Integrated Pest Management Program
Monthly Newsletter

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SPECIALIST SPOTLIGHT

Get to know the specialists stationed throughout the state of Georgia that make up the IPM Program.

Elizabeth Little

CAES Athens Campus
463 Biological Sciences | Athens, GA 30602

Elizabeth Little grew up on a farm in the rural Hudson Valley of New York where she developed a keen interest in agriculture. She started with two years of undergraduate studies in animal science before changing to a major in plant pathology at Cornell University. After completion of her degree, she worked for six years in nurseries and had a business installing and maintaining perennial and shrub borders. Little obtained her Ph.D. in Plant Pathology at the University of California at Davis where she specialized in the epidemiology, characterization, detection, and management of vegetable bacterial diseases. She was fortunate to work on a commodity-funded project to research solutions on a newly emerged bacterial disease on celery transplants. Her research in the transplant houses in the Salinas Valley led to a solution that involved an integration of cultural methods to decrease plant susceptibility to infection. She also established the role of seed in disease outbreaks and optimized hot water seed treatments. This experience influenced her future approach to solving plant disease problems by thinking holistically about pathogen/plant/environmental interactions. Upon completion of her degree, she held a post-doctoral appointment at U.C. Davis working on bacterial canker and replant diseases of Prunus fruit trees including plum, almond, peach and cherry, followed by a second postdoctoral position at UGA working with peanuts.

Following her post-doc, Little took an instructor position in the department of Plant Pathology at UGA. During this time she developed a program on the effects of landscape management decisions on water quality. Her current position is as an associate professor and Extension specialist with a 75% Extension/25% teaching appointment. Her Extension program involves solving plant health problems in home landscapes and gardens, and in organic fruit and vegetable production. She must be prepared to answer questions on almost any type of plant grown in Georgia. All of these systems fall outside of typical agricultural management approaches and recommendations for her clientele are often customized to fit the situation.

Organic production in particular challenges her skills to develop solutions for often unique disease problems. While the organic system will suppress many of the problems seen in conventional systems, other pests and diseases often need more attention. Little's applied research program has focused on cucurbits and tomato, both crops with multiple disease issues in Georgia. According to Little, "The most rewarding part of my job is when I can make a positive difference in outcomes for the committed grower."■

IN THIS ISSUE

Submission deadline for the January newsletter is December 23, 2019. If you would like an article written about an upcoming event or project, please email ipm@uga.edu.

UNIVERSITY OF GEORGIA
EXTENSION
Integrated Pest Management Program

IPM PROGRAM LOCATION:
CAES Athens Campus
463 Biological Sciences Building
Athens, GA 30602

FEATURED CREATURE

Nantucket Pine Tip Moth

Rhyacionia frustrana

Description:

Immature stages – Eggs are slightly convex and about 0.8 mm in diameter. They are opaque white when laid, but turn yellow to medium orange as they mature. Larvae are initially cream colored with a black head. More mature instars develop a yellow to orange color and are 9-10 mm long at full maturity. The pupa are light to dark brown and about 6 mm long.

Adult stages – When adults emerge, gray scales cover their head, body, and appendages, except for the forewings, which are covered with brick-red and copper-colored patches separated by irregular bands of gray scales.

Biology:

Life Cycle – Pine tip moths overwinter as pupae within pine shoots and emerge as adults in December to April, depending on the location. Adults are crepuscular, meaning they are most active at twilight. After mating, females lay eggs on pine needles and shoots. First instars will mine needles, while second instars feed on bud axils and produce the tent, which will be the first obvious sign of NPTM feeding. Later instars enter the pine shoots where they feed in a protected location and damage the apical meristem, killing the bud. Larvae then pupate within the stem before emerging. Depending on the region, NPTM can have anywhere from two to five generations annually. Temperature influences the number of generations NPTM has in a year. Numerous generations per year means that there are numerous times for NPTM to negatively affect the growth of new pine tips.

