

NEW YORK STATE

Integrated Pest Management PROGRAM

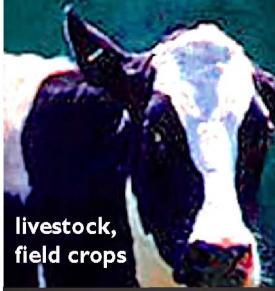


The year in review, 2003-2004

CORNELL

Cooperative
Extension

IPM



Photos, from top: Photo.com,
Jana Lamboy, Matthew
Arciniega, Art Explosions,
University Photography

IPM: for where we live

Partnering for success

Our program's activities and accomplishments last year might be summarized by a single word: partnerships.

Open communication, trust, and objectivity are key to successful partnerships. Because of these traits the NYS IPM Program continues to successfully engage a wide and diverse audience that includes farmers; agricultural, urban, and suburban pest managers; environmental and health advocates; policy makers; regulators; and many others.

IPM integrates many disciplines, fostering partnerships among researchers and practitioners. Cornell Cooperative Extension Educators, IPM staff, and researchers work together to identify priority pest management needs and to resolve and deliver solutions through applied research and Extension. Our long-standing partnerships with the NYS Departments of Agriculture and Markets and Environmental Conservation are highly successful and synergistic.

By offering IPM programming in both agricultural and non-agricultural settings (Community IPM) we can communicate a fair image of agriculture to the general public and point out that pest management in both urban and agricultural settings comes with its own set of risks. One of the program's new partnerships, with the New York schools, aims to help young people better appreciate how IPM strategies are used to grow their food and keep their schools safe from pests. Through this effort, students also see how the application of science—notably IPM—helps society by reducing the environmental, economic, and health risks associated with pest management.

We also foster partnerships among states. NYS IPM Program staff played leading roles in the Fourth National IPM Symposium, which had the theme of "Building Alliances," and are integral to the operation of the multi-state Northeastern IPM Center. With dwindling state resources, regional partnerships are essential to the efficient development and delivery of IPM strategies.

Our many important partnerships help ensure that we remain relevant to New Yorkers and maintain stable funding despite fiscally difficult times. We are most grateful for that support. It has allowed us to fill a long-vacant Western NY livestock/field crops position, sustain our grants program (1,000+ grants awarded since the program began), deliver a pest management record keeping system to the apple industry, post *Cornell Crop and Pest Management Guidelines* on the Internet, upgrade our website, and provide online access to pest forecasts to hundreds of New York's producers.

The program's strengths can be traced to its dedicated staff and its ability to form trusted partnerships. Together, we continue to discover and promote better pest management practices in New York, the Northeast, and the nation.

Sincerely,

Michael P. Hoffmann
Director and Professor
Associate Director, Cornell Cooperative Extension

live, work, and play



Mary Woodsen

Our mission is to develop and deliver sustainable ways to manage pests that are economical and pose minimal risks to our health and the environment.

Our staff:

Michael Hoffmann, Ph.D., Director; Professor of Entomology

Curt Petzoldt, Ph.D., Assistant Director; Vegetable IPM Coordinator

Jennifer Grant, Ph.D., Assistant Director; Community IPM Coordinator

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Juliet Carroll, Ph.D., Fruit IPM Coordinator

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Judy Nedrow, B.S., Information Specialist*

Abby Seaman, M.S., Vegetable IPM Extension Educator

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Cheryl TenEyck, M.S., Computer support

J. Keith Waldron, M.S., Livestock/Field Crops IPM Coordinator

Tim Weigle, M.S., Fruit IPM Extension Educator

Ken Wise, M.S., Livestock/Field Crops IPM Extension Educator

Mary Woodsen, B.A., Writer and editor

"Your program helped me understand how I can get more feed value per acre."

—farmer who participated in IPM "TAG team" training



Both photos: Nina Bassuk

An IPM makeover story

A top-notch forester in Ithaca, NY uses IPM to keep the city beautiful while protecting its residents and the environment. These before-and-after photos show the results at a downtown park. But how many park visitors appreciate the IPM "rules" behind this makeover?

A grant from a private foundation allowed us to interpret IPM in Conley Park. We partnered with the city and a landscape architect to create educational displays and choose additional plantings to reinforce the IPM message. Along the way, we've consulted with a neighboring nonprofit housing group.

