

INTEGRATED PEST MANAGEMENT

Insights



October 2019: Volume 16, Issue 3

Insights

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Center-Funded Working Group Receives \$7.3 Million USDA SCRI Grant to Advance Spotted Lanternfly Research

By Amy Duke, *The Pennsylvania State University*

A version of this article first appeared in Penn State News.

The USDA has awarded a \$7.3 million Specialty Crop Research Initiative (SCRI) grant to support an interdisciplinary, multi-institutional team of researchers as they conduct research and develop strategies to combat the spotted lanternfly (SLF).

The SLF working group, led by the Pennsylvania State University, was initially funded by the Northeastern IPM Center in the summer of 2018. The SCRI grant validates the severity of the SLF threat while greatly expanding the resources available to the team.

Enhanced Access to Funds and Farms

The grant, from the USDA's National Institute of Food and Agriculture, will be complemented by more than \$5 million in matching investments from growers and landowners who agreed to participate in this work, many of whom are currently working with researchers on SLF.

The \$7.3 million USDA SCRI grant validates the severity of the SLF threat while greatly expanding the resources available to the team.

"I am extremely grateful to the USDA for this funding as well as the growers and landowners who pledged to allow us use of their farms for this project," said project lead Julie Urban, associate professor of entomology in the Penn State College of Agricultural Sciences. "Our partnerships with them and other impacted stakeholders are key to arriving at strategies for sustainable, long-term management of this pest."

Pest Range and Impacts

Pennsylvania has been the U.S. epicenter of the SLF problem to date, but the pest has begun to spread and will likely continue to do so. Native to Asia, it is now



The spotted lanternfly poses a significant threat to Pennsylvania agricultural industries. Photo by Emelie Swackhamer.

in 14 Pennsylvania counties and has been reported in surrounding states including New Jersey, New York, Delaware, Virginia, and Maryland.

SLF feeds on sap, weakening plants and leaving behind a sugary excrement called honeydew, which promotes the growth of sooty mold. This mold further harms the plant, while attracting other insects and creating a mess that can render outdoor areas unusable.

"I am extremely grateful to the USDA for this funding as well as the growers and landowners who pledged to allow us use of their farms for this project."

— Project lead Julie Urban, associate professor of entomology in the Penn State College of Agricultural Sciences

The pest threatens Pennsylvania's grape, tree fruit, hardwood, and nursery industries, which collectively are worth about \$18 billion to the state's economy.

See "SCRI" on Page 3



Call for Submissions and Photos

Do you have IPM-related news or an IPM story to tell? We value the perspectives of growers, implementers, policymakers, and others on the front lines of pest management, and we welcome guest submissions for future newsletter editions.

Whether you'd like to write something new for us or submit something you've already had published elsewhere—given reprint permission from that publication—we want to hear from you!

Do you have high-quality photos of pests, pest damage, pest-management methods, or people demonstrating IPM practices? Your images could help us tell the story—and promote awareness—of current and emerging pest- and pest-management issues.

If we use your photos, they could appear in any of our channels or collateral, including newsletters, brochures, websites, and social media, and you'll be credited as the photographer.

Please visit neipmc.org/go/ncfs for more information.

Katydid on camera lens. Photo by Judy Gallagher, flic.kr/p/ooki1q, CC BY 2.0.

Spotted Lanternfly: a New and Unwelcome Invader

By Jennifer Lerner, Resource Educator, Cornell Cooperative Extension of Putnam County.

A version of this article first appeared in Cornell Cooperative Extension of Putnam County's newsletter.

One of the most recent invasive arrivals to make its presence known in the Northeast is the spotted lanternfly (SLF, Latin name *Lycorma delicatula*), a colorful insect in the planthopper family that congregates in large numbers to feed on the sap of trees.

Spotted lanternfly's preferred host, tree of heaven (*Ailanthus altissima*), is itself an unwanted invader despite its flattering moniker.

As SLF feeds, it excretes honeydew, a pleasant-sounding name for what is essentially a sticky excrement. That honeydew sometimes alerts people to the presence of the pest.

The honeydew may seem to be purely a nuisance, but the strain placed on the trees by the insects' feeding can seriously damage the plant.

SLF's preferred host, tree of heaven (*Ailanthus altissima*), is itself an unwanted invader despite its flattering moniker. While this may seem to cast SLF as an unlikely hero, the pest boasts a diverse palate that also poses a threat to many desirable crops.

Economic and Ecological Concerns

Like the brown marmorated stink bug—another problematic invader whose insatiable appetite has thrust it into the spotlight in recent years—SLF afflicts some important agricultural crops.

It feeds on—and harms—many fruit-producing plants, including apples, peaches, and grapes, along with approximately 70 others. Grape, in particular, seems to be an especially attractive host for these pests, with many growers seeing damage and trying to manage their populations.

There are ecological considerations in addition to the direct economic impacts, given that many of the affected trees and shrubs have relatives in our native ecosystem.

For example, shadblow or serviceberry (genus *Amelanchier*) is a close relative of the apple. It provides important forage for migratory birds who return to their nesting sites expecting to find its nutritious early fruits. Their loss would trigger far-reaching ripple effects in our ecosystem.



Spotted lanternfly winged adult and fourth instar nymph. Photo by Stephen Ausmus/USDA-ARS.

Although we can begin to conceive of the secondary and tertiary effects of the SLF threat, the full scope remains unclear. We simply don't yet know how many host plants this insect can survive on or how widespread its impact will be.

How You Can Help

Remain vigilant and report any observations. Learn to recognize the insect itself as well as the signs of its presence.

While SLF may stand out because of its signature colors and spots, its egg masses are less distinctive. They are tan to light gray, laid in rows and sometimes covered with a mud-like protective layer.