Damage to Crop:

NPTM causes reduced tree growth and stem form defects in loblolly (Pinus taeda L.), shortleaf (Pinus echinata Mill.), and Virginia (Pinus virginiana Mill.) pines. However, most attention is focused on damage to loblolly, due to its financial importance. NPTM is the only tip moth species in the eastern US that causes economic damage to commercial pine trees. Plants grown in monoculture can be especially susceptible to insect pests, because abundant host resources are in proximity, and there is a decreased diversity of natural enemies. Damage to seedlings and saplings occurs during the NPTM larval stages (instars). First instars mine the needles, causing little damage, and damage is then caused by older instars boring into the vascular tissue of the shoots. Obvious evidence of pine tip moth infestation typically includes resin flow on the bud or near the shoot terminal. NPTM tenting and resin droplets at the base of needles from 1st instars mining may be viewed earlier in the infestation. Resin can coat the webbing, giving the tent an iridescent appearance. Once the larva enters the bud or shoot it is protected within the tissue of the plant. NPTM damage will cause the fresh green pine tip to turn brown and die once the vascular tissue is damaged.

Management:

Effective suppression of NPTM can be difficult due to numerous generations and feeding within the pine stem during part of their lifecycle. Contact insecticides have been used for decades and can be effective; however, timing can be difficult, labor intensive and costly. Optimal spray time periods were developed to provide guidance on when to treat each generation based on location. However, spray timings were based on temperature data from 1950-2000, thus, generation timing may now be shifting in response to climate variation. One suggested tactic is to only apply contact insecticides to the first NPTM generation each year. There is evidence that using this tactic for two consecutive years after pine planting can be as effective as spraying every generation throughout the year.

More recently systemic insecticides have been used for NPTM suppression. Systemic insec¬ticides are applied to the soil, taken up through the roots, transported throughout the whole plant, and are effective longer than contact insecticides, thus removing some of the timing issues of contact insecticides. Imidacloprid and fipronil have been used for young pine trees and can be effective for NPTM suppression. There is potential for systemic insecticides to enhance tree growth and vigor through the suppression of NPTM populations. Despite having the option of both contact and systemic insecticides, definite thresholds for treatment have not been developed, and decisions on best management practices remain difficult. ■

Elizabeth McCarty, Victoria Cassidy, Kamal Gandhi, Caterina Villari, Warnell School of Forestry and Natural Resources, University of Georgia

Adult Nantucket pine tip moth

Evidence of NPTM on new pine growth

Stem forking due to NPTM damage

[Return to Index]

FROM THE FIELD

Articles and news stories pertaining to IPM field work written by IPM members.

How wetlands benefit Georgia agriculture

by Darold Batzer, Lori Sutter, Gabriela Cardona-Rivera, Jason Schmidt, and Ashfaq Sial

Wetlands provide many useful services, from improving water quality to providing habitat for important fish and wildlife. These benefits can be costly to create, so maintaining natural wetlands is good for both the economy and the environment. Many smaller wetlands occur in Georgia farmlands, and many of the values provided by wetlands benefit Georgia farmers.

Wetlands are areas that are flooded for a portion of the year, support wetland plants (at least around their edges), and have water-logged soils (called "hydric soils").

- Swamps are wetlands dominated by trees (such as cypress, tupelo, black gum, and bottomland hardwoods).
- Marshes are wetlands dominated by grasses, grass-like plants (such as sedges, reeds, and cattails), or other nonwoody wetland plants (such as lily pads).
- Floodplains are wetlands bordering rivers and streams that flood after large storms.
- Carolina bays, cypress domes, gum ponds, and lime sinks are smaller wetland ponds filled by rainwater and dominated by wetland trees (cypress or gum) or grassy plants.
- Beaver ponds are wetlands created by beavers damming small streams.
- Farm ponds are wetlands created by farmers damming small streams. Interestingly, small, created ponds such as farm ponds are one of the few wetland types that have increased in the U.S. over the past years.

The hydric soils in wetlands contain so much stagnant water that oxygen is eliminated (they are anoxic). As a result, the microbes (such as bacteria) that live in wetland soils have unique ways to survive; instead of using oxygen to respire, they use nitrate or other chemicals. Because farmers rely heavily on nitrogen fertilizers, the hydric soils of wetlands are an especially important feature of wetlands for agriculture. Hydric soils can be readily seen by simply digging a hole in a suspected wetland and looking for black or dark gray soil, indicating that oxygen is not present (orange or yellow soils have oxygen present).

Farm ponds created for watering livestock or supplying irrigation water can also support numerous wetland fish and insects and can supply drinking water for birds, wildlife, and honey bees.

