

INTEGRATED PEST MANAGEMENT

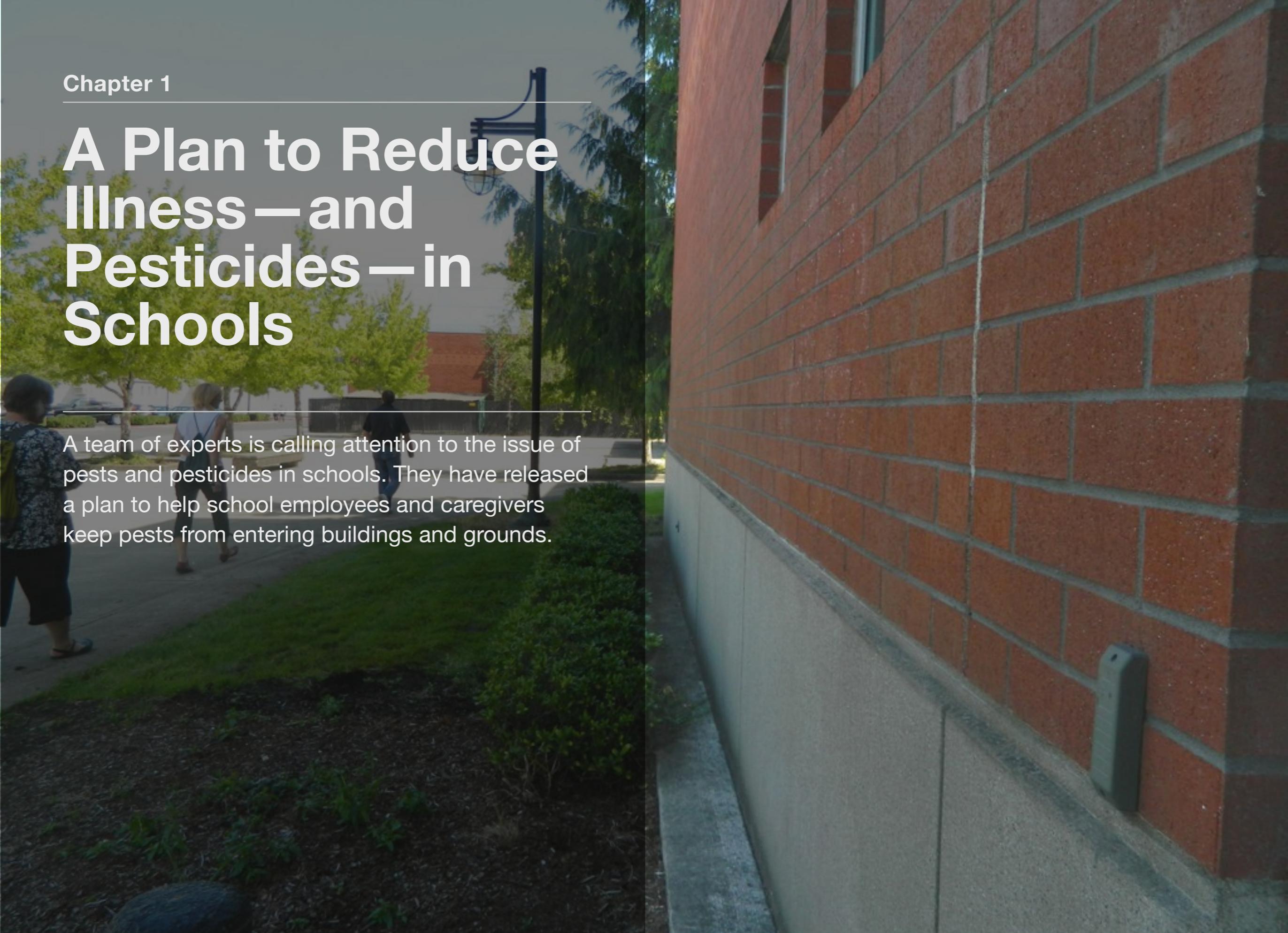
insights

Spring 2014
Northeastern IPM Center

Chapter 1

A Plan to Reduce Illness — and Pesticides — in Schools

A team of experts is calling attention to the issue of pests and pesticides in schools. They have released a plan to help school employees and caregivers keep pests from entering buildings and grounds.