Stroll through Conley Park now and you'll see the new path and plants. The signs will be installed by fall.

We hope these signs will help park visitors understand how IPM works. Maybe some will be inspired to do IPM makeovers of their own yards.

"This project opened my eyes."

—Steve Lockwood, Lockwood Greenhouses, describing an IPM workshop

Working together to s

This Pandora's box may hold the solution for an emerging soybean pest

Soybeans, worth over \$25 million to New York farmers last year, are one of the most valuable up-and-coming crops in the state. That's because they rotate well with other field and vegetable crops and command top prices. And the crop is virtually pest-free—or at least it was.

Three summers ago, soybean aphids invaded New York and now, for the first time, fields are above threshold for pest damage. We and our partners spent many days in the field monitoring these tiny insects this past year. The time was well-spent: we found eight natural enemies that attack them. Two are fungal pathogens that have never been seen on this aphid before. Could any of these fungal diseases or beneficial wasps become part of an IPM strategy to fight soybean aphids? It's likely. One of the diseases, *Pandora neoaphidis*, killed so many aphids that one farmer whose fields were badly infested didn't have to spray; the aphid population crashed on its own, unable to seriously damage this valuable crop.

Project leaders: K. Waldron, J. Losey, A. Hajek

Apple IPM yields big savings

Sex scents (pheromones) tell male insects that females are ready to mate. Flood an orchard with pheromones, and you can confuse the males so badly that mating success plummets there. For several years, pheromone-based strategies have been a major thrust of our fruit IPM research.

Now a major educational effort has been launched in the Lake Ontario fruit belt to help apple growers use these mating disruption strategies more effectively. Much is at stake. Processors can reject an entire truckload of apples if they find just one apple worm. In 2001, New York growers lost nearly \$45,000 on rejected loads. This figure leaped to almost \$200,000 in 2002. But thanks in part to IPM workshops, it's estimated that New York growers forfeited only \$19,000 in 2003. What's worth noting is that of the 30 growers who attended the IPM workshops, only one had apples rejected in 2003—and then only a single load.

Project leader: D. Breth

Tackling tough pests in complex systems

Back in 1995 we designed our vegetable systems trial to look at the economics, efficacy, and environmental impacts of four farming systems: organic, conventional, IPM present, and what we call "IPM future," which is based on new research that has yet to prove itself in the field. But we had another mission too: to discover the long-term impact that each of these systems has on the biological, chemical, and physical properties of the soil.

Unfolding research about these soil factors adds yet more complexity to the overall picture, as their relationships prove more intricate and richly varied than previously thought.

HEALTH EN

solve pest challenges...



Charles Harrington, University Photography

From farm to table

It takes ongoing research and outreach to help growers make the switch to IPM and stay up-to-date with the best practices. This past year, we funded 41 research and outreach projects. Our staff offered 259 presentations and workshops attended by over 12,200 people.

Every year we try something new, such as our first series of newspaper columns featuring IPM landscaping advice. And we, and our partners, try to build on our success.

Below: Cornell researcher Harvey Reissig checks a vial that contains a repellent that may deter apple maggots from laying eggs in the fruit. Their larvae tunnel through the apples as they feed, leaving unsightly trails that also become sites for bacterial decay. Such research helps growers fine-tune their management strategies.

Hands-on field meetings (bottom photo) also help farmers adjust their techniques as the growing season presents them with new pest challenges. Our Tactical Agriculture Teams ("TAG" for short), a partnership between NYS IPM staff and Cooperative Extension educators, have been going strong for 14 years and have been offered throughout the state.



Art Agatello



Mike Stanturf

Now, eight years later, we've been in this long enough to get results. The amount of root disease, for example, is highest in the conventional plots and lowest in the IPM future plots. But sometimes what we see is just plain puzzling. Usually, if soil is rich in microorganisms, we call it healthy. Yet the IPM future plots, which received the same cover crops as the organic plots, had the fewest microorganisms, and thus the lowest level of total biological activity in the soil.

Perhaps our assumptions about the relationship between microbial activity and soil health are too simplistic. Is microbial activity the plant world's equivalent of "good" and "bad" cholesterol?

If you watch your cholesterol, you know that the ratio of "bad" to "good" cholesterol is an important health indicator. But when we measure total biological activity in soil, we're lumping together microorganisms that may be bad (disease-causing) or good (beneficial). The IPM future approach, it seems, may be especially good at reducing the levels of those "bad" microorganisms.