Benefits to Water Quality

Wetlands are low spots in the landscape, and water tends to flow toward them, especially runoff from storms.

- Once runoff enters a wetland, sediments and chemicals such as nitrate tend to settle as water flows slow, and thick vegetation traps the material. Wetlands often serve as "sinks" for these materials, at least temporarily.
- Nitrate is an important fertilizer for agricultural crops, but if excess nitrogen runs off of farmlands into streams, rivers, and lakes, it becomes a pollutant. If excess nitrate ends up in water, noxious algal blooms can develop. Excess nitrate in drinking water can also harm human health.
- The bacteria in hydric wetland soils convert waterborne nitrate to nitrogen gases, in a process called "denitrification." These gases vent to the atmosphere, removing the nitrogen from the water. One of the gases is common nitrogen gas, which already makes up 78% of the atmosphere, and is harmless. A small amount of nitrous oxide gas can also be produced by denitrification, and it is considered a greenhouse gas. So, while denitrification in wetlands has clear benefits for water quality, its overall environmental impacts are not as clear cut.
- Because runoff water from farmlands often flows across wetlands (such as stream and river floodplains), these wetlands provide an important service by protecting the quality of water in our rivers and streams from excess nitrate. Recent studies report that the flooding and water quality protection provided by floodplain wetlands can be worth as much as $10,000 per wetland acre per year!

Benefits for Flood Control

Wetlands frequently receive excess runoff from storms, either from across the land or from overflows of streams and rivers.

- Many wetlands act as environmental "sponges," absorbing and storing excess runoff from storms, and diminishing flood severity downstream.
- Reductions in flood peaks caused by wetlands can protect people and their property from destructive flooding.
- For farmers, agricultural fields located on floodplains are enriched by floodwaters (by sediment and nutrient supplements to the soils). Water retained in wetlands maintains levels of surficial (shallow) aquifers, enhancing adjacent soil moisture, and potentially reducing the need for irrigation.

Wetlands absorb excess water from large floods, reducing how high the water rises, and protecting people's property.

[Return to Index]

FROM THE FIELD

How wetlands benefit Georgia agriculture, cont'd

Benefits for Fish and Wildlife

Being connected to the land, farmers have a special appreciation for fish and wildlife and realize that many wild animals live on or around their lands.

- Wetlands are especially important habitats for fish and wildlife. Game species such as ducks, turkeys, bobwhite quail, deer, raccoons, fish, and many others, live in or visit wetlands.
- Besides game animals, wetlands provide a valuable habitat for many beneficial non-game animals, such as herons and other water birds, raptors, songbirds, frogs and salamanders, dragonflies and other aquatic insects, and pollinator insects such as butterflies and honey bees.
- Floodplain wetlands along streams can provide migration corridors for animals to safely move from place to place.

Wetlands are homes for a diversity of small animals. Georgia is renowned for supporting an especially high number of frog and salamander species, almost all of which breed in wetlands. Pictured are ornate chorus frogs. Photo: Kevin M. Endge, FL Fish and Wildlife Conservation Commission

Benefits to Pest Control and Pollination Services

It is well known that natural areas on farms provide habitat for many natural enemies of insect crop pests, enhancing valuable biological controls. Beneficial pollinators will also live in residual natural habitats on farms.

- Many predatory (ants, spiders, ground beetles, dragonflies) or parasitic (parasitoid wasps) arthropods, insectivorous birds (swallows, quail, songbirds), and pollinators (bees and butterflies) use wetlands as habitat, and readily move from the wetlands into croplands to forage. These animals will target plant pests or pollinate flowering fruit trees, enhancing agricultural production.
- Unlike upland natural areas, wetlands are less likely to harbor crop pests or noxious weed plants because the plants that grow in wetlands typically only occur there (reeds, sedges, wetland trees and shrubs) and will not grow in adjacent drier cultivated areas. Insect herbivores that feed on wetland plants are unlikely to feed on unrelated crop plants.

Researchers at the University of Georgia Iron Horse Research Farm are conducting studies to identify which insect natural enemies move between a wetland and an adjacent corn field, and are using experimental cages to determine how corn plants and other crops benefit from the pest control exerted by these wetland natural enemies.

Wetland Regulation

Many farmers may be concerned that having a "wetland" on their farm could lead to additional restrictions. This worry is unfounded.