A Plan to Reduce Illness – and Pesticides – in Schools

PEST DEFENSE

A concrete barrier around the perimeter of a school building prevents vegetation from touching the structure, denying a source of harborage to pests. Source: IPM Institute of North America.

In the last decade, studies have shown that if pests such as mice and roaches get established on school premises, they can lead to serious, long-term health issues and performance problems in children. School officials, meanwhile, face increasing requests from community members to consider environmental and health impacts associated with pesticides used in and around schools.

“I’ve worked on this program in schools for over eight years,” said Lynn Rose, an environmental consultant and a member of the Northeast School Integrated Pest Management (IPM) Working Group. “Now we’ve distilled the best of our knowledge into a free, downloadable management and operations plan that anyone can set up in schools.”

THE PLAN

The plan is an environmental management system based on ISO 14000, an industry standard for managing environmental issues within organizations. The Northeastern IPM Center at Cornell University funded the working group and the development of the plan. Officials can customize and enhance the plan to suit their individual needs. It could be set up at the school building level or at the district level. Rose envisions that people who want to make schools safer will become champions of the plan.

DETERRENCE

At its most basic, a management and operations plan gives school personnel a standard set of protocols to manage pest issues before they develop into a crisis.

A facilities manager could take steps such as weather-stripping doors, installing screens, and keeping surfaces clean. These activities can prevent pest entry, eliminate allergic reactions to stinging insects, discourage roaches, improve air quality, and reduce asthma.

“Often, school employees depend on hazardous products instead of prevention,” said Carol Westinghouse, president of Informed Green Solutions—an environmental advisory non-profit organization—and the co-chair of the Northeast School IPM Working Group.

IPM REDUCES PESTS AND HEALTH PROBLEMS

A national study of 937 children conducted by the Inner-City Asthma Study Group led by Wayne Morgan and published in the New England Journal of Medicine in 2004 evaluated the effectiveness of environmental interventions in the home. Both cockroach and dust-mite allergens were dramatically reduced using IPM practices.

OPPORTUNITIES FOR PESTS

“If the school community is not aware of IPM, custodial staff can find themselves burdened with managing pest problems, when it should not be their responsibility alone. It needs to be a team effort, supported by administrators and the school community,” said Rose.

To download the plan:

<http://www.northeastipm.org/ipm-emp>

Sheep and Goat Farmers Could Block Parasites

By adopting IPM strategies farmers can reduce the impact of internal parasites in sheep and goats and take advantage of valuable New England pastureland to grow their industry.



Sheep and Goat Farmers Could Block Parasites

SHEEP

Source: Perry Rech, USDA Agricultural Research Service, Bugwood.org

So says the New England Small Ruminant IPM Working Group, directed by Jennifer Hashley of the New Entry Sustainable Farming Project at Tufts University, Rosario Delgado-Lecaroz of County Veterinarian Services, and Samuel W. Anderson of New Entry Sustainable Farming Project. The working group, supported by the Northeastern IPM Center, consists of 10 members, among them sheep and goat farmers, farm service providers, scientists, extension experts, veterinarians, and non-profit organization members.

The working group has studied the use of IPM practices with small ruminant farmers. They surveyed 165 sheep and goat farmers to determine the most pressing animal health challenges and determined that they were, in order, internal parasites, foot rot/scald, mastitis, external parasites, and predation.

From the survey, the working group found that many producers have adopted FAMACHA, a diagnostic tool to help farmers identify parasite infection in small ruminants. However, other important IPM strategies for internal parasite management, such as fecal egg counts and selecting for parasite-resistant animals, have not yet been widely used. If these practices are embraced by a greater number of small ruminant farmers, there would almost certainly be a decrease in the number and severity of present challenges.

