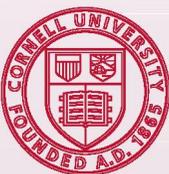


New York State  
**Integrated Pest Management**  
Program

*The year in review*

2010—2011



Cornell University  
Cooperative Extension





## Director's Message

How do I even begin to say “Thank You” for all that you have done for the NYS IPM Program in this, my final message to you as Program Director? The NYS IPM Program has been an integral and most rewarding part of my 31 year career at Cornell, from providing me with the exceptional opportunity, in the early 1980s, to serve on Dean Call’s “Plaisted Committee” which originally proposed the Program’s structure, to serving on its operating committee for many years, and last—undoubtedly my most rewarding administrative appointment at Cornell—serving as your director. Drs. Jennifer Grant and Curtis Petzoldt, my outstanding assistant directors, take the helm in 2012 and the NYS IPM Program will indeed be in stellar and most experienced hands.

Biased as I am, I believe that your NYS IPM Program is the best and most comprehensive program of its kind in the U.S. That’s largely because of the exceptionally talented IPM team that you have come to know, respect and consistently rely on for timely and effective help with your pest management problems. I want to extend my most sincere and heartfelt “Thank You” to this team for their outstanding dedication, professionalism and optimism during my six-year appointment as director.

It is also imperative to mention that the NYS IPM Program would not be in existence today without the herculean support of all of you, our stakeholders, our state regulators and legislators, our public health and environmental advocacy groups and Cornell’s College of Agriculture and Life Sciences administrators and faculty. You all have been outstanding—both in your support of the program, as well as by providing your most valuable input on its direction. The NYS IPM Program is indeed *your program*—and because of your exceptional efforts, a most outstanding one at that.

It has been an absolute honor and a tremendous privilege for me to serve as your director and to get to know so many of you personally. My most sincere thanks for your never-ending support and your wonderful and extremely valued friendship over the years. I wish you all the very best as your NYS IPM Program advances into the future.

Don Rutz, Director  
New York State IPM Program

*Front cover:* Those butter-yellow mountain ash sawflies usually aren’t a major pest, but now and then they break out big-time. And when they do, they can strip nearly every leaf from a mountain ash tree.

# Highlights of 2010–2011

## IPM Makes Greenhouses Safer for Staff—and Consumers

Techni-Growers Greenhouses used to spray every week or two, right through Christmas, to deal with difficult greenhouse pests. But pesticides are expensive, says owner Deborah Sweeton.

“Because of New York’s IPM program, I have reduced my costs and the amount of chemicals we use at our production facility. Now we spot-spray about three times a year,” Sweeton says.

“We’ve saved thousands of dollars.

“The icing on the cake—we no longer use chemicals in our retail location, making it a safer environment for our customers.”

### Growers in the know:

When growers like Deborah Sweeton (above right, in blue shirt) offer their land for experimental trials like this weed-suppressive groundcover research, it boosts the credibility factor among other growers. Staff at retail garden centers like Sweeton’s (right) pass on what they’ve learned to their customers, helping customers decide which plants will do best in their settings.



## Our Partners



“The New York State Integrated Pest Management Program provides real economic benefit by lowering costs to farmers. Reducing pesticide use benefits our environment. But it also improves the competitiveness of New York agriculture by lowering costs on the farm while protecting agriculture by combating new and emerging pest threats. In addition, the NYS IPM Program goes well beyond agriculture, helping reduce pesticide use in our communities.”

Commissioner Darrel J. Aubertine, New York State Department of Agriculture and Markets



“Integrated pest management provides an essential set of tools that can monitor, prevent, and control pests in New York. The NYS IPM Program’s demonstration projects and educational resources are effectively reaching the agricultural and community sectors and include important efforts to promote IPM to schools, homes, workplaces, and those seeking to reduce conventional pesticide use.”

Commissioner Joe Martens, New York State Department of Environmental Conservation

## Pruning Right Fights Dread Disease

Bacterial canker can take hold in cherry trees when storms snap branches, when severe spring frosts kill emerging buds, via “leaf scars” left as leaves drop each fall—or through pruning cuts.