- Wetlands that have been farmed for decades are considered "agricultural wetlands" and routine agricultural activities conducted in the past are still permitted.
- In Georgia, it is already required to maintain a protective 25-ft. buffer along streams and rivers (50-ft. buffer for trout streams), whether the buffer is a wetland or not. Most floodplain wetlands along streams will occur in these buffers, and so are already protected.
- Draining or filling a wetland is a restricted activity, because this results in the conversion of a wetland to non-wetland status. But many routine farming activities in wetlands, such as planting, grazing, logging, mowing, fertilization, or pest control, among others, are not prohibited as long as the activity does not convert the wetland to a non-wetland. However, best management practices should be followed to maintain beneficial attributes of both wetlands and farmlands.
- Draining or filling existing natural wetlands on most Georgia farms is likely impractical. After decades (or centuries) of agriculture, remnant natural wetlands in Georgia are usually places already proven unusable for productive cultivation (too wet). As described earlier, maintaining wetlands in their current condition can still provide tangible values to agriculture.

How You Can You Enhance the Value of Your Wetland?

The simple answer is to just leave wetlands alone. Most of the benefits from wetlands are natural and occur on their own.

- Do not extend crop treatments (fertilization, sprays) into the wetlands.
- Minimize mowing, as wetland vegetation is habitat for most of the beneficial wildlife, insect natural enemies, and pollinators in wetlands. However, studies show that occasional haying or grazing in wetlands can benefit some wetland plants and animals.
- If you are interested in maximizing the quality of your wetlands, many restoration techniques have been developed to rehabilitate degraded wetland habitats. Local conservation groups such as Ducks Unlimited, the Adopt-a-Wetland program, or the Georgia Department of Natural Resources may provide useful advice (as might the senior author of this publication; dbatzer@uga.edu).

In summary, wetlands can provide Georgia agriculture with a wide range of beneficial services, usually at no cost to the farmer. We hope that after reading this publication, farmers will no longer view wetlands as wastelands, but instead as valuable additions to their farms. ■

Adapted from UGA Extension Publication #1519

[Return to Index]

FROM THE FIELD

Articles and news stories pertaining to IPM field work written by outside sources.

Bark and woodboring beetles in wind-damaged pine stands in the southern United States

by Kamal Gandhi, Kier Klepzig, Brittany Barnes, Benjamen Gochnour, Elizabeth McCarty, Thomas Sheehan, Caterina Villari, and J.T. Vogt

In recent years, devastating hurricanes such as Irma and Michael have resulted in wide¬spread tree mortality, especially in commercially important pine plantations. Typically, major hurricanes (Category 3 and greater) make landfall along the U.S. coastline at a frequency of two out of three years. Models indicate that, as the climate changes, such disturbances will increase in frequen¬cy and cause greater damage. Forest manag¬ers may, therefore, need to focus on the impacts of catastrophic windstorms to make effective decisions for long-term forest sustainability.

Damage to trees in areas affected by windstorms is variable and may include snapped trunks, uprooting, bent and leaning trees, and slash debris. Tree mortality may occur over several years as leaning live trees and standing trees that experienced damage may take a few years to die. Damaged, dying, and dead trees provide excellent habitats for pests and pathogens, such as bark beetles, woodboring insects, and pitch canker. Many species of bark and woodboring beetles are known to invade wind-disturbed forests and reproduce in the woody debris. The insects may increase in population size and move into residual and surrounding live trees to cause even greater economic damage over time.

Windthrow of a pine stand from Hurricane Michael. Photo: Benjamin Gochnour, UGA

Dendroctonus and Ips are two important types of bark beetles that are expected to colonize wind-damaged trees in the southeast. Southern pine beetle is the most damaging forest insect in the southern United States (Fig. 1). Under certain conditions, southern pine beetle can outbreak, killing or damaging millions of cubic feet of standing timber and causing hundreds of millions of dollars in economic losses. In contrast to some anecdotal reports, an association between increased southern pine beetle-caused mortality and severe windstorms has not been officially documented. Rather, stand-level characteristics, such as reduced radial growth prior to attack and high stand density have been implicated in southern pine beetle outbreaks.