SLF is native to China, India, and Vietnam. After the insect was introduced into South Korea, it spread throughout the country—approximately the size of Pennsylvania—in only three years.

If you find SLF or its egg masses, please report the sighting to your state authorities. Visit neipmc.org/go/slqry for a compilation of state-by-state reporting instructions that will be updated as states refine their SLF strategy.

Digital photos or dead insects may also prove helpful. Honeydew may indicate the presence of SLF, but many other insects also excrete honeydew in quantities sufficient to make cars, fences, and deck surfaces feel tacky, so that alone may not be a determining factor.

People Can Unintentionally Help Spread SLF

Although adult SLF may hitch a ride on a boat, trailer, or vehicle, their egg masses pose the most insidious threat because the female can lay them on just about

Grant to Support Several Key Goals

The grant will support a four-year initiative aimed at achieving several goals, among them:

- To quantify the insect's impact on at-risk specialty crops and immediately develop management tactics to reduce the damage in areas where SLF is established
- To perform essential fundamental research on the pest's basic biology, ecology, and behavior, and to develop biological control tactics contributing to long-term sustainable solutions
- To deliver immediate management solutions to specialty-crop stakeholders and the public through the extension networks of the partnering land-grant universities, USDA agencies, and the Northeastern IPM Center

In addition, the funding will support training opportunities for graduate and undergraduate students and early-career postdoctoral scientists, thereby preparing the next generation of researchers and

extension educators who will lead work on future invasive species.

Extensive Collaboration and Diverse Expertise

The project will draw on the expertise of 37 collaborating researchers and extension educators from Penn State, the USDA-Agricultural Research Service, the USDA-Animal and Plant Health Inspection Service, Virginia Tech, the University of Delaware, the University of Rhode Island, Temple University, Rutgers University, and the Northeastern IPM Center and other colleagues at Cornell University.

For More Information

To learn more about SLF, management techniques, and state-by-state instructions on how to report a sighting, visit stopslf.org.

The Penn State Extension website also provides extensive information on SLF—including the state-imposed quarantine in Pennsylvania—at extension.psu.edu/spotted-lanternfly.

any surface. The New York State IPM Program provides a video of a female laying eggs at neipmc.org/go/nyslf.

Hitchhiking egg masses can be found on pallets, stone, firewood, and outdoor furniture.

People are urged not to take firewood from home to a favorite campground or weekend retreat, and similarly, not to pick up wood from far away and bring it home, as there may be a hitchhiking invader.

Inspect boats and trailers for egg masses. If purchasing used outdoor furniture, or items frequently stored outside like garden tools and wheelbarrows, check all surfaces for egg masses.

The adult insects can fly, but they spread much more quickly when humans unwittingly help them along.

How They Got Here and Where They've Spread

SLF is native to China, India, and Vietnam. After the insect was introduced into South Korea, it spread throughout the country—approximately the size of Pennsylvania—in only three years.

The initial U.S. infestation was found in Berks County, Pennsylvania, in 2014, and is thought to have arrived on a 2012 stone shipment.

Currently, the insect is found in 14 counties in southeastern Pennsylvania, nine counties in New Jersey, one county in Delaware, and one county in northern Virginia. While individuals have been found in other northeastern states including Maryland, New York, Massachusetts, and Connecticut, most were thought to be hitchhikers, with no confirmed populations in these states.

The New York State IPM Program maintains a frequently updated map of known SLF locations at neipmc.org/go/nyslf.

But sustained vigilance and broad public awareness will be key to limiting the spread of SLF as researchers, extension workers, and policymakers develop and implement methods and plans for neutralizing the threat.

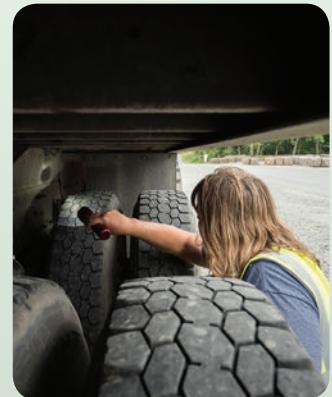
Read more on the USDA's SLF web page: neipmc.org/go/yjXT.

Sources

New York State Department of Environmental Conservation: www.dec.ny.gov/animals/113303.html

New York State Integrated Pest Management Program: neipmc.org/go/nyslf

Penn State Extension: extension.psu.edu/spotted-lanternfly



Pallet and vehicle inspection is one important step in keeping the spotted lanternfly within the quarantined area. Photo by Lance Cheung/USDA.

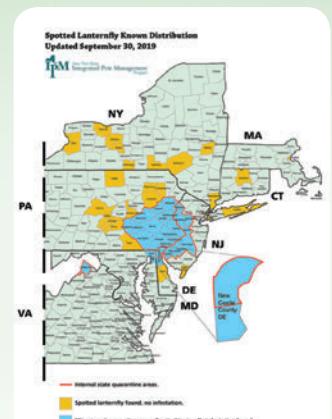
Is Your State under SLF Quarantine?

Affected northeastern states have issued regulatory responses tailored to the varying threat levels throughout the region, including quarantines on movement of goods or other items.

"Quarantine," in this case, does not dictate an impermeable boundary, but rather requires that precautions be taken before materials prone to harboring the pest can be moved.

Some quarantines are bidirectional while others, such as New York's, are external, regulating movement of materials coming into the state from affected areas of other states.

We maintain an up-to-date list of state-by-state links at neipmc.org/go/slfqri.



For the latest full-size map, see neipmc.org/go/nyslf.

The IPM Centers: National Pest-Management Priorities at a Regional Level

Supporting IPM research and implementation through outreach and partnerships

The National Institute of Food and Agriculture at the U.S. Department of Agriculture (USDA-NIFA) provides funding for four regional integrated pest management (IPM) centers that collectively serve the entire United States.