The most common remedy: copper-based sprays. But as they searched for solutions, Cornell scientists found that copper provided little-to-no protection.

Turns out the best solution is—pruning. Researchers found that “stub cuts” about six inches long consistently stop bacterial canker. Cuts made soon after harvest afford the best protection. Yet even if you prune in March, bacterial canker will most likely run out of steam in the stub before it reaches the main branch or trunk. Just leave that six-inch stub.

The key change is pruning after harvest, since nearly all growers prune in early spring just before trees leaf out. The other key change—don’t spray copper before and after pruning.

Project leaders: J. Carroll, T. Burr, T. Robinson, S. Hoying



### **This bacterium's a bummer:**

Young trees are at highest risk of bacterial canker. But young trees must be pruned and shaped to produce fat, juicy cherries. Turns out a stubby pruning cut follows that old adage—prevention is the best cure.



## In IPM, Right ID is Step #1

Minus a high-protein diet, females of most fly species are doomed: they can't lay eggs. Blood, saliva, even tears—all are great protein sources. No wonder livestock are so attractive to flies.

Flies that bug livestock in the barn or on pasture also bug a farmer's bottom line. A dozen face flies pestering a dairy cow can cut her grazing time by an hour. The consequences show up in the bulk tank.

With scores of fly species out there, it's hard to tell one from the next. Yet in IPM, "know the enemy" is step #1 for dealing with pests. So we created the entomological equivalent of a police lineup—a batch of display boxes for Extension educators to use at twilight field schools. Companion loaner kits also demo the tools of the trade—traps, lures, and the like—so farmers can match problem with solution.

Project leaders: D. Rutz, J. K. Waldron



**A fitting name given their job:** Dung beetles help make short work of the cow patties that make such ideal fly nurseries. Here we have *Aphodius omissus omissus*.



**Fight the bite:** Not only do flies, lice, and other pests distract cattle while they're trying to graze, they reduce how efficiently cows convert feed to milk. Conservative estimates have these critters costing roughly \$29 million in profits each year. Traps like these can make a serious dent in pest populations.

## The Good-Nighbor Policy ... Good for Vineyard Businesses Too

“Your own little place in the country....” For some, that translates to “your own little vineyard and winery.” But startups are costly. Newcomers often rely on off-farm jobs during those first years. Yet these formative years are when newcomers should be out connecting with experienced growers and attending Cornell Cooperative Extension events, such as coffee pot meetings, to gain education, up-to-date IPM information, and a seasoned perspective.

Reaching new audiences to ensure a sustainable path to profitability while placing critical information in the hands of seasoned growers means blending electronic delivery with farmer discourse at weekly, farm-hosted, Extension meetings featuring:

- mobile computer labs for hands-on use of grape IPM forecasting and record-keeping tools
- “clickers” that gather anonymous polls of audience needs for IPM resources or support
- video clips on YouTube covering scouting techniques, pruning, winter injury and more
- e-newsletters accessible anytime, anywhere on the web
- websites specifically for new growers.

This approach ensures access to research-based, time-sensitive IPM information delivered to a clientele that’s as varied as it is geographically spread.

Project leader: T. Weigle

**Good neighbors make good teachers:** The coffee can wait—right now early pest signs and symptoms, and the IPM strategies to combat them, are most on these growers’ minds. When everyone has access to the same information and the same capacity to make a premium product, it boosts everyone’s reputation—which is critical in this business.



## Vivid With Video

“Acquire new skills”: that’s the mantra in a wired world. But who would have thought the wired world had so much to offer that traditional and superbly effective teaching method, *show and tell*?

Short, well-crafted video can show hands-on skills and foundational concepts much better than standard extension fact sheets do. By using online video sites or video embedded in slide presentations, you can bring new knowledge in an easy-to-learn format to audiences ranging from winter grower schools to train-the-trainer sessions to consumers, potentially reaching thousands—even more. But (and it’s a big “but”) shooting good video takes time. Effort. Skill.

We brought 10 IPM educators together to review the top-10 disease problems in a top-notch display garden. That was the easy part. Because next, these educators had to shoot good video on how to cope with plant diseases, then upload their clips online. That “shoot good video” part is tricky. Choosing your angle and framing your subject, keeping your camera hand steady, adding voice-over and audio, incorporating or extracting stills—there’s a learning curve.