In another vegetable trial using similar methods, IPM staff are working with organic and conventional growers to unravel the relationships between practices such as crop rotation, cover cropping, cultivation methods, pesticide use, and the resulting pest levels and crop yields. Looking at the whole system helps us get a handle on the true costs and benefits of a particular farm practice because each can be understood only as a piece in the puzzle—the "puzzle" being

ENVIRONMENT



Photo A: Julie Stevist

New Yorkers are always looking for trouble

As these IPM scouts know, looking for trouble (scouting or monitoring, as it's called) can help you discover pest problems when they're small and easier to fix. Even better, such vigilance may also expose potential sources of food or shelter for pests, giving you a chance to remove these enticements before the pests invade.

And if you always look for trouble, you may even be able to prevent it. That's one of the benefits of the IPM approach.

Of course, you have to know how to recognize trouble. NYS IPM Program staff, Cornell faculty, and Extension educators are making sure that people all around the state can do that.

In photo A, Keith Waldron, our Livestock/Field crops IPM coordinator, improvises a field laboratory to confirm the presence of cereal rust mite in hay. The sweep net underneath his microscope is a vital tool for scouting in field crops, but as Keith shows, it's handy during the diagnostic stage, too.

Sometimes the culprit is easily identified. Moving clockwise across the two pages, in photo B, Extension educator Joyce Rodler points to evidence that mice are causing the damage in this barn. But you can't become complacent. In photo C, this IPM inspector gives a school kitchen in Buffalo the twice-over to make sure it's safe from roaches, mice, and ants, which are common pests in buildings.

In Yates county, two young boys learn how to scout for insects at their family farm (photo D). Diseases qualify as pests, too, and during a workshop at the North Syracuse school district, groundskeepers learn how to spot fungal cankers on this crab apple (photo E).

In an onion field in Orange County, Extension educator Maire Ullrich checks culls for onion bulb mites that could infest the next crop (photo F).



Photo F: Carrie Koplinka-Loehr

the interaction of a score of factors that include elements as inevitable as the weather.

This trial hasn't been underway quite as long but it's already been an eye-opening experience. For example, we learned that the potato leafhopper, a pest that's particularly difficult to manage using organic practices, causes far more yield loss in potatoes than was originally believed, making it a pest that growers need to watch—and that we'll try to counter. Trials in which we analyze the whole system help us better understand what's really happening, and what really works.

Project leaders (vegetable systems trial): C. Petzoldt, J. Engel, J. Jasinski, R. Hazzard, P. Westgate, T. Blomgren, J. Mishanec; (organic trials): A. Seaman

"Lightbulb" moments lead to IPM adoption

Long Island is one of the most heavily populated areas in the state. Pests are an ever-present problem for the region's scores of communities, and we get calls. This past year, we helped people find safer alternative strategies to deal with fleas at a county airport, pigeons and yellow jackets at elementary schools, mice at a village hall, and even humpbacked flies in a house. And sure, we helped solve those problems and everyone was grateful, but we want more. We responded because a demonstration of IPM solutions often results in a "lightbulb moment" that starts someone down the path to IPM.

Sometimes we can combine these interventions with research and outreach, as we did upstate. At the North Syracuse school district, we're testing a range of IPM and conventional pest management tactics for school grounds. The results of this ongoing study have been shared during dozens of on-site consultations and discussions. (So far, the hottest news is hot water, delivered through a machine that cooks weeds in sidewalks and along fence lines, reducing the need for herbicides.)

IPM outreach off the farm—what we call "community IPM"—has to respond to the diversity of places in which we live and work: everything from town hall archives, golf courses, and skyscrapers to school and nursing home cafeterias is fair game. This is the challenge of community IPM. And here's our *real* job: to persuade 19 million New Yorkers to adopt IPM. It's not going to happen overnight, but with every pest crisis that we solve and every shining demonstration of IPM techniques, we come a little closer.

Project leaders: J. Gangloff-Kaufmann, J. Grant, D. Marvin, L. Braband

Photo E: Debra Marvin



Nutrient program keeps the green in greenhouses

New York's \$185-million floriculture industry ranks 6th in the U.S. That's a lot of plants—and it takes a lot of fertilizer to grow them. But excess fertilizer can give a boost to everything from root rot pathogens to sap-sucking bugs and may even be toxic to the crop itself. And sometimes it poses risks to watersheds or groundwater.