That's one center for each of the agency's four administrative regions—north central, northeastern, southern, and western. The regional focus reflects the sheer size and geographic, climatic, and agricultural diversity of the United States.

Better Pest Management through Coordination and Collaboration

The regional centers foster the development and adoption of IPM, a science-based approach to dealing with pests—one that provides economic, environmental, and human-health benefits. While IPM isn't opposed to pesticides, it discourages resorting to them as a default, one-size-fits-all solution, and promotes a systematic approach and use of more sustainable methods whenever possible.

USDA-NIFA funds four regional IPM centers that collectively serve the entire United States.

The centers engage with stakeholders in agricultural, urban, and rural settings who work with them to identify and address regional priorities, whether for research, education, or outreach.

The centers also work with state IPM programs, which, by nature, are charged with narrower and more specific purviews; but because pests do not concern themselves with political boundaries, the centers provide vital coordination and facilitate collaboration throughout their multistate regions.

Similarly, but on a larger scale, NIFA maintains a National IPM Road Map that it updates, as needed, to reflect the ever-evolving realities of IPM. While each region has its unique agricultural, urban, and rural considerations and pest threats, the Road Map provides strategic alignment at the national level.

The regional IPM centers provide vital coordination and facilitate collaboration throughout their multistate regions.

Center Funding and Host Institutions

Each center is administratively housed at one or more land-grant universities where the center's staff are employees of the university, an alliance that reflects each institution's founding principles of academic knowledge for public benefit.

But the grant process is competitive: every four years, each center submits a proposal to NIFA to make a case for the work it has done—and

plans to do—for its region. If another university or organization makes a compelling argument that it would be a better host institution, the award to operate a center can change.

The centers have been funded this way since they were created in 2000 as a result of the Agricultural Research, Extension, and Education Reform Act of 1998.

Each Center's Distinguishing Focus

Because each region of the country entails its own unique considerations, the centers differ in exactly what types of programs, initiatives, and activities they support.

■ North Central

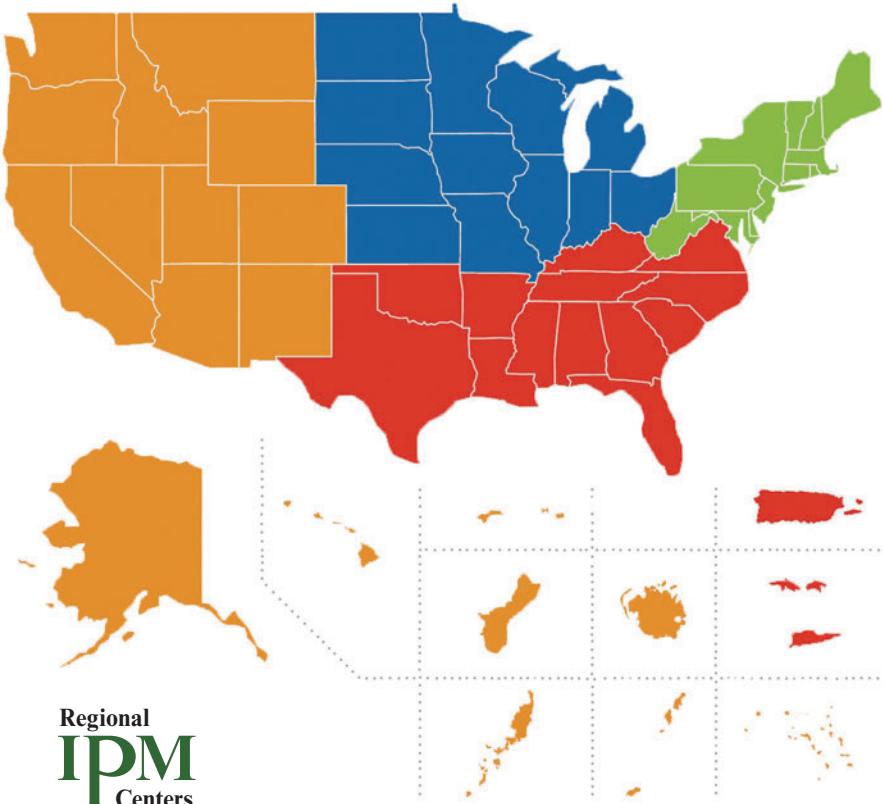
The North Central IPM Center's principal focus is to serve the region's various stakeholders through organization, communication, and funding, as they carry out the goal of responsible, efficient, and sustainable pest management. These stakeholders range from land-grant universities to commodity organizations, regulators, and professional societies. The Center's main method of support is through its Working Group and Critical Issues grants, which help to support cooperation among diverse groups to collaboratively address a regional IPM priority.

While all regional IPM centers contribute to developing invasive species programs, the North Central IPM Center develops and administers the Pest Alert program, in which Center personnel assist in the swift creation of invasive pest guides and methods of control and prevention.

In addition to providing funding opportunities to stakeholders, the Center also works with various groups to fulfill its signature programs. These programs are determined by conducting regular needs assessments throughout the region to identify and assist underserved programs and areas. These programs also serve as a guide for the Center and its stakeholders to focus research and outreach to further the mission of IPM.

A staple program of the Center has been in tracking and reporting invasive species across the nation. While all regional IPM centers contribute to developing invasive species programs, the North Central IPM Center develops and administers the Pest Alert program, in which Center personnel assist in the swift creation of invasive pest guides and methods of control and prevention. These pest alerts are then disseminated throughout the region and to national partners.

Lastly, the Center facilitates communication with various Hatch Committees, ad-hoc groups, and other organizations in the region, providing technological and leadership services to address critical issues.