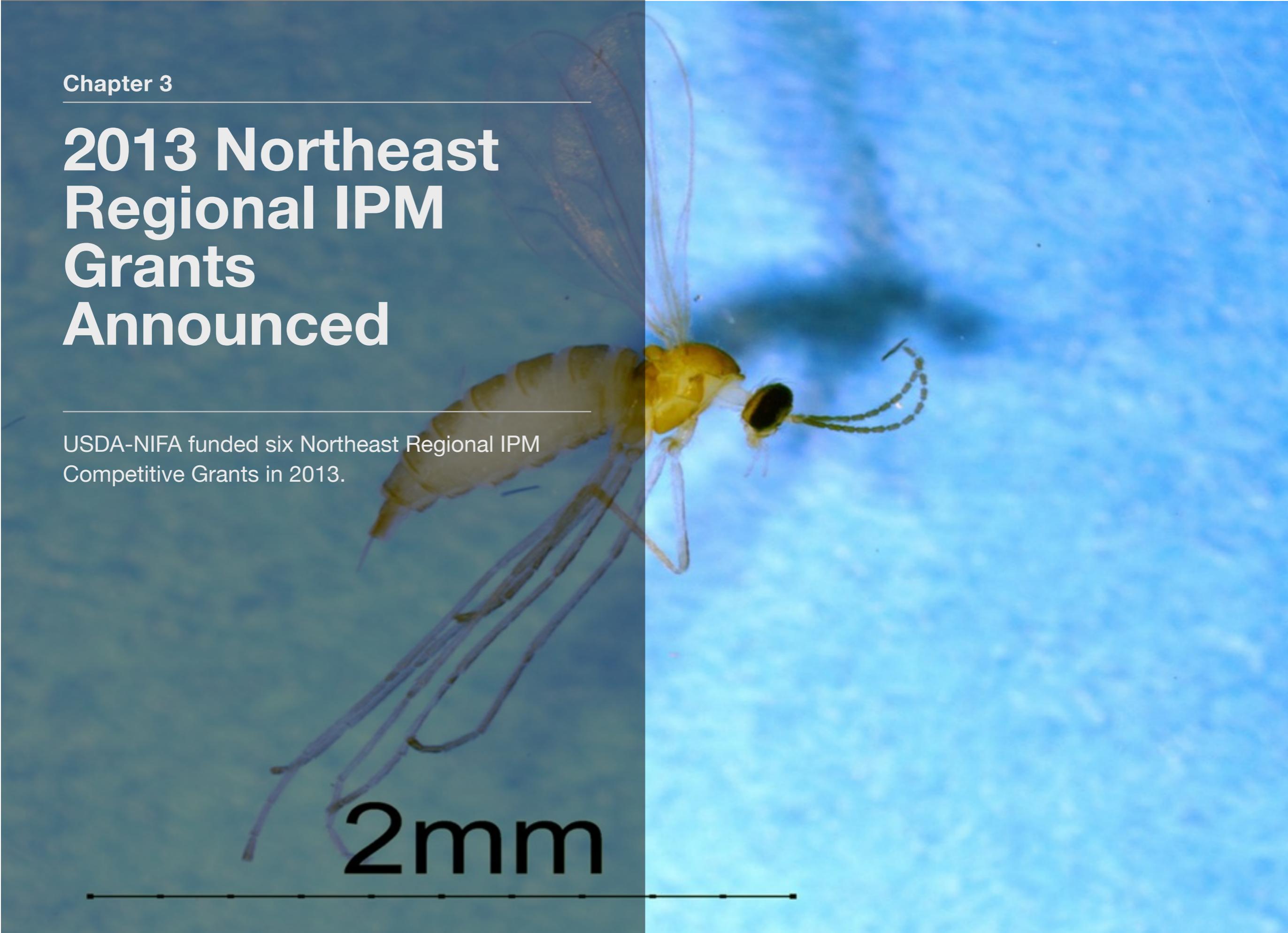
Another issue faced by small ruminant farmers is whether or not the animals should be allowed to graze in the field. “A common phrase uttered by New England veterinarians,” say the authors, “is if you don’t want to deal with internal parasites, don’t raise your sheep or goats on pasture.” While eliminating grazing on pasture does stop the spread of the parasite *Haemonchus contortus*, this approach requires feed to be brought to the animals from elsewhere.