Photo B: Robert Serino

This past year, an IPM nutrient-monitoring program at 15 commercial greenhouses in upstate New York helped growers to discover the complex connections between nutrient load and pest problems. Indeed, high levels of potassium and phosphorous showed up in 71% of the greenhouses at some time during the season, while 93% had temporary deficiencies of boron and copper. Half of the crops received too much fertilizer. Others were deficient; in some cases, a lack of calcium seemed to promote root rots that destroyed hundreds of plants. (More research is needed to clarify this issue.)

Armed with this deeper appreciation of the importance of monitoring and the value of IPM, growers then learned how to use "best management practices." These skills will help them protect their plants, their bottom lines, and the environment. Every single grower completed this demanding project and intends to practice IPM next year.

Project leaders: J. Lamboy, W. Nelson, K. Hall, E. Schillo-Lobdell

Wrap it up to keep beetles out

Sometimes the economic cost of a pest or parasite isn't what you'd think. In the case of the litter beetles that live in the manure in commercial poultry houses, the losses first show up on utility bills. That's because litter beetles like to tunnel up into wallboards and insulation when it's time to pupate (to turn from larvae into adults). Though it may take a few years, they can ultimately destroy most of the insulation in a building—and worse yet, cause serious structural damage.

The heating losses that have been calculated for Georgia and Virginia—\$10 and \$16 million each year—hint at the losses possible in New York. Although our poultry industry isn't quite as large as theirs, winters are much colder here.

Now, building on work first done in Florida, Cornell researchers have verified that Northeastern poultry producers can also dramatically reduce beetle movement

"Jam-packed with information...excellent, I can't emphasize this enough...an amazing bargain..."

—growers who attended an IPM conference on organic vegetable production

Photo D: Judson Reid



Photo C: Lynn Braband



IPM success in cities, suburbs, and farms



Mary Woodson

NYC schools: A+ for IPM

This New York City school is so clean that even the door frames pass the "white glove test," as shown by Ramana Lachana, one of the school system's IPM technicians. Sanitation is a key element in IPM success.

The nation's largest school district—with more than a million students and 1200 buildings—that's Dan Dickerson's workplace. As director of pest control, he's helped the school system reduce its use of pesticides by more than 90% since switching to IPM. Quality's up, too; the number of service calls has dropped by 95%. In fact, the NYC school IPM program served as one of the models for the national IPM STAR® certification standards.

Those are only some of the reasons why we gave Dan Dickerson and his pest control team a 2003 "Excellence in IPM" award.

A longtime partner of the NYS IPM Program, Dan will be sharing his expertise as a peer mentor in a school IPM project that will be piloted in the lower Hudson Valley this year.

To learn about the other outstanding IPM practitioners who received awards this year, see our website at www.nysipm.cornell.edu.

by wrapping the support posts and walls of poultry barns with narrow sheets of mylar plastic. The stuff is so slick that beetle larvae can't climb it to get into the insulation. This barrier prevents about 94 percent of the larvae from reaching their goal.

Project leaders: D. Rutz, P. Kaufman, K. Waldron

Fruit growers take a bite out of paperwork

Because consumers are increasingly concerned about food safety, growers and processors are taking more care to document pesticide use, which makes it easier to trace what was used on a crop, and when. Record keeping is essential to this effort but it's sometimes an onerous chore. Now farmers who once spent hours reentering the same information on forms for different processors can do the job in a fraction of the time, thanks to IPM's *TracApple®* and *TracGrape®* computer programs. This easy-to-use software automatically creates the forms required by each buyer. It also helps growers record their yearly spray history, keep EPA worker protection records up-to-date, and analyze their pest management strategies, all of which are vital to IPM.

Moreover, the *TracApple®* software makes it much easier for growers to meet the new, demanding European record-keeping standards for EUREPGAP certification. Anyone who markets to a country in the European Union must comply or lose the sale. Since New York exports more apples to Europe than any other state in the U.S.—to the tune of \$12 million annually—this market force has muscle.

Project leaders: J. Carroll, T. Weigle

Greenhouse grower finds IPM prescription for thrips headache

Thrips are among the most tenacious pests of commercial greenhouses. These tiny bugs are so fond of flowers that they can destroy an entire crop before the buds barely have a chance to open. Worse yet, they transmit deadly viral plant diseases as they feed.