Regional IPM Centers

North Central IPM Center

Housed at Michigan State University and Iowa State University. Serving Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

Northeastern IPM Center

Housed at Cornell University. Serving Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia.

Southern IPM Center

Housed at North Carolina State University, University of Georgia, and Auburn University. Serving Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, Puerto Rico, South Carolina, Tennessee, Texas, the U. S. Virgin Islands, and Virginia.

Western IPM Center

Housed in Davis, California. Serving Alaska, American Samoa, Arizona, California, Colorado, Guam, Hawaii, Idaho, Micronesia, Montana, Nevada, New Mexico, Northern Mariana Islands, Oregon, Utah, Washington, and Wyoming.

Northeastern

The Northeastern IPM Center administers the Partnership Grants Program, supporting projects that further the Center's mission, address or identify regional IPM priorities, and benefit the northeastern region at large. Recent grantees include:

- A team of apiary inspectors conducting outreach on effective monitoring and treatment of varroa mites infesting honey bee colonies
- An effort to evaluate the effectiveness of novel IPM tools to control weeds afflicting organic grain growers
- A project to develop a user-friendly web portal, TickEncounter, a platform for combining tick-risk assessment and testing with protection outreach

In addition, the Center collaborates with partner institutions on larger projects, including the USDA Specialty Crop Research Initiative (SCRI)-funded effort to address the brown marmorated stink bug threat at a national level, and more recently, a Center-funded working group focusing on the effects of spotted lanternfly (SLF) throughout the Northeast. The SLF project was recently awarded its own SCRI grant, including partners from the northeastern and southern regions.

The Northeastern IPM Center collaborates with partner institutions on larger projects, including the USDA SCRI-funded effort to address the brown marmorated stink bug threat at a national level.

The Center facilitates interagency coordination that is vital to mounting an effective, unified response to these invasive pests.

Among its many priority areas, the Northeastern IPM Center addresses residential pest concerns by administering the StopPests in Housing Program. Focusing on improving pest control in affordable housing, StopPests operates with interagency support from USDA-NIFA and the Department of Housing and Urban Development (HUD), maintaining an assortment of expert resources and providing consultation through conferences, webinars, and free trainings for HUD-supported properties.

Southern

The Southern IPM Center provides leadership and coordination for the identification of priority IPM needs and issues through multistate and multi-organization collaboration in the 13 states and two territories that make up the southern region by facilitating communication, sharing information, and assisting in common research and extension activities.

Through its five signature programs, including Invasive Species, Pollinator Protection, and Resistance Management, the Center embraces the need for collaboration and leveraging of resources, specifically in the southern region.

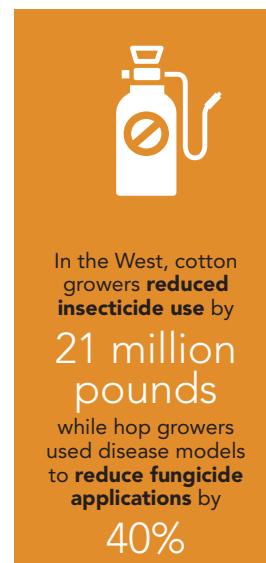
The Center's Facilitation of Innovation Through Technology program (FITT) acts as a free technological resource for providing advice and IT infrastructure, including a platform for project management, webinar support, meeting support, communication support, and more. This serves a valuable role for the partner programs in monitoring the technology environment, identifying tools that will be useful, bringing these tools to the attention of Center stakeholders, and facilitating their use.

The Underserved Audiences program engages specific academic audiences within communities that may have barriers to information and support due to gender, income, socioeconomic status, language, special needs/disability, literacy, ethnicity/race, and geographic location, and are not currently being served by another organization. We offer support to these audiences through a grant-writing workshop and mentoring program.

Additionally, the Center has three grant programs that are available in the region.

Two grant programs, the Critical and Emerging Issues Grant and the IPM Enhancement Grant, are mechanisms to engage stakeholders and other institutions through direct funding of working groups. Both programs address challenges such as invasive species, pest resistance, and impacts resulting from regulatory actions.

The Southern IPM Center's Underserved Audiences program engages specific academic audiences within communities that may have barriers to information and support due to gender, income, socioeconomic status, language, special needs/disability, literacy, ethnicity/race, and geographic location.



The third grant offering, the IPM Data Grant, expands on the critical need for updating crop profiles and pest management strategic plans, as many of those documents in the National IPM Database are over five years old and are no longer considered "recent" by our federal partners. This fund is an open fund (available until it is depleted) for faculty interested in updating these documents.

■ Western

In 2019, the Western IPM Center identified nine priority areas to address to achieve its vision of "A healthier West with fewer pests." They fund project initiation and IPM outreach and education grants, and have been a leading proponent of creating and updating pest management strategic plans because of the tremendous value they have for commodity groups in identifying pest priorities and securing additional research and funding to address them.

The Western IPM Center works closely with the Western Sustainable Agriculture Research and Education program to promote IPM as a necessary component of sustainable agriculture.

The Center works closely with the Western Sustainable Agriculture Research and Education program to promote IPM as a necessary component of sustainable agriculture and also worked with the Western Region IR-4 program, which facilitates new pesticide registrations for small-market specialty crops, to ensure the products IR-4 pursues fit well with IPM programs. They've been a consistent supporter of iPiPE, including iPiPE projects in five western states focusing on vegetables, wheat, urban agriculture, stone and tree fruit, cotton, and alfalfa.

The Center prioritizes showcasing all the ways IPM can be adapted and adopted to meet the pest-management needs and protect the people, environment, and economy of the vast and diverse American West.

USDA-NIFA Investments Promote Savings and Security for Food Supply

From brown marmorated stink bug to avian flu, pests and pathogens can wreak havoc on livestock and crops and cause significant economic losses. They threaten the safety and security of the food supply along with the livelihood of agricultural producers, and it is only through prudent and broad application of knowledge-driven solutions that we can mount an effective defense against these destructive agents.