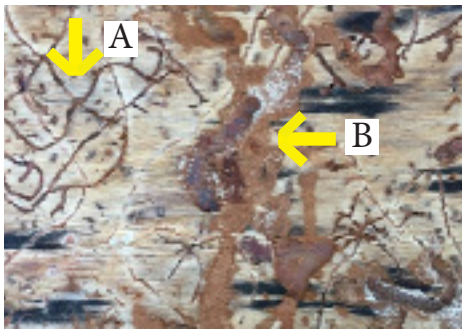


Figure 1. Southern pine beetle (A) and woodborer beetle (B) galleries underneath the bark.

Numerous other beetle species are known to attack wind-damaged trees, including live, seemingly healthy trees. Black turpentine beetle [Dendroctonus terebrans (Olivier)], and three species of pine engravers [Ips avulsus (Eichhoff), I. grandicollis (Eichhoff), and I. calligraphus (Germar)] are not as economically damaging as southern pine beetle (Fig. 2A). However, they kill stressed trees and introduce the economically detrimental bluestain fungi as part of their attack process. The southern pine sawyers (Monochamus species) may be especially abundant and damaging to the wood of beetle-infested trees in the southeastern (Figs. 1, 2B).

Figure 2. An Ips beetle (A), and a Monochamus beetle larval galleries (B) on trees.

Pre-wind-damage Management: Well stocked and healthy pine stands weathered the recent storms the best. The most severe timber damage was found in recently thinned pine stands, due to lower basal area that had lower wind resistance and fewer neighboring trees to provide support to tree tops. In addition, root systems of affected trees were inadequate anchors, and the stems were not strong enough to withstand heavy winds. Despite susceptibility of recently thinned stands to wind damage, thinning and other stand management activities are recommended at the appropriate stand age and tree condition. Damage was also less likely in mature longleaf than loblolly pines, due to their larger stems and well-developed root systems.

Post-wind-damage Management: Post-windstorm management options will depend on the severity of wind damage and overall goals for the property. Landowners facing a complete harvest may consider reforestation with the most appropriate pine species for the site. If the goal is beyond economic returns, issues such as native plant restoration, wildlife habitat, and encouragement of natural regeneration may take precedence. Wind-storm damaged stands should be monitored for 2-3 years for bark and woodboring beetle activity, with frequent (every 2-3 weeks) inspections during the first year. ■

Adapted from UGA Warnell School of Forestry and Natural Resources Publication No. 19-38

[Return to Index]

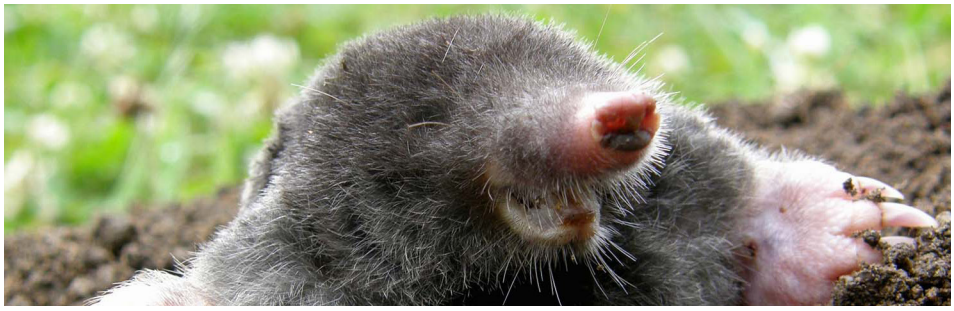
MEDIA MENTIONS

Articles and news stories pertaining to IPM field work written by outside sources.

Four-legged excavators cause damage to home lawns this time of year

by Paul Pugliese

The phones are ringing at local University of Georgia Cooperative Extension offices this time of year as homeowners puzzle over which critters are digging up their yards. There are many possibilities for what animals may be involved, so homeowners can be on the lookout for clues to figure out what the culprit might be based on the size of the holes, associated damage and where the holes are located.



Moles are insectivores that are closely related to shrews and bats. In the fall, there is a lot of mole activity because white grubs are starting to hatch out near the soil surface. This is one of the mole's favorite snacks. Moles tunneling under the lawn can be a symptom of a grub problem, especially in yards that are consistently irrigated.