Laurie Smith of Swanson Florist in Westchester County had been battling thrips the usual way in her 90,000 square feet of greenhouses and growing beds, but a regular insecticide program just wasn't working. Thrips had become her biggest headache. This year, her first with IPM, she found relief in a bottle—full of microscopic predatory mites that love to eat thrips for dinner.

"I had to grit my teeth and trust that the mites would work," Smith says. And work they did. Smith achieved 100% control in her outside beds and about 80% in the

Standing-room only for one of the IPM workshops offered at the Finger Lakes Produce Auction. Extension educator Judson Reid organizes these popular annual workshops; this photo shows a presentation by Abby Seaman, one of our program's Vegetable IPM Extension Educators. Such partnerships strengthen our Extension outreach efforts.



Judson Reid

and rural communities

greenhouses. "I only had to spray once inside during the whole season, where before I sprayed every week or 10 days," she says. "It's been a huge savings in time."

But her highest yields may be in community relations. "My business is across from an elementary school, so my neighbors are 300 kids and their parents," Smith explains. "If I don't have to suit up to spray pesticides, then they don't have to worry."

Project leader: G. Couch



Photo: Mary Woodsen



Photo: Paul Curtis

When wildlife moves in, go by the new book

Deer, mice, starlings, coyotes, and other wild animals cost U.S. farmers and ranchers up to \$1.5 billion in lost crops and livestock each year. That's roughly equivalent to the annual damage caused by collisions between deer and cars, a major problem in suburban and rural areas. But many people don't think of wildlife as pests until there are woodpeckers hammering on the siding or squirrels in the attic driving them stark raving mad. Then they call a wildlife control operator.

This business is booming: the number of licensed operators in New York quadrupled in only fifteen years. Yet our state, along with most others in the Northeast, hasn't had a training program for them. In fact, half of the states in the region also lack regulations for this industry. But with the support of the New York State Department of Environmental Conservation (DEC) and many operators, that changed in 2002, when new legislation mandated training and testing of those seeking a nuisance wildlife control license.

The DEC then partnered with faculty from Cornell's Department of Natural Resources to develop a training manual that promotes IPM solutions to wildlife damage problems. We were invited to join this team early on. Together—and with strong stakeholder involvement—we've created a comprehensive manual, *Best practices for nuisance wildlife control operators*, that's already earning national praise, and is poised to serve as a regional model for the Northeast. IPM is a new idea for many wildlife control professionals. Now, nearly 1500 of them—and, by inference, the tens of thousands of clients they serve—will know how to use IPM techniques to deal with damage caused by our furred, feathered, and scaled friends. To obtain a copy: NYS DEC Special Licenses Unit, 625 Broadway, Albany, NY 12233-4751.

Project leaders: P. Curtis, L. Berchielli, G. Batcheller, J. Shultz, L. Braband

At left, a wildlife control operator injects foam sealant into holes in the trim to keep bats outside. Foam is a good choice for bats because they can't chew through it. Much sturdier materials are required to create barriers that can stand up to bears.

Our community IPM program teaches people better ways to deal with pests in such settings as homes, schools, offices, golf courses, public parks, and libraries.

IPM funded projects:

Agriculture



"A strong leader and a strong partner—that's the NYS IPM Program. IPM helps New York's farmers stay competitive in the world's marketplace, both economically and as good stewards of the land."