The Northeastern IPM Center is funded primarily by the USDA's National Institute of Food and Agriculture (USDA-NIFA). The federal agency has wide-ranging responsibility for ensuring the safety and security of the nation's food supply, partly through its support of research that furthers those goals.

Investing in Agricultural Biosecurity

USDA-NIFA supports agricultural biosecurity by providing funding and national program leadership to projects that secure and protect the integrity, reliability, sustainability, and profitability of the American food and agricultural system against catastrophic hazards, whether natural, emerging, accidental, or deliberate.



A poultry producer checks the broiler hens in one of his chicken houses.
Photo by Bob Nichols/USDA.

Learn more about the economic challenges facing agricultural producers, and how USDA-NIFA is working to fund projects that advance our understanding and generate effective solutions, by visiting neipmc.org/go/bPwp.

Funding Available for Selected IPM Projects

Center to award up to \$200K for winning projects

The Northeastern IPM Center has announced a request for applications (RFA) for project funding for the coming year through our IPM Partnership Grants Program. Submissions will be accepted through November 15.

The program is supported by the USDA's National Institute of Food and Agriculture. Up to \$200,000 in total will be available for 2020, with a maximum of \$50,000 per award in most cases, to fund projects that foster the development and adoption of integrated pest management (IPM) methods.

Project Types and Land-Grant Considerations

The program supports three project types: **IPM Applied Research**, **IPM Working Groups**, and **IPM Communications**.

Applied Research projects that are led by an 1890 land-grant institution—or include one as a project partner—are eligible for up to three additional points based on the scope and depth of the collaboration. Projects that include a significant collaboration with an 1890 land-grant institution may be eligible for a maximum of \$60,000.

Program History and Priorities for 2020

The Center has run the IPM Partnership Grants Program since 2004, investing almost \$6 million in some 270 projects in the Northeast region.

This year, the Center is particularly interested in projects that address regional priorities falling within our five signature program areas: IPM and Organic Systems, Rural and Urban IPM, Climate Change and Pests, Next Generation Education, and Advanced Production Systems.

Who Should Apply and When

Public and private institutions or organizations, businesses, commodity groups, and individuals are eligible to apply.

All project directors (PDs) must work and conduct the relevant work in the Northeast. Co-PDs may be from outside the region.

Applications must be submitted online and are due by Friday, November 15, 2019. An informational webinar about the RFA was held October 9 and a recording is available at neipmc.org/go/rfawebinar2020.

Learn More

For more information about the application process and guidelines, and to download the application, visit the Northeastern IPM Center website at www.northeastipm.org or the IPM Partnership Grants Program page at www.northeastipm.org/rfa/partnership.

Surviving Spotted Lanternfly

Pennsylvania winegrape producers take it on the chin

By Stephen Kloosterman, Associate Editor, *Fruit Growers News*

This article originally appeared in the January 2019 issue of *Fruit Growers News*. Reprinted with permission and updates to quotes for timeliness.

The Mid-Atlantic and Midwest are better known for apple production than wine, but it is winegrape growers who perhaps have the most to lose from the latest pest threatening that region.

Spotted lanternfly (SLF) is in Pennsylvania and is likely to spread to New York and Michigan, extension agents say.

"We are hoping to delay this as much as possible with the current control program in place in Pennsylvania, New Jersey, and Virginia," said Heather Leach, an extension associate with the Pennsylvania State University (PSU) Department of Entomology. "Detections of adult SLF have been found in Connecticut, Delaware, Maryland, and New York (currently, no population is verified in these states). This highlights that SLF is a good hitchhiker and spread is likely."

"Grapevines are being hit hard by SLF, and this is the crop where we are seeing a significant economic loss. Up to 100-percent yield loss and subsequent vine death have been observed in grapevine."

—Heather Leach, Extension Associate,
Pennsylvania State University

New York State and Michigan are susceptible to SLF infestations.

"Based on modeling, we expect if it does hit these regions, it will likely be able to establish in them," Leach said.

Pest Profile

SLF is an invasive planthopper that feeds on hardwood trees and hops as well as fruit trees, ornamentals, and grapevines. Host plants may ooze sap and wilt, may show leaf curling, and may even die.

"Grapevines are being hit hard by SLF, and this is the crop where we are seeing a significant economic loss," Leach said. "After heavy populations of SLF, growers have experienced vines that could not survive the winter or vines that survived but did not produce fruit in the following year. Up to 100-percent yield loss and subsequent vine death have been observed in grapevine."

She added that while SLF also feeds on apples, peaches, and other tree fruit, they've done this for only a few weeks in mid-late September before moving on to other hosts.

Pennsylvania has a growing local wine scene with more than 200 wineries that produce more than one million gallons of wine a year, according to the Pennsylvania Winery Association. Grape growers in the region are concerned about SLF.

Leach recently conducted a survey of growers in the region.

"We found that most of the grape growers were already aware of



This immature spotted lanternfly nymph was photographed in the Boyertown area of Berks County, Pennsylvania. Photo by Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org.

this pest and the threat it poses, but they are not knowledgeable on how to control it," she said. "This, of course, is understandable, as we are still learning about how to control it ourselves! The priorities from these growers were to develop insecticide recommendations, develop biological control methods, and determine the impact of SLF on long-term vine health. These are key issues we plan to be addressing in our future research."