Yet New England has a great deal of land that is well-suited for pasture. “Making use of this land,” say the authors, “rather than growing and transporting feed, greatly reduces the environmental impact of raising sheep or goats; and in many cases, pasture production would be far less feasible without the use of IPM strategies to manage *H. contortus*.”

Chapter 3

2013 Northeast Regional IPM Grants Announced

USDA-NIFA funded six Northeast Regional IPM
Competitive Grants in 2013.



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2013 Northeast Regional IPM Grants Announced

SWEDE MIDGE

Source: Susan Ellis, USDA APHIS PPQ,
Bugwood.org

Developing a Sustainable Pest Management Program for the Invasive Swede Midge in Brassica Crops, Yolanda Chen, University of Vermont, \$83,175.

Reducing Insecticide Use and Labor through Precision Bed Bug IPM, Changlu Wang, Rutgers University, \$60,000.

Overcoming Slugs in No-Till Crop Fields with Cover Crops and Arthropod Predators, John Tooker, Penn State University, \$60,000.

A Novel Attract-and-Kill Approach for Managing the Invasive Pest Spotted Wing Drosophila in Multiple Small Fruit Crops, Cesar Rodriguez-Saona, Rutgers University, \$175,000.

Development and Optimization of Solid-Set Canopy Delivery Systems for Resource Efficient, Ecologically Sustainable Apple Production, Arthur M. Agnello, Cornell University, \$60,000.

Developing Economic and Ecological Sustainable Pest Management Practices, Cerruti R.R. Hooks, University of Maryland, \$83,058.

Videos Teach Growers about Stink Bug Threat

“This bug was in every field that I own,” says Nathan Milburn, an orchard grower in Elkton, Maryland.



Videos Teach Growers about Stink Bug Threat

STINK BUG DEFENDERS

Videos at StopBMSB.org show how to monitor for damage and infestations. Source: James Monahan, Northeastern IPM Center.

“In the border areas, near the woods, we saw significant damage of 30 and 40 percent, maybe even 50. That was a scary thing to see. As much work as we could do to try to protect our crop, we were still seeing damage with fly in, because these guys could fly far.”

Growers discuss these challenges in the recent video series, “Tracking the Brown Marmorated Stink Bug,” available for free on YouTube.

A team of 50 scientists, in collaboration with the Northeastern IPM Center, has produced and posted to YouTube ten video clips on how to recognize, trap, and manage the brown marmorated stink bug (BMSB). The videos were produced by James Monahan, a videographer who previously worked on films for public television and university websites with the Rutgers Center for Digital Filmmaking. Chris Gonzales and Carrie Koplinka-Loehr of the Northeastern IPM Center served as co-producers.

The videos cover history and identification, overwintering and spread, monitoring and mapping, host plants and damage, the situation in the Pacific Northwest, and management. The average video length is 7 minutes, and the total length of all of the segments together is 66 minutes.