Nathan L. Rudgers,
Commissioner,
NYS Department of
Agriculture and Markets

Implementation and demonstration

- Implementing mating disruption control strategies for oriental fruit moth in tree fruit—D. Breth, Lake Ontario Fruit Program
- Integrated pest and crop management TAg teams in Northwestern NY—M. Stanyard, N. Herendeen, N. Glazier, NWNY DL & FC Team
- Where do fungus gnats come from when a greenhouse starts up for spring production after being closed for winter?—J. Wisbeski, CCE-Orange Cty.
- Increasing use of native plants and powdery mildew-resistant plants for NY gardens—M. Daughtrey, Plant Path., Riverhead; J. Lamboy, NYS IPM
- IPM demonstration and implementation plan for Christmas tree growers—S. Mallozzi, CCE-Dutchess Cty.; G. Couch, NYS IPM
- *Branching Out*, an IPM newsletter for Christmas tree farmers, nurserymen, and landscape managers—G. Hudler, Plant Path., Ithaca
- Greenhouse nutrient solutions for poinsettias—W. Nelson, CCE-Chemung Cty.; Karen Hall, CCE-Erie Cty.; E. Lobdell, IPM consultant; J. Lamboy, NYS IPM
- Development of weed management and IPM resources for cut zinnias, from seed to harvest—J. Lamboy, NYS IPM; Karen Hall, CCE-Erie Cty.; R. McCoy, Lilies of the Field, West Falls; N. Call, Flower Fields, Elba
- Using NEWA internet resources to increase use of onion IPM—C. MacNeil, J. Gibbons, Ontario/Wayne/Yates/Steuben Counties Veg. Program (J. Gibbons also with NYS IPM)
- Implementation of an insecticide resistance management strategy for onion thrips on onions—A. Shelton, B. Nault, J. Plate, J. Zhao, Ent., Geneva
- Providing growers local information on QoI fungicide resistance to guide fungicide selection for cucurbit powdery mildew—M. McGrath, Plant Path., Riverhead; C. MacNeil, Ontario/Wayne/Yates/Steuben Counties Veg. Program; A. Erb, Lake Plains Veg. Program; T. Blomgren, C. Bornt, Capital Dist. Veg. Program
- Overcoming barriers to success in reduced-tillage pumpkin production: Implementing effective plant establishment and weed management strategies—C. Bornt, Capital Dist. Veg. Program
- IPM strategies for pumpkins and winter squashes grown using intensive plasticulture techniques—T. Blomgren, Capital Dist. Veg. Program
- Implementing a management program for *Sclerotinia sclerotiorum* in snap beans—A. McFaul, C. Hoepting, A. Erb, Lake Plains Veg. Program
- Western NY sweet corn pheromone trap network—A. Seaman, NYS IPM
- Trials for the evaluation of IPM procedures to control insects on early season sweet corn—J. Mishanec, NYS IPM

Research and development

- Development of an improved, integrated management program for the internal lepidoptera pest complex attacking apples in Western NY—H. Reissig, A. Agnello, J. Nyrop, Ent., Geneva
- An organic apple production system for NY—T. Robinson, Hort. Sci., Geneva; A. Agnello, Ent., Geneva; I. Merwin, Hort., Ithaca; H. Reissig, Ent., Geneva; D. Rosenberger, Plant Path., Highland; J. Schupp, Hort. Sci., Highland
- Development of a risk assessment model for mirid bug damage on apples—A. Agnello, Ent., Geneva; A. Lakso, Hort. Sci., Geneva; D. Kain, Ent., Geneva
- Determining potential of crop residue in diverse production systems to increase strawberry sap beetle populations in strawberry fields—G. English-Loeb, R. Loughner, Ent., Geneva
- Developing damage- and economic thresholds for foliar disease management in perennial plantings of strawberry—W. Turecek, Plant Path., Geneva; M. Pritts, Hort., Ithaca
- Evaluation of strawberry nursery stock for the presence of anthracnose and angular leaf spot—W. Turecek, Plant Path., Geneva