And learn they did. Video helps educators bring the outdoors in, or transport their audience outside—no matter who or where their audience is, or how large or small. Say it with video, and you’ve definitely ramped up your ability to help others acquire new skills.

Project leaders: M. Daughtery, B. Eshenaur, E. Lamb



**Up close and personal:** Think of your viewer as being right there with you. And when the topic is basically all about beauty—how to protect beautiful trees, beautiful flowers, beautiful homes—you’ve got a topic ready-made for video. (*Photo is a composite.*)

# Community

## Practice Makes Perfect

Parents, school administrators, grounds managers—all care about children’s safety. And kids spend a lot of time on playgrounds, baseball fields, and the like.

Now New York has banned all but a few approved pesticides on school and daycare turf. Not every district is prepared for the switch. Our IPM program knows least-toxic turf care inside-out, so we know how to help. We network with hundreds of schools, helping them practice good IPM. For turf, it’s all about “back to basics”: Overseeding early and often. Good fertility. Mowing as high as the grass and sport will allow. Investing in irrigation for high-priority fields. And—a toughie—putting a cap on field use, since pounding feet leave bare ground and provoke weeds.

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

**Weeds and bare spots make for slick footing for kids.** But back-to-basics care helps schools earn high scores *without* factoring pesticides into the equation.



## Bed Bugs: Where We Go, They Go Also

**Look closely now:** Correct ID is always the first step with any pesky pest. Bed bugs are different shapes, colors, or sizes depending on how old they are and whether they’ve just molted—or enjoyed a feast.



Bed bugs are on the comeback trail, with outposts in all 50 states. While big cities are the logical place for infestations to begin, bed bugs are great hitchhikers and can gain traction anywhere. IPM plays a crucial role in slowing this pest. We chaired New York City’s Bed Bug Advisory Board, helping craft containment policies and outreach portals. We’ve been equally engaged with the Nassau County Bed Bug Task Force, working with tenant associations to inspect apartment dwellings and organizing “bed bug summits” that bring neighbors together to learn the whys and hows of bed bug IPM.



# IPM Focus

## Top Form. Low Impact. Coming Soon to a Golf Course Near You

Few landscapes endure more stress than golf-course putting greens. Many host 50,000 rounds each year—and are mowed just a hair over a tenth of an inch high. So try keeping those greens in top form with low-impact grounds-care practices.

We can and we do. Which is why golf course managers worldwide are following our groundbreaking IPM research at Bethpage State Park on Long Island, now a decade in the making. We've tested real-world science in the real-world setting of a high-use public golf course during some very difficult seasons, examining what it takes under wide-ranging conditions to reduce, *steeply*, the environmental impact of pesticides—despite budgetary constraints.

Define *steeply*? As much as 96 percent for pesticides; 50 percent for fertilizers.

Our experiment has expanded to fairways, tees, and roughs while providing year-round training and support for superintendents and maintenance crews at all of New York's 29 state-park golf courses, from Montauk to Niagara Falls. Now these practices are ready for prime time. Our 98-page reduced-chemical course-care manual (in English and Spanish) and the presentations we give are spreading the word across New York and beyond.

Project leaders: J. Grant, F. Rossi, R. Portmess, A. Wilson, K. Wegman, D. Catalano, K. Cassidy



**Good vibrations:** Vibratory rollers like this help cut back on pesticides. After top-dressing with sand, this machine shakes the sand down around the plant crowns, protecting them, while its rollers smooth the grass for a faster putting surface. Results? #1: Grass can be cut higher and less often. #2: Healthier, happier grass resists diseases better. #3. Fewer fungicides!

**They aren't everywhere, but they can be anywhere:** Bed bugs can set up shop wherever we are—cruise ships, theaters, hotels, dorms, high-rises—or home sweet home.