Field Intel

There are already, however, a few recommendations for discouraging the bugs. Julianna Wilson, a tree fruit integrator for Michigan State University's Department of Entomology, recently spoke about the bugs at the Great Lakes Fruit, Vegetable, and Farm Market EXPO in Grand Rapids, Michigan. She offered a few basic tips:

- Stop the spread of SLF by keeping an eye out for adults, nymphs, and egg masses. Report sightings to extension agents or your state's appropriate department. See neipmc.org/go/slfrqi for detailed state-by-state information.
- Scrape egg masses off tree trunks and other flat surfaces where they are laid—this will kill the eggs.
- Band some trees to catch nymphs and monitor the population level.
- Remove invasive tree of heaven, a.k.a. Chinese sumac or stinking sumac, as this is SLF's favorite host.
- Apply insecticides.

In 2018 and 2019, PSU conducted insecticide efficacy trials for adult SLF on potted grapevines. Five products were found to have killed more than 50 percent of SLF up to seven days after application, and two products, Actara and Brigade, were effective up to 14 days after application.

"To be honest, SLF is really easy to kill compared to most other insect pests in these systems," Leach said. "We're finding that they're

susceptible to most classes of insecticides, including action with some organic products (i.e., neem oil, insecticidal soaps)."

"However, the problem is that SLF are feeding on so many things in the surrounding landscape that even after a grower treats their orchard/vineyard, they re-infest the trees/vines within a few days. SLF peak populations also coincide with harvest or just before harvest, limiting the options available to growers (to be compliant with preharvest intervals). This has been our biggest struggle, and we are currently evaluating several different spray programs to determine the best sequence and products to be used."

Other Strategies

Some encouraging discoveries have been that SLF seems to be susceptible to many of the same things that gypsy moths are.

"SLF is really easy to kill compared to most other insect pests in these systems. The problem is that SLF are feeding on so many things in the surrounding landscape that even after a grower treats their orchard/vineyard, they re-infest the trees/vines within a few days."

—Heather Leach, Extension Associate,
Pennsylvania State University

"We have identified two different fungal pathogens that attack SLF in the field," Leach said. "One of these is closely related to the gypsy moth fungal pathogen, but it is not the same one. These appear promising, but we still need lots of lab and field research to understand if these are potential products to be used. Testing on Beauveria products against SLF is in its preliminary stage, but this appears promising as a control measure. Ann Hajek out of Cornell (University) is partnering with David Biddinger and Nina Jenkins at Penn State for this research."

Generalist predators such as praying mantis are not thought to have much effect on SLF individually. Leach said there are several parasitoids identified in China that attack SLF.

"These are parasitoids not known to occur in the U.S., so they are currently held in a quarantine lab to undergo studies on SLF and other closely related insects," she said. "Importing these species could be a very promising tactic to reduce SLF populations, but requires lots of

money and time to test for potential negative effects."

For growers who don't yet have SLF, Leach recommends scouting the farm (especially the wood edge) for tree of heaven.

"If you have it, either consider removing it, or use it as a monitoring tool to watch for SLF," she said. "Other plants that appear to be preferred by SLF include grapes (wild and cultivated), maple (silver and red, mostly), river birch, willow, and others."



Spotted lanternflies congregate in large groups as seen on the trunk of this cherry tree. Lawrence Barringer, Pa. Dept. of Agriculture, Bugwood.org.

Reminder: Recordings of Recent Spotted Lanternfly Webinars

With researchers, extension associates, and government agencies mobilizing a coordinated response to the spotted lanternfly (SLF)—newly backed by USDA-NIFA Specialty Crop Research Initiative funding, as reported elsewhere in this issue—we'd like to remind readers about a collection of SLF webinars the Northeastern IPM Center hosted earlier this year through our *IPM Toolbox* series, all now recorded and viewable online.



The webinars were produced and hosted in cooperation with the New York State IPM Program and Department of Agriculture and Markets. Each of the four webinars was customized for growers of a particular set of crops and followed a similar format.

The featured presenters were:

Tim Weigle, Grape and Hops IPM Specialist, NYS IPM Program

Juliet Carroll, Fruit IPM Coordinator, NYS IPM Program

Ethan Angell, NYS Dept. of Agriculture and Markets

Brian Eshenaur, Ornamentals IPM Specialist, NYS IPM Program

Dan Gilrein, Entomology, Suffolk County Cornell Cooperative Extension

Visit neipmc.org/go/toolbox-archive to peruse recordings of these and other *IPM Toolbox* webinars. For general information on the *IPM Toolbox* series and a list of upcoming webinars, visit neipmc.org/go/ipmtoolbox.

Advisory Council Membership Updates

Northeastern IPM Center thanks departing members and welcomes new arrivals

Outside Expertise that Shapes Our Priorities

Like all the regional IPM centers, the Northeastern IPM Center maintains an advisory council (AC) comprising a wide range of stakeholders representing universities, businesses, and government agencies with interest and expertise in developing and disseminating science-based, sustainable pest-management strategies.

The AC provides a broad vision and helps inform Center priorities while also constituting an important avenue for outreach to members' constituencies and beyond. It provides an invaluable service and we owe a debt of gratitude to members past and present, all of whom have given freely of their time, knowledge, and perspective in furtherance of our mission.

Terms and Durations of Service: Planned Turnover and Renewal

Members typically serve three-year terms. Many of those who rotated off in the past year were already on their second terms, and some had gone above and beyond by agreeing to stay on for an extra year as a courtesy to our new director, Deborah Grantham, who took the reins in September 2018.

In other cases, members choose to step down so they can freely pursue opportunities or resources that might create conflict-of-interest concerns if juxtaposed with their AC responsibilities. Integrity and transparency are of utmost importance to the Center and its stakeholders.

We'd like to extend a heartfelt thank-you to those who have stepped down—and a warm welcome to those who have joined—in the year since Grantham assumed the directorship.