More often than not, the smaller, four-legged excavators are in the rodent family. If the damage is more extensive than just a few holes, there may be larger mammals involved, such as armadillos or wild hogs. Ultimately, to get to the bottom of the hole problem, you might need to set up a trail camera to catch the animal in the act. Once the animal is identified, then we can recommend a specific control option.

The rodent family includes at least a dozen possibilities for Georgia. Some of the more common rodents we get calls about include voles, chipmunks, squirrels and woodchucks (also known as groundhogs). Moles are also very common, but are technically not rodents.

The size of the hole or burrow usually correlates with the size of the animal. Live traps and/or shooting are the most effective means for dealing with larger rodents and armadillos. The size of the animal you are targeting will determine the size of the trap.

Moles are insectivores and are more closely related to shrews and bats. In the fall, there is a lot of mole activity because white grubs are starting to hatch out near the soil surface. This is one of the mole's favorite snacks. These white grubs are frequently found in lawns and are the result of Japanese beetles and other beetle species laying their eggs this past summer. The grubs feed on the roots of grass and can occasionally cause damage to a lawn. Moles tunneling under the lawn can be a symptom of a grub problem, especially in yards that are consistently irrigated.

Knowing that the food source involves grubs helps you deduce that moles are involved. If white grubs are found to be a problem in the lawn (around 10-20 per square foot of sod), then insecticide treatments are justified to avoid root damage from the grubs. Early fall is the best time to treat for grubs. Treating for grubs may temporarily reduce this food source for the moles, but it can increase their digging activity in search of food. This might result in more damage to the lawn.

Because moles eat insects, grubs and worms, there is really not a good way to bait them into a trap and poison baits are seldom effective. Moles live and travel in underground tunnels just below the soil surface. Generally, only one mole lives in each burrow. However, you may have a network of underground runways that house individual moles. Most mole burrows average about 5 to 8 inches beneath the surface.

Packing the soil with a roller or reducing soil moisture from frequent irrigation may reduce a lawn's attractiveness to moles. Packing may even kill moles if done early in the morning or late evening when they are most active.

No chemical products have been shown to be effective at repelling moles. Fumigants containing aluminum phosphide or gas cartridges are labeled for controlling moles, however, exact placement of fumigants in the mole's deeper burrows is required to be effective. Home remedies have not been proven effective at controlling moles.

Trapping is the most effective and practical method of getting rid of moles. There are several mole traps on the market that are specifically designed for killing moles with spring-loaded mechanisms. The traps should be placed in straight runways that show fresh signs of mole activity. Take care not to disturb any part of the mole's runway tunnel except where the trap is being inserted. Another option is to bury a large coffee can or wide-mouth jar in the mole's tunnel to create a pit trap and cover the top of the burrow with a board. The moles will fall into the pit trap and be captured alive using this method.

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[Return to Index]

MEDIA MENTIONS

Articles and news stories pertaining to IPM field work written by outside sources.

UGA CAES scientists study alternative control methods for center rot disease in organic onion production

by Clint Thompson

A U.S. Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA) Organic Transitions grant is funding a study of management options for center rot disease in organic onion production in Georgia and Michigan. The study is headed by University of Georgia Cooperative Extension plant pathologist Bhabesh Dutta and researchers from Michigan State University. The three-year grant, valued at $498,793, supports a collaborative project between UGA and Michigan State University. Scientists at both institutions are exploring alternative methods to control center rot, with regards to weed and thrips management, along with cultural practices.

The three-year National Institute of Food and Agriculture grant, valued at $498,793, supports a collaborative project to study organic management methods for center rot disease. The study is headed by UGA Extension plant pathologist Bhabesh Dutta and researchers from Michigan State University.

Georgia is one of the largest producers of spring onions in the U.S. and Vidalia onions are the No. 1 vegetable grown here. In Georgia, most Vidalia onions are grown using conventional methods. "There are some growers who are trying to transition some of their acreage into organic farming. But there are challenges in organic agriculture, especially with weed, disease and insect issues and the limited availability of options to manage them," Dutta said.

Other UGA researchers working on the project include UGA Extension vegetable horticulturists Tim Coolong and Andre Da Silva; UGA Extension weed specialist Tim Grey; and UGA Extension entomologist Jason Schmidt. Carroll Johnson, a USDA organic weed scientist, will collaborate on the project. Vegetable pathologist Mary Hausbeck and Extension vegetable entomologist Zsofia Szendrei from Michigan State University will also collaborate on the multistate project.