## Put Your Fields to the EIQ Test

At 20 years and going strong, IPM's "Environmental Impact Quotient," or EIQ, is used by colleagues on five continents. While there have been nearly 300 scientific citations of the EIQ in scholarly journals, the EIQ is also used by farmers, consultants and grounds crews to choose least-toxic treatments for crops and landscapes—treatments that take the health of wildlife, farmworkers, and watersheds into account. Ten thousand printed copies of the original paper were distributed and the online page views average 10,000 each year. EIQ theory and practice is used in many university classrooms and in training both by federal and state regulatory agencies and nonprofits.

The latest addition: an online calculator makes it easier to calculate field-use EIQs and convert across measurement units. When new data or pesticides come on the scene, the IPM Program collaborates with The Ohio State University to update our entries. We now have EIQ values for nearly 500 pesticides, giving users scientific information on management strategies that are softest on the environment.

Project leaders: J. Kovach (OSU), C. Petzoldt, and J. Grant

### EIQ Calculator

**Step 1:**

Select First Letter of Active Ingredient

Select Active Ingredient

**Step 2:** %AI (the value must be >0 and <=100)

**Step 3:** Rate of Application:

Select a Volume/Mass:

- lb
- oz
- pint
- g
- kg
- fl oz
- gal
- ml
- liter

Select an Area:

- Acre
- 1000 ft. sq.
- 100 m. sq.
- Hectacre

**Easy as 1-2-3:** Three steps is all it takes to calculate EIQs for a range of scenarios, to choose the best and safest for your setting.

You can find the EIQ Calculator linked from this page: [www.nysipm.cornell.edu/publications/eiq/](http://www.nysipm.cornell.edu/publications/eiq/)

## Acid Spray (Almost) Passes Acid Test

When weed pressure spikes, pepper production tanks. Coping with weeds is especially tough for organic growers. The typical scenario has peppers grown in a black plastic mulch. Strips between rows are cultivated or hand weeded. But cultivation can tear plastic. Hand weeding is costly. Both bring weed seeds to the soil surface, where they sprout.

What if you could do away with plastic, cultivating, and weeding? High-strength vinegar kills many young annual weeds. The drawback? Vinegar plays no favorites. So Cornell researchers tested how to protect pepper plants from vinegar, even as vinegar walloped the weeds. They built a sprayer that kept vinegar off leaves. They protected stems by coating some with linseed oil, others with clay-based paint.

Long story short—neither method worked. Still, the plots produced a crop of good news. Vinegar provided the same control relative to hand-weeding. Two weeks later, 75 percent fewer weeds had sprouted. And season-long weeding time was 70 percent less.

Project leader: R. Bellinder



**Different crop, same idea:** Keep refining the equipment and the technique until you get great weed suppression using high-octane vinegar—without damaging your plants.

## Branching Out Branches Out

For 16 years, landscape professionals, Christmas tree growers, and educators have relied on *Branching Out: An IPM Newsletter for Trees and Shrubs* for accurate, timely news, data, and scouting reports on pests new and old—and for great feature articles on critical industry issues, features that go beyond the typical fact sheet. How? These features explore and explain the IPM concepts central to the range of tactics for dealing with a pest—as well as conditions that look like pests caused them, but didn't.

Now the authors are updating the 160 features from those newsletters and putting them between the covers of one book. A table of contents and index direct readers to the information they need, while full-color photos replace most illustrations.

No more shuffling through the old copies stacked at the bottom of the bookcase—the vital information for coping with the most important issues you're likely to face will be at your fingertips. An online version will allow for easy revisions, additions—and even links to info-packed YouTube videos.

Project leaders: G. Hudler, D. Dailey O'Brien

**In the top 20—again.** IPM's cedar apple rust fact sheet is a consistent runner in the "most downloaded" category on our website, so we know this disease is on people's minds. But admittedly fact sheets are a bit dry. *Best of Branching Out* invites readers into an illustrated conversation—a marvelous mix of *in-depth* and *easy access* that's characterized *Branching Out* these past 16 years.





**Bait-and-switch? Not here!** Once striped cucumber beetles have settled in to feast on fast-growing “Black Beauty” zucchini, they mostly don’t bother with anything less.

## Trap-Crop Trickery

Striped cucumber beetles are among the most serious pests organic vegetable farmers face. Plus they can transmit bacterial wilt, often fatal. Conventional growers can plant rows of attractive varieties (“perimeter trap crops”) to distract the mob from the main crop; spraying the trap crop then kills the pests. But organic growers can’t use this tactic because no organically approved pesticide works well on striped cucumber beetle.