New and Recent Arrivals

Kofi Berko: HUD National Program Leader and Advisor to StopPests in Housing Program *Member since January 2019*

J. Kofi Berko, Jr. is an environmental scientist with the Office of Lead Hazard Control and Healthy Homes at the U.S. Department of Housing and Urban Development (HUD). He develops notices of fund availability for healthy homes and leads technical studies, manages the review and selection process, and manages some of the resulting cooperative agreements between the successful applicants and HUD, including the Promoting IPM in Affordable Housing project administered by the StopPests in Housing Program.

Andy Fellenz: Semi-retired Owner/Operator, Fellenz Family Farm *Member since February 2019*

The Fellenz Family Farm is a small-scale, widely diverse, certified organic fruit and vegetable farm in Phelps, New York. Andy Fellenz helps run the farm with his son and daughter-in-law. It operates an extensive community-supported-agriculture market in three cities in northwestern NY: Canandaigua, Geneva, and Brighton.

Robert Nowierski: USDA-NIFA National Program Leader for Bio-Based Pest Management *Member since October 2019*

Robert Nowierski serves as the national program leader for bio-based pest management. He provides national leadership for NIFA's research and extension programs in applied ecology, biological control, and invasive species. He is the program director for the Crop Production and Protection program area for biology of the Small Business Innovation Research Program and co-directs the Foundational Knowledge of Agricultural Production Systems program area priority of the AFRI Foundational Program (Plant Health and Production and Plant Products program area).

Julie Urban: Associate Research Professor, Entomology, The Pennsylvania State University *Member since November 2018*

Julie Urban is an associate research professor in entomology at Penn State. She is leading the multistate USDA-NIFA Specialty Crop Research Initiative grant on biology and management of the invasive spotted lanternfly and its impact on specialty crops in the eastern USA.

Recent and Pending Departures

Herb Bolton: USDA-NIFA National Program Leader for the Regional IPM Centers (Former) *Member since 2000*

Until his recent move to the USDA's Animal and Plant Health Inspection Service, Herb Bolton was the national program leader for entomology at the National Institute of Food and Agriculture, Institute of Food Protection and Sustainability. His grant portfolio included the Crop Protection and Pest Management Program, the regional IPM centers, and IPM in Affordable Housing through an interagency agreement with the Department of Housing and Urban Development. Bolton is a board-certified entomologist in the areas of medical/veterinary and urban/structural entomology and holds a PhD in entomology from the University of Florida.

Mike Hoffmann: Professor; Executive Director, Cornell Institute for Climate Smart Solutions; Co-PI on Center Grant since Its Inception
Member since 2000

Mike Hoffmann, slated to retire in January, is the executive director of the Cornell Institute for Climate Smart Solutions, which was created to help raise the profile of the challenges posed by a rapidly warming climate and to help those who grow our food adapt to the changing conditions while reducing their carbon footprint. A longtime professor in the Cornell Department of Entomology, Hoffmann has held other key positions at the university, including director of the Cornell University Agricultural Experiment Station (Ithaca), associate dean of the College of Agriculture and Life Sciences, associate director of Cornell Cooperative Extension, and director of the New York State IPM Program. He holds a PhD from the University of California, Davis. After retirement, Hoffmann is going on the road with his forthcoming book, *Our changing menu: What climate change means to the foods we love and need*. He will also continue to work on several other aspects of climate change and food.

David Holm: Program Manager, NE SARE at University of Vermont
Member since 2013 in a non-rotating position

In January 2020, David Holm will retire as program manager for the SARE (Sustainable Agriculture Research and Education) Northeast Region, where since 2001 he has been overseeing the grant review, award, and reporting process.

Ana Legrand: Assistant Extension Professor, Entomology, University of Connecticut
Member since November 2015

Ana Legrand's research at the University of Connecticut is in the area of biological control. She has interests in the management of insect pests of turf and ornamental plants and in developing more information about insect natural enemies of Japanese and Oriental beetles.

Ken Martin: Director of Agricultural Operation, Furmano Foods
Member since November 2015

Ken Martin is responsible for all current agricultural activities at Furmano Foods, which include tomato and snap bean production at Furmano Farms (SYSCO IPM certified). He manages the field department at Furmano Foods, where his duties include sourcing tomato and snap beans from outside growers.

Rose Ogutu: Horticulture Extension Specialist, Delaware State University
Member since November 2015

Rose Ogutu has been the horticulture extension specialist at Delaware State University since 2011. Her responsibilities include conducting applied research and developing and implementing a nationally recognized extension program in horticultural crops with emphases on specialty crops and organic production methodologies.

Rachel Riley: HUD National Program Leader (Retired) and Advisor to StopPests in Housing Program
Member since 2013

Until her retirement in January 2019, Rachel Riley served as a program analyst in the Office of Lead Hazard Control and Healthy Homes at the Department of Housing and Urban Development (HUD). At HUD, she supported the work of the StopPests in Housing Program and made it her mission to promote IPM in all HUD housing to provide safer and healthier homes for the people living there.

Cesar Rodriguez-Saona: Associate Professor and Extension Specialist in Entomology, Rutgers University
Member since November 2015

Cesar Rodriguez-Saona joined the faculty at the Rutgers University Marucci Blueberry and Cranberry Research and Extension Center in 2005. His research program focuses on the development and implementation of cost-effective, reduced-risk insect-pest-management practices for blueberries and cranberries.

Joe Russo: Head of Research and Modelling, BASF
Member since November 2015

Joe Russo has guided the development of a wide range of software tools used in modelling, precision agricultural products, decision-support systems, and data-management programs.

Jill Schroeder: Weed Scientist (Retired), USDA-ARS
Member since November 2015

Until her recent retirement, Jill Schroeder was a weed scientist and agronomist with the U.S. Department of Agriculture's Agricultural Research Service Office of Pest Management Policy. She is an emeritus distinguished professor in the Department of Entomology, Plant Pathology, and Weed Science at New Mexico State University, Las Cruces.