Center rot is the most challenging issue that conventional and organic onion producers encounter. Its symptoms consist of white streaks with water-soaked margins along the length of the leaf and soft rotting of the bulbs. Although the pathogen was initially confined to the Vidalia-growing region in southeast Georgia, it has moved into most onion-growing regions in the country, specifically Colorado, Michigan, New York and Pennsylvania.

Because of the complex nature of center rot and the lack of chemical treatments for organic farmers, UGA is evaluating different management options for three inoculum sources of pathogen: seeds, weeds and thrips. Physical and biological treatments of organic onion seeds will be studied in the hope of eliminating the seedborne inoculum. If the pathogen populations are eliminated from infested seeds, this will reduce or delay center rot, Dutta said.

Managing thrips is key because the pests can transmit the pathogen to the onion crop. Since traditional insecticides aren't used in organic systems, promoting a diverse group of natural enemies is important to organic farmers. Schmidt and Szendrei will document the predators and parasitoids in Georgia and Michigan to gain a better understanding of which organic pest management practices work best. Another method of center rot control being researched is the use of organic fertilizers, according to Coolong. Many growers use chicken litter-based fertilizers or fertilizers that release nitrogen over an extended period of time. In conventional farming, growers usually stop applying fertilizer late in the season, but that may not be possible in organic production.

Organic production has increased considerably across the U.S. According to the 2014 National Organic Survey, the value of organic products in the U.S. was $5.5 billion, up 72% since 2008. Georgia ranks among the top 13 organic-producing states with organic certified and transition land acreage of 9,603 acres and commodities valued at $19.6 million per year.

Dutta said research will be conducted at the organic-certified fields at the UGA campus in Tifton, Georgia, for the first two years of the project. During the third year, research will be conducted in growers' organic-certified fields, which will allow researchers to evaluate best management practices with organic growers' standards. ■

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[Return to Index]

CALL TO ACTION!

EPA Call for Public Comments

EPA just announced the Draft Human Health and/or Ecological Risk Assessments for the following fungicides and an antioxidant. Public comments can be submitted in the links provided below and comments are due on January 17, 2020.

1. Boscalid

Boscalid is currently registered for use on numerous agricultural and orchard crops, and as a seed treatment, on golf course turf, residential ornamentals, landscape gardens, residential fruit and nut trees, and greenhouse grown tomato transplants for the home consumer market. The registered seed treatment uses are commercial only and the use of on-farm seed treatment is prohibited.

2. Ethoxyquin

Ethoxyquin, an antioxidant, is currently registered for use as a deterrent of scald in pears through post-harvest (indoor) applications via drench/in-line spray treatment, thermal fogging, and/or impregnated in paper wraps.

3. Etridiazole

Etridiazole is a fungicide used to control damping-off, root rot and stem rot caused by Pythium and Phytophthora. It is used on golf course turf, cotton and nursery ornamentals, non-bearing citrus, non-bearing coffee, tobacco floatbeds, and mixed with potting soil for greenhouse use. It is also used as a seed treatment on barley, beans, corn, cotton, peanuts, peas, sorghum, soybeans, safflower and wheat.

4. Mandipropamid

Mandipropamid is registered for use as a liquid formulation on various crops in agricultural fields, orchard/vineyards, nurseries, and greenhouses. Mandipropamid can be applied via aerial, ground, chemigation, and handheld equipment, as well as via seed treatment equipment for potato seed pieces at maximum seasonal application rates ranging from 0.26 to 0.52 lb ai/A. It is registered for the control of foliar oomycete pathogens in a range of crops including Brassica, citrus, cucurbits, fruiting vegetables, herbs/spices, leafy vegetables, tuberous and corm vegetables, grapes, ornamentals, and onions. It is an important part of a control program for downy mildew in many vegetable crops, especially in spinach and lettuce. It is also used to control late blight in tomatoes and potatoes. When used as a potato seed piece fungicide treatment it helps protect against the infection or spread of seed-borne late blight (Phytophthora infestans) during seed piece cutting and handling.