Cornell researchers tweaked this technique by planting a zucchini trap crop, highly attractive to this glutton, around each future-cuke plot. A week later they transplanted cukes, then sprayed on a clay mix to make them even less tempting. Giving zucchini a head start was like yelling “Hey guys! Over here!”—with the main crop in plain sight.

Results? Nine of 10 beetle adults stayed with the zucchini. And rototilling the zucchini midway through the season destroyed many eggs and larvae in the root zone—a reduction that meant fewer late-season adults persisted into the next year.

Project leaders: A. Seaman, J. Gardner, S. Pitcher, M. Hoffmann



Striped cucumber beetle,  
*Acalymma vittatum*

## TAg. Small Word, Big Impact

Soybean acreage jumped nearly 20 percent in New York this past year. Soybeans are still an up-and-coming crop here because of low pest pressure, high yields, stable prices, and all-around versatility. Growers want to keep it that way, and so do we.

Taught by our IPM specialists and Extension educators, intensive monthly soybean IPM TAg (short for Tactical Agriculture) workshops reached 38 participants at field schools in six counties during 2010.

Does that sound like a small crowd? It's intentional. Those 38 participants held the fate of 11,215 acres in their hands. Each year we've run soybean TAg teams, we've added to a running total of knowledgeable IPM soybean growers: now 148 on 39,165 acres and counting.

Research shows that growers learning from each other in their own fields with their hands in the dirt—literally—retain way more information. Plus in the best “each one teach one” tradition, these growers can promote sound, sensible agronomic practices in their agricultural communities.

Project leaders: K. Wise, J. K. Waldron



**The world is your classroom:** On the table before you or in the field behind you, a wealth of observations abound. The impact of such a great education? Fewer or softer pesticides—better for beneficial organisms—and, ultimately, for us.



**King Queen of the road:** Dairy is big in New York, a traditional stronghold for Bessie and her kin. In fact, New York ranks third in milk production nationwide, producing nearly 13 billion pounds of milk a year. That's why keeping 2.5 million acres for hay and silage and 955 thousand acres of pasture productive—while keeping the watersheds they're part of safe—matters so much.

## 2010 Projects

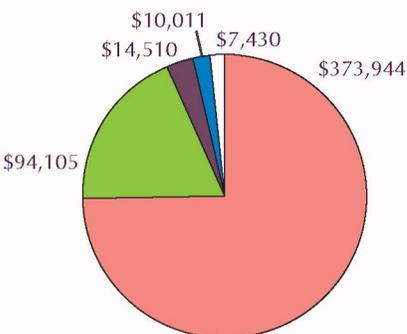
Please see [www.nysipm.cornell.edu/grantspgm/projects/proj10](http://www.nysipm.cornell.edu/grantspgm/projects/proj10) for reports on these projects. All projects were partially or fully funded by the New York State IPM Program. We leveraged additional funds from outside sources. Unless otherwise noted, departments listed are part of Cornell University.

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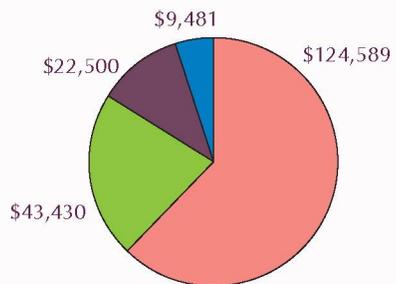
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## Distribution of funds for the NYS IPM Program, 2010 - 2011

**AGRICULTURE**



**COMMUNITY**



■ Implementation, Education and Demonstration  
■ Environmental Monitoring and Pest Forecasting

■ Development of IPM Strategies and Tactics  
■ Computer/Internet Resources  
■ Communications



**Cedar quince rust is pretty—at first.** But later, infected hawthorn or shadbush fruits swell, then shrivel. Sometimes it girdles the branches too. But while this rust isn't a killer on hawthorn and shadbush, it can be lethal to junipers.

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**We develop sustainable ways to manage pests, helping people use methods that minimize environmental, health, and economic risks.**