- Development of a beetle parasitoid for management of face flies—D. Rutz, P. Kaufman, Ent., Ithaca; J. Waldron, NYS IPM
- Evaluation of two parasitoids in dairy calf greenhouses—D. Rutz, P. Kaufman, Ent., Ithaca; J. Waldron, NYS IPM
- Roughstalk bluegrass suppression in alfalfa/grass seedings—R. Hahn, Crop & Soil Sci., Ithaca
- Improved transect sampling to enhance efficiency of corn rootworm monitoring—J. Losey, L. Allee, Ent., Ithaca; J. Waldron, NYS IPM
- Evaluation of a potato leafhopper (PLH) resistant alfalfa cultivar effects on PLH injury in alfalfa: grass mixed stands with and without insecticide—J. Waldron, NYS IPM; E. Shields, Ent., Ithaca; J. Hansen, D. Vians, Plant Breed.& Genetics, Ithaca
- Choosing the best refuge hybrids for planting with corn rootworm resistant Bt corn—M. Smith, R. Ericson, Plant Breed. & Genetics, Ithaca
- Integrated management of soilborne viruses threatening winter wheat—G. Bergstrom, Plant Path., Ithaca; M. Sorrells, Plant Breed.& Genetics, Ithaca; S. Gray, Plant Path., Ithaca
- Breeding cabbage for resistance to Black Rot (*Xanthomonas campestris*)—P. Griffiths, Hort. Sci., Geneva
- Development of Bt collard as a trap crop for cabbage—E. Earle, Plant Breed. & Genetics, Ithaca
- Assessing virus resistance in NY grown potato varieties and breeding lines: Disease resistance as an integral part of pest management—K. Perry, Plant Path., Ithaca
- Evaluation of “green manure” rotational strategies for potatoes in upstate New York—J. Mishanec, NYS IPM
- Evaluation of composts for managing *Phytophthora capsici*—D. Moyer, CCE-Suffolk Cty.; A. Rangarajan, Hort., Ithaca; M. McGrath, Plant Path., Riverhead
- Developing a management program for powdery mildew in winter squashes with resistant varieties—M. McGrath, Plant Path., Riverhead
- Nonchemical control of root diseases in greenhouse-grown cucumbers—J. Reid, CCE-Yates Cty.
- Monitoring populations of aphids and leafhoppers in snap bean fields in Western NY—A. McFaull, C. Hoepting, Lake Plains Veg. Program
- A new approach for detecting insecticide resistance in onion maggot populations—B. Nault, J. Nyrop, A. Shelton, Ent., Geneva; R. Straub, Ent., Highland
- Evaluation of fall planted cover crops on muck soils—J. Mishanec, NYS IPM
- Evaluation of hemlocks for resistance to hemlock woolly adelgid—P. Weston, Ent., Ithaca
- Evaluation and utilization of allelopathic *Festuca rubra* turfgrass cultivars for alternative weed management strategies—L. Weston, Hort., Ithaca



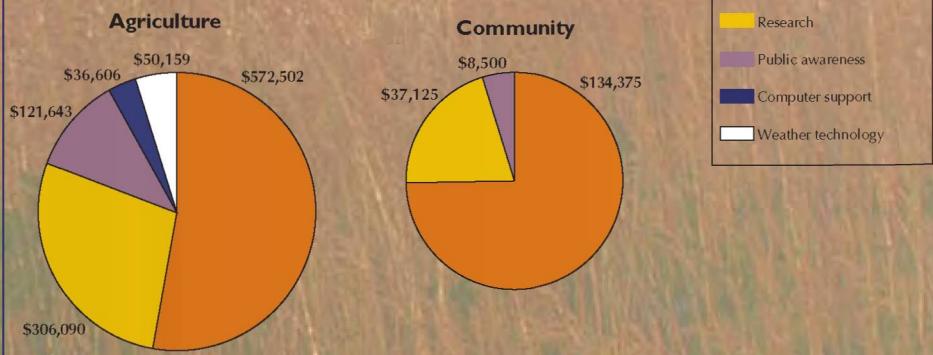
“What are the best ways to deal with pests in the home, the community, and the workplace? Turn to the NYS IPM Program for sensible, environmentally sensitive solutions to pest problems.”

Erin M. Crotty,
Commissioner,
NYS Department of
Environmental Conservation

Community

We were unable to award Community IPM grants this year.

Distribution of funds for the NYS IPM Program, 2003–2004



CORNELL

Cooperative Extension

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Funding opportunities:
[www.nysipm.cornell.edu/
grantspgm/](http://www.nysipm.cornell.edu/grantspgm/)

"You listen to real farmers' issues."

—farmer talking about an IPM field workshop

New York State IPM Program

We partner with many others to develop and deliver sustainable ways to manage pests that are economical and pose minimal risks to human health and the environment. How?

RESEARCH: The NYS Integrated Pest Management Program provides funds to scientists, Cooperative Extension field staff, growers, pest managers, and others, who, along with our staff, develop and test IPM methods.

EDUCATION: Our staff joins with other Extension educators, growers, university faculty, schools, municipal governments, and private pest managers to develop workshops, manuals, websites, teaching modules, hotlines, diagnostic services, brochures, presentations, and demonstrations on a wide range of IPM topics.

IMPLEMENTATION: We help growers, schools, and municipalities train their staffs, craft and implement IPM policies, and solve existing pest problems. We support consultants, Extension staff, and volunteers who provide IPM information to the public. And we sponsor pest alerts and weather forecasting services to provide timely, local information for growers and pest managers.



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