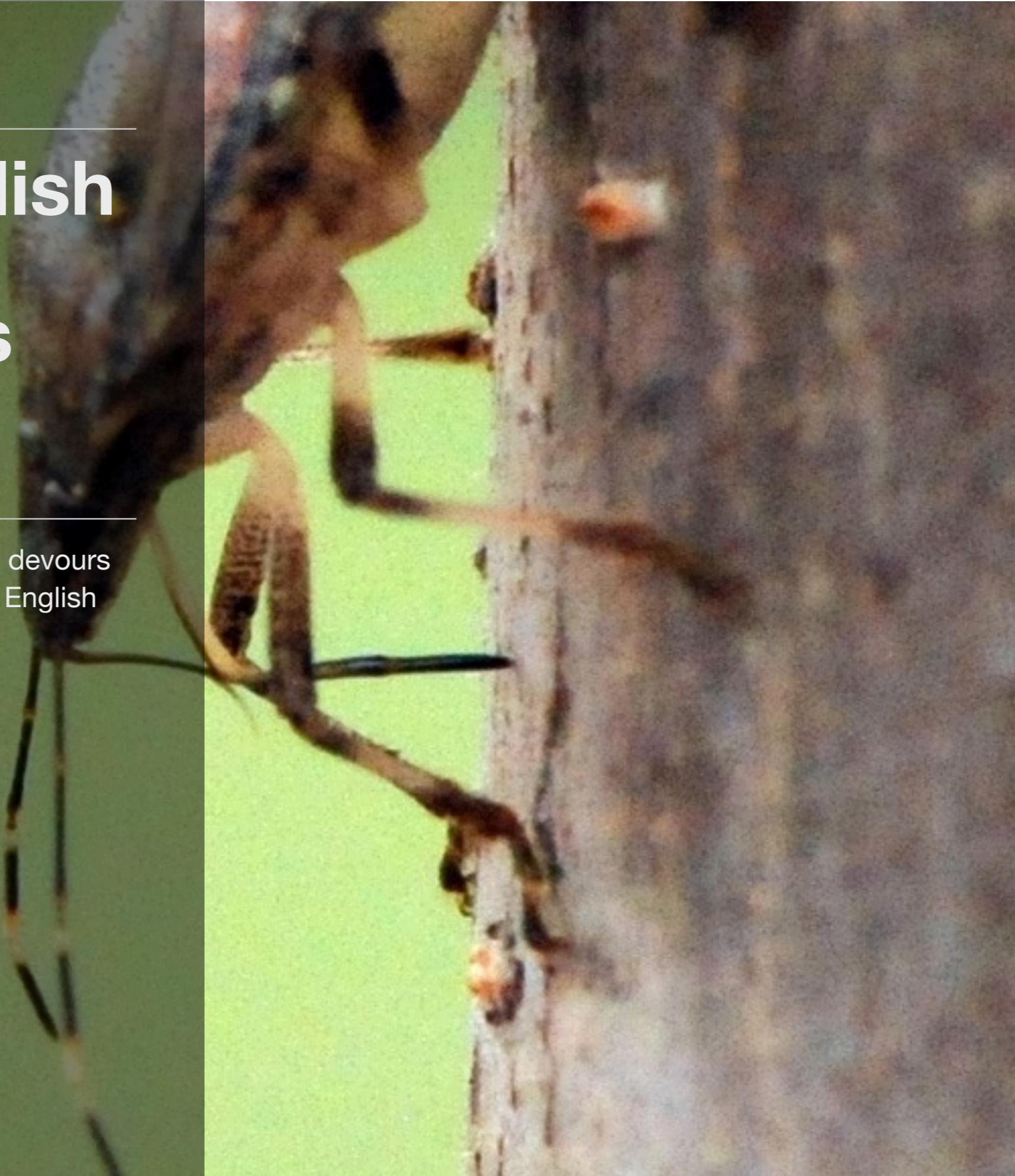
Other findings in the videos: Some insecticides may cause secondary pest outbreaks of mites, aphids, and scale. To protect pollinators, avoid pre-bloom

insecticides with long residual activity. Peppers, tomatoes, sweet corn, okra, and beans suffer the most damage from BMSB. On peppers and tomatoes, look for whitish scarring on the surface.

You can find the videos on YouTube by searching for “brown marmorated stink bug” or by visiting <http://www.stopbmsb.org/video>.

Scientists Publish on Stink Bug's Favorite Plants

The brown marmorated stink bug (BMSB) devours species such as tree of heaven, soybean, English Holly, pear, eggplant, and corn.



Scientists Publish on Stink Bug's Favorite Plants

STINK BUG SUPPER

Brown marmorated stink bug adults feed through elm tree bark. Source: M. Raupp, UMD.

In all, according to the new publication *Host Plants of the Brown Marmorated Stink Bug in the U.S.*, BMSB uses 170 plants for food and reproduction.

