemies of Eastern North America, by Art Agnello et al., 2006. They say a picture is worth a thousand words, but to a tree fruit grower, a picture can save thousands of dollars. This new book, winner of the American Society of Agricultural and Biological Engineers' Blue Ribbon Award, contains more than 500 color photos to help growers identify insects, mites, and diseases that cause damage in orchards, as well as beneficial insects, spiders, and mites that should be preserved. The guide is an important tool not only for growers but also for master gardeners, home gardeners, educators, scientists, and students. Available from www.nraes.org (NRAES-169); \$32.00; 238 p.



Northeast Vegetable and Strawberry Pest Identification Guide, edited by Richard Bonnano and specialists from across the Northeast, developed by the Vegetable IPM Working Group, 2007. Growers and agricultural professionals can carry this comprehensive pest identification guide to the field to better identify pests and select appropriate control measures. It contains color photos of all of the insects, diseases, and weeds that are described in the region's various Vegetable Management Recommendations, including photos of weeds at the seedling stage and disease symptoms on different crops. Available from the Univ. of Mass. Bookstore (413-545-2717, umassextensionbookstore.com); \$10.00 (bulk rate: 80 copies @ \$5 apiece); 50 p.

Wildlife resources

Best Practices for Wildlife Control Operators, by Paul D. Curtis and Jill Shultz, 2008. Written with wildlife control professionals in mind, this practical training manual focuses on best practices, the prevention of wildlife damage, and a realistic assessment of job risks for wildlife control operators. With a step-by-step approach to applying the theory of integrated wildlife damage management, this manual helps professionals think critically and creatively so they can choose successful solutions. It describes a broad array of tools, techniques, and resources, backed by an easily understood decision-making model. Safety, ethical, and legal issues related to wildlife control are also covered. This manual can be used to train a broad range of people, from those who have little familiarity with the subject to experienced operators who use other approaches in their work. Published by Thomson Delmar Learning; available from www.delmarlearning.com (ISBN-13: 9781418040949); \$80.95; 368 p.



The Internet Center for Wildlife Damage Management, ICWDM.org. This nonprofit, grant-funded website provides research-based information on how to handle wildlife damage problems responsibly. It consolidates information on IPM in wildlife damage management with the goal of increasing IPM adoption. With links to educational resources, publications, agencies, photos, wildlife expertise, and much more, the site is a rich source of information and solutions.

IPM Hits Us Where We Live

Reducing health risks for public housing residents

Residents in urban settings are prone to pest problems and related housing conditions that threaten human health. The Northeastern IPM Center is providing solutions by leveraging resources to train and educate residents in low-income urban settings. The new training program responds to growing concerns about asthma, which afflicts more than 22 million Americans and can be triggered by cockroaches, mice, and the pesticides used to treat them.

The Center has hired Allison Taisey to coordinate this collaborative project, which involves CSREES, the U.S. Department of Housing and Urban Development, the Environmental Protection Agency (EPA), land grant universities, and private consultants. Maintenance staff and residents will learn how to practice IPM successfully and contribute positively to healthy homes. The training tools will include an educational package for residents, a Train-the-Trainer curriculum for maintenance supervisors, and delivery of this curriculum to sites nationwide via DVD and webcast. A built-in evaluation phase will allow project leaders to measure the resulting increase in IPM adoption and to adapt the training materials for widespread use.

Practicing IPM at home protects water quality

In 2007, more than 100 professionals gathered near Philadelphia to explore connections between IPM and water quality in turf and structural settings. To build on the momentum of that event, the Northeastern IPM Center launched the Green-Blue Grants Program, which has disbursed more than \$12,500 to promote clean water through residential IPM. The following funded projects will educate residents about how using IPM in residential structures and landscapes can affect water quality:

- UNH train the trainers: Landscaping at the Water's Edge program (Sadie Puglisi, University of New Hampshire)
- IPM in suburbanizing watersheds: Workshops for changing communities (Brian Kunkel, University of Delaware)