5. Myclobutanil

Myclobutanil is registered for use on various agricultural field and orchard/vineyard crops, ornamentals, vegetables, turf and lawns, and for seed treatment uses on cotton. Registered homeowner uses of myclobutanil include uses on fruit and nut trees, berries, vegetables, lawns, gardens, and ornamental shrubs and trees. Myclobutanil, a triazole fungicide, is mainly used for the control of powdery mildews and rusts.

6. Pyrimethanil

The registered agricultural use sites include the following crops/crop groups: almonds, bulb vegetables, ginseng, grapes-including small fruit vine climbing subgroup except kiwifruit), lemons, small berries (caneberry subgroup 13-07a and bushberry subgroup 13-07b), stone fruits (except cherries), pistachios, pome fruit, potatoes and other tuberous and corm vegetables, strawberries including low growing berry subgroup, tomatoes, postharvest treatment of citrus fruits, and greenhouse cucumber. It is used for controlling scab disease, gray mold, brown rot, blossom blight, early blight, and storage rot disease. ■

[Return to Index]

FUNDING OPPORTUNITIES

Potential grant options for IPM field work.

Rural Energy for America Program

Call for proposals now open, deadline is January 31, 2020

This program assists rural small businesses and agricultural producers by conducting and promoting energy audits and providing Renewable Energy Development Assistance (REDA). The assistance must be provided to agricultural producers and rural small businesses. Rural small businesses must be located in eligible rural areas. This restriction does not apply to agricultural producers. For more information, please visit their website. ■

Organic Transitions Grant

Call for proposals deadline is Thursday, February 27, 2020

The overall goal of the Organic Transitions Program (ORG) is to support the development and implementation of research, extension and higher education programs to improve the competitiveness of organic livestock and crop producers, as well as those who are adopting organic practices. ORG will continue to prioritize environmental services provided by organic farming systems in the area of soil conservation, pollinator health, and climate change mitigation, including greenhouse gases (GHG), as well as the development of educational tools for Cooperative Extension personnel and other agricultural professionals who advise producers on organic practices, and development of cultural practices and other allowable alternatives to substances recommended for removal from the National Organic Program's National List of Allowed and Prohibited Substances. It is expected that all projects will integrate research, education and extension activities, as appropriate to project goals, although some projects may be weighted more heavily than others in one or more of these areas. For more information, please visit their website. ■

Organic Agriculture Research and Extension Initiative

Call for proposals deadline is Thursday, January 30, 2020

The Organic Agriculture Research and Extension Initiative (OREI) seeks to solve critical organic agriculture issues, priorities, or problems through the integration of research, education, and extension activities. The purpose of this program is to fund projects that will enhance the ability of producers and processors who have already adopted organic standards to grow and market high quality organic agricultural products. Priority concerns include biological, physical, and social sciences, including economics. The OREI is particularly interested in projects that emphasize research, education and outreach that assist farmers and ranchers with whole farm planning by delivering practical research-based information. Projects should plan to deliver applied production information to producers. Fieldwork must be done on certified organic land or land in transition, as appropriate to project goals and objectives. For more information, please visit their website. ■

UPCOMING EVENTS

THIS MONTH

Dec 16 - SE Viticulture Roundup & New Growers Workshop | 9:00AM - 4:30PM | Atlanta, GA

SAVE THE DATE

Jan 8 - On-farm Pre-harvest Water Treatment Systems | 9:00AM - 5:00PM | Savannah, GA

Jan 9-12 - Southeast Regional Fruit and Vegetable Conference | Savannah, GA

Jan 20-23 - WinterGreen Conference | Duluth, GA

Jan 22-25 - Southern Sustainable Agriculture Working Group (SAWG) Conference | Little Rock, AR

Feb 7-8 - Georgia Organics Conference and Expo | Athens, GA

For more events, please visit the
UGA Extension Calendar

UGA Extension IPM Program Information

The UGA Integrated Pest Management Newsletter is a monthly journal for researchers, Extension agents, Extension specialists and others interested in pest management. It provides the most updated information on legislation, regulations, and other issues concerning pest management in Georgia.

Do not regard the information in this newsletter as pest management recommendations. Consult the Georgia Pest Management Handbook, Extension publications or appropriate specialists for additional information.

Have questions about the newsletter, website or basic information? Contact us at ipm@uga.edu!

We value your feedback! Please complete our survey.

To be added to the mailing list, please call us at 706-542-5783 or email us at ipm@uga.edu

[Return to Index]