The publication emerged from a coordinated agricultural project funded by the USDA Specialty Crop Research Initiative (SCRI). Thomas Kuhar of Virginia Tech led the publication, and a group of 23 project directors and collaborators contributed. To access the document, visit: <http://www.stopbmsb.org/bmsb-hosts>

As part of several ongoing research projects, entomologists have been observing which plants this insect typically uses for food and reproduction in its new environment. Since its initial discovery in eastern Pennsylvania in the mid-1990s, BMSB has become a conspicuous insect in residential areas and farms in the mid-Atlantic U.S.

The Northeastern IPM Center designed the document to work well on the web and when printed on standard paper. Scientists gathered observations and collaborated online and in person over several months to assemble the document.

As of this writing, BMSB has been detected in 40 states plus Ontario, posing severe agricultural and nuisance problems in six states. The insect threatens an estimated \$21 billion worth of crops in the United States alone.

IPM in Childcare

Parents are worried about risks to children from illness and pesticides. But a team of researchers is working to keep those risks to a minimum through education about IPM.



IPM in Childcare

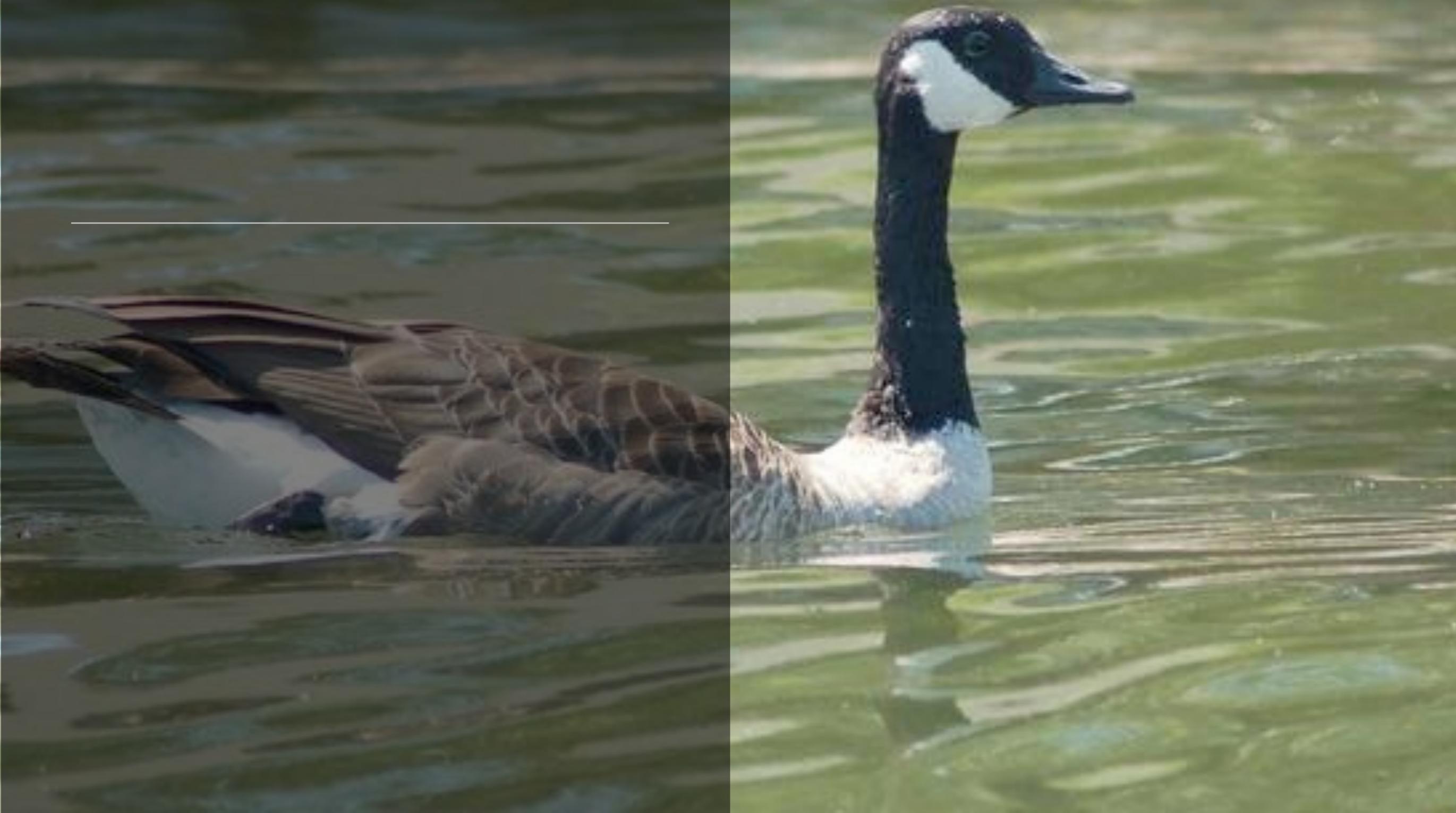
The team, led by Edwin Rajotte of the University of Pennsylvania, received funds from the Northeastern IPM Center to teach and implement IPM in early educational facilities. To reach their goal, the team built partnerships between extension educators, early education professionals, facilities managers, and pest management professionals.