StopPests in Housing Program: Better Management of Pests in Housing

In addition to supporting numerous research and outreach projects via Partnership Grants and working groups, the Northeastern IPM Center administers the StopPests in Housing Program, aimed at promoting sustainable and cost-effective pest control in affordable housing but broadly applicable to anybody contending with pest concerns in the built environment.

While the Center is generally charged with a regional purview, StopPests has long functioned as a separate program with a national scope.

Funded via an interagency agreement between the USDA's National Institute of Food and Agriculture and the Department of Housing and Urban Development (HUD), StopPests provides resources, consultation, and free on-site training to HUD-supported properties on how to use integrated pest management for anyone who works or lives in affordable housing.

Center staff have contributed extensive expertise to the program, organizing trainings, participating in conferences, and playing a key role in the development and ongoing evolution of the program.

Practical Knowledge for Public Benefit

As part of its efforts to disseminate practical knowledge, StopPests maintains a robust web presence comprising a website, blog, and various social media channels.

In addition to discussing pest-specific solutions, these online resources provide recordings of recent webinars hosted by StopPests and featuring academic and industry pest control experts, along with timely discussions of pest control challenges facing—and solutions available to—homeowners, landlords, housing managers, and residents of multifamily housing.



Learn More

To learn about better ways to handle pest concerns at home, visit the StopPests website at www.stoppests.org, read the blog at stoppests.typepad.com, or follow us on social media at facebook.com/StopPests or twitter.com/StopPests.

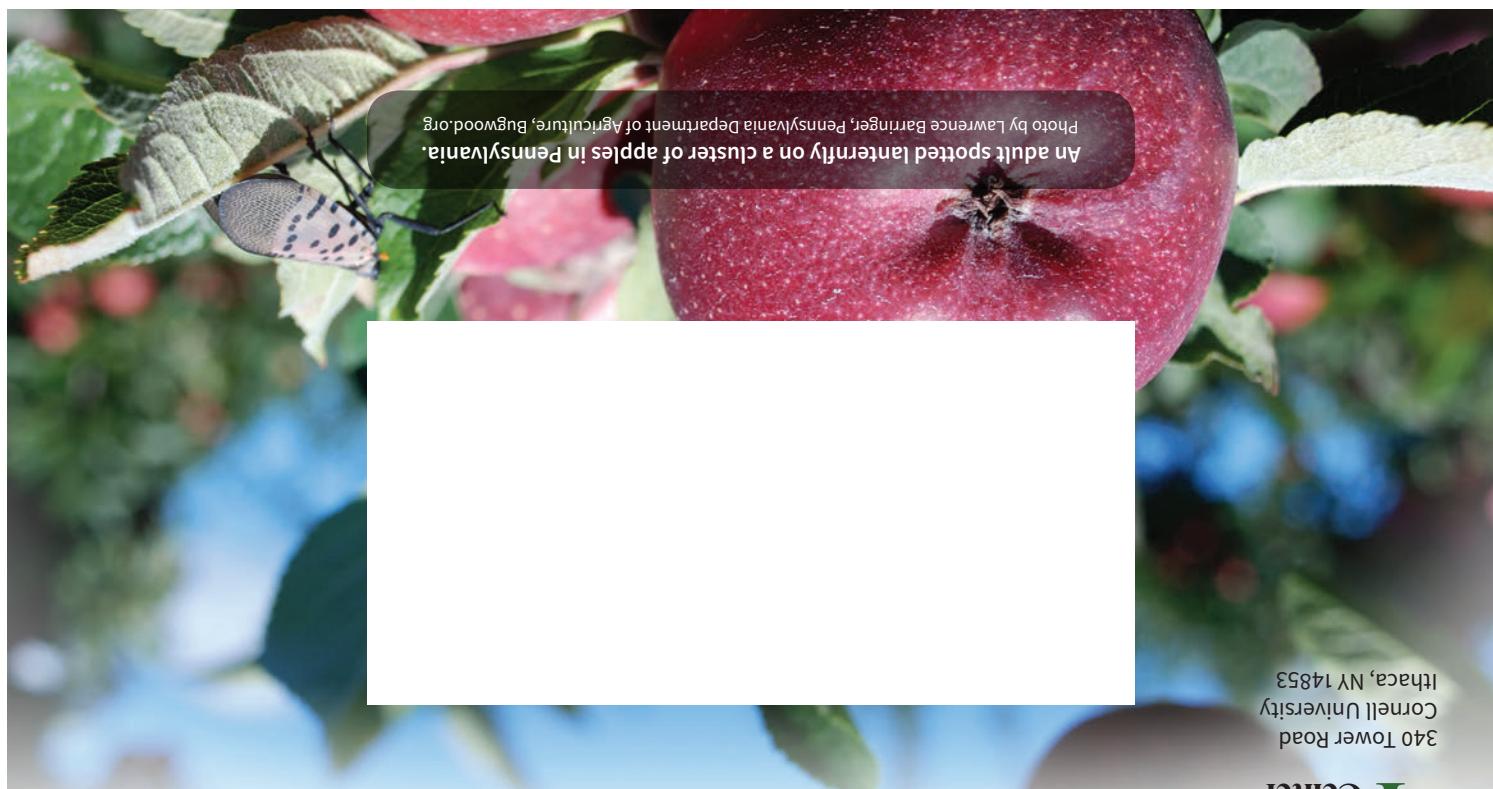
Credits

IPM Insights: Deborah G. Grantham, Director; Mike Webb, Editor; Kevin Judd, Designer. Northeastern IPM Center: Nancy Cusumano, Deborah G. Grantham, Jana Hexter, Kevin Judd, David Lane, Susannah Reese, Mike Webb.



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