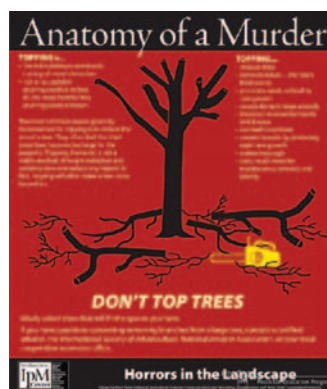
- Teaching sustainable lawn care practices to professionals and residents (Jennifer Coffey, Stony Brook-Millstone Watershed Assoc.)
- Turf love workshops for nursery retailers and landscapers (Dianne Olsen, Cornell Coop. Ext. of Putnam County)
- Outreach to professional lawn care providers in southern Maine (Richard Brzozowski, University of Maine)
- Educating capital district consumers about lawn care and water quality (David Chinery, Cornell Coop. Ext. of Rensselaer County)
- IPM and water quality training for home gardeners (George Kingston, Western Massachusetts Master Gardener Assoc.)

Sustainable lawns at the U.S. Botanical Garden

In summer 2008, more than 750,000 visitors will view a sustainable lawn care display at the U.S. Botanical Gardens in Washington, DC, thanks to the Northeastern Community IPM Working Group. The display focuses on IPM-based lawn care practices and will be accompanied by "landscape bloopers" posters that illustrate common landscaping mistakes.

"This is a great opportunity to get the word out," says Mary Kay Malinoski, University of Maryland Cooperative Extension, who co-leads the working group and is coordinating the project with members

Rick Johnson, Penn State University, and David Clement, University of Maryland. The display will run from Memorial Day through Columbus Day. The working group, supported by the Northeastern IPM Center, will also teach classes related to display content and interact with the public during several family days.



Topping a tree can increase invasion by insects and disease. Posters like this will appear throughout the U.S. Botanical Garden next summer.

THE NATIONAL IPM NEWS: Getting at Impacts

The National Interagency IPM Evaluation and Reporting Group (NIPMEG) highlights successes in the field of IPM and shows the difference that IPM programs make for people who manage pests. Since 2004, the group has been improving systems for tracking, evaluating, and communicating IPM successes, with representation from the EPA, CSREES, NRCS, American Farmland Trust, and other groups.

Dr. Carol Pilcher, Iowa State University, chairs NIPMEG's executive committee. The group's new web-based reporting system for grant-funded projects will soon make it easier to tease out trends in IPM adoption, find information on projects funded by different agencies, and help grants managers pinpoint underfunded areas. NIPMEG evaluates IPM's impacts on humans, the environment, and economics, and is creating a website on designing projects that provide useful outcomes. The group is also developing publications to showcase successes in IPM across the nation. For more information, email Dr. Pilcher at csimmons@iastate.edu.

Resistance Is Futile

...or at least diminished, thanks to reduced-area treatments on potatoes

Potatoes are one of the most important crops in the Northeast, with more than 100,000 acres harvested and a value of nearly \$270 million annually. Numerous insect pests threaten potato crops, the most notorious of which is the Colorado potato beetle (CPB).

Growers depend heavily on the insecticide imidocloprid to control CPB, but overreliance on a single type of insecticide is an unsustainable approach, as pests eventually develop an ability to tolerate the insecticide. This pesticide resistance can jeopardize growers' capacity to prevent damage.

University of Maine entomologist Andrei Alyokhin led a team of researchers who reduced the amount of imidocloprid used on potato crops, treating only selected areas on the perimeter of the field. The project, funded through a Northeast Regional IPM Competitive Grant, also involved use of chemical substances called

kairomones to attract the beetles and lure them to treated areas, thus increasing their exposure to toxins. Perimeter treatments allowed the team to control beetles successfully using

less insecticide: CPB densities were 6–11 times lower in the treated perimeter areas than in untreated plots.

The reduced-area-treatment approach is very simple and requires no special skills or major changes to existing crop management practices, so it can be readily put to use by commercial growers. These treatments would allow growers to cut insecticide use on potato crops by at least 20 percent while putting the brakes on resistance development in CPB populations.

After receiving this grant, Alyokhin was awarded an EPA Pesticide Environmental Stewardship Grant to promote use of this technology.



Colorado potato beetle infestations begin when the insects walk into potato fields in the spring from overwintering sites, entering from the perimeter.

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