Lyn Garling, program manager for the Pennsylvania IPM Program and one of the managers of the project, said, “Training participants substantially increased their knowledge of integrated pest management and green cleaning. A high percentage also stated enthusiasm and intent to change their behavior related to pests and cleaning practices.”

For more information about trainings available for child care personnel, visit the PA IPM Program website at <http://extension.psu.edu/pests/ipm>.

Chapter 7

Resources



Resources

CANADA GOOSE

Source: Joy Viola, Northeastern University, Bugwood.org.

Wildlife Control Operator Training

Run by the University of Nebraska-Lincoln and Cornell University, a training program for licensing wildlife control operators or for training new personnel. Certified by the National Wildlife Control Operators Association. For training materials: <http://nebraskamaps.unl.edu>

For wildlife control information from experts: <http://icwdm.org>

Preventing Rodent Problems

A new video series by Matt Frye and the New York State IPM Program helps individuals learn rodent self-defense. The four YouTube videos explain why rodents appear, signs of an infestation, trap selection and placement, and how to keep them out. <http://www.northeastipm.org/rodent-videos>

Be Tick Free – A Guide for Preventing Lyme Disease

A guide published by the New York State Department of Health covers Lyme disease symptoms, how to remove a tick, and how to create a tick-free zone around your home. Includes recommendations for deciding on tick and insect repellents. <http://www.health.ny.gov/publications/2825/>

Managing Voles in New Hampshire

Alan Eaton of the University of New Hampshire offers a free publication on managing voles in orchards and highbush blueberries. Orchardists frequently call them mice, but they are voles, and can damage plants. http://extension.unh.edu/resources/files/Resource003424_Rep4893.pdf

Cold-tolerant Cockroach from Asia Found in New York City

A species of cockroach never found in the United States before has been positively identified in Manhattan. *Periplaneta japonica* can survive not just indoors where it's warm, but also outdoors in freezing temperatures. The Entomological Society of America discusses some aspects of this new pest: <http://www.entsoc.org/press-releases/cold-tolerant-cockroach-asia-found-new-york>

Chapter 8

Credits

Photo Credits

Cover: Twig. Chris Evans, Illinois Wildlife Action Plan, Bugwood.org.

School: IPM Institute of North America.

Sheep: Perry Rech, USDA Agricultural Research Service, Bugwood.org.

Swede midge: Susan Ellis, USDA APHIS PPQ, Bugwood.org.

Stink bug on tomato: James Monahan, Northeastern IPM Center.

Stink bug on elm: M. Raupp, UMD.

IPM in Childcare: C. Gonzales, Northeastern IPM Center, derived from iStock.

Canada goose: Joy Viola, Northeastern University, Bugwood.org.

Northeastern IPM Center

Our Center encourages integrated pest management for reducing risks to human health and the environment. We are funded by the USDA's National Institute of Food and Agriculture and are administered by Cornell University.

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