



Volume 16, Number 2

Summer 2017 Edition

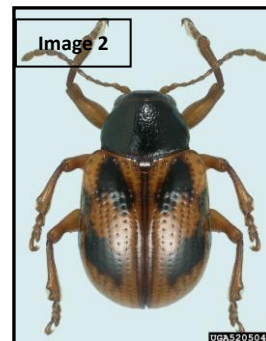
Strawberry Rootworm

Strawberry rootworm (*Paria fragariae*) is a pest of strawberries as well as other plants, including blueberries. As an adult, the strawberry rootworm is a dark and oval shaped beetle that is approximately 3 mm long (See images 1 and 2 below). Adult feeding results in damaged foliage (see image 3) while the white colored larvae feed exclusively on plant roots.

There is one generation per year, where adults are active during the spring, laying eggs on the lower leaves of plants. As larvae emerge, they move to the soil where they feed on roots in late spring to early summer. Adults feed on leaves in May and again in late July generally at night. The beetles continue to feed on leaves until they overwinter.

Both adults and larvae contribute to reduced plant vigor, although adult feeding tends to be the most visually noticeable. Scouting and rotating crops may help control this pest but no thresholds have been established. No known cultivars are known to be resistant. A conventional product that may be used is PFR-97 20% WDG (1-2 lbs./A) and an organic product that may be used is PyGanic 1.4 EC_{II} (16-64 fl oz./A) or PyGanic 5.0 EC_{II} (4.5-17.0 fl oz./A).

Further information can be found in the Cornell Pest Management Guidelines for Berry Crops as well as through your local Cornell Cooperative Extension office. Guidelines can be purchased here: <https://cropandpestguides.cce.cornell.edu/>.



Features:

Strawberry Rootworm:
Page 1

Protecting crops from
SWD
Pages 2-5

Invasive Pest of Fruit
Crops
Page 6

Protected Culture for
Strawberries Using Low
Tunnels
Pages 7-8

The Fall of the BMSB in
New York's HV
Page 9

Survey Details Impact of
2016 Drought on NY
Farming
Pages 10-11

Ag Business Tuesdays
Page 12

Upcoming Events
Page 13

Organic and IPM Guides
for Berries
Page 14

Bees face heavy
pesticide peril from
drawn-out sources
Pages 15-16

Insects and Diseases
According to Crop
Pages 17-18

Cornell Fruit Resources
Page 19

Editor's Note
Page 20

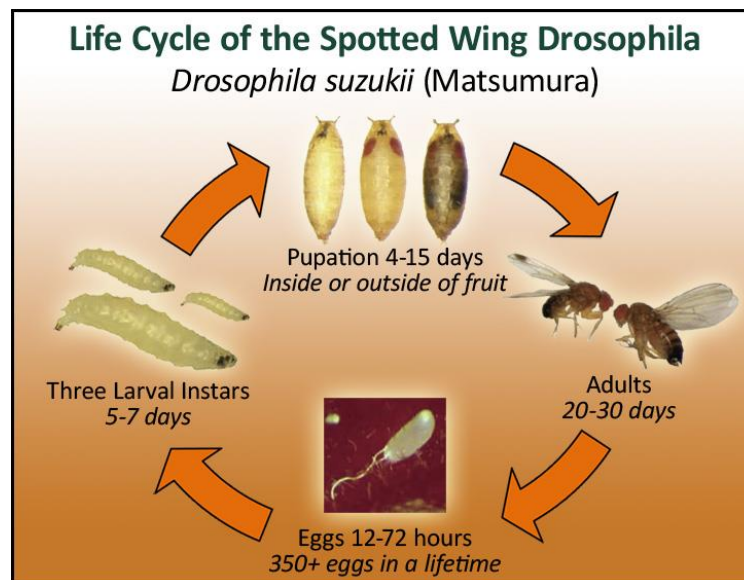
- 1.) [Chazz Hesselein, Alabama Cooperative Extension System, Bugwood.org](#)
- 2.) [Natasha Wright, Cook's Pest Control, Bugwood.org](#)
- 3.) [Chazz Hesselein, Alabama Cooperative Extension System, Bugwood.org](#)

Protecting crops from SWD infestation

Originally posted on the [SWD blog](#) managed by Juliet Carroll, Fruit IPM Coordinator, NYS IPM Program

To protect crops from SWD infestation, once susceptible fruit is ripe and SWD is in your area, manage them aggressively. **Using a combination of tactics is better than relying on one; and is the foundation of integrated pest management (IPM).**

Talk to your local Extension office about how to monitor for SWD, read [Extension newsletters and alerts](#), and know your crops' growth stages. When adult SWD are present on your farm AND fruit are ripening, it is time to protect fruit and reduce SWD population growth with insecticides, unless exclusion netting is in place.



Raspberries, blackberries, and blueberries are at high risk of SWD infestation. Fall-bearing and late maturing varieties are at far greater risk than early maturing ones, because SWD populations build exponentially to very high levels in late summer and early fall. June-bearing strawberries may escape injury, whereas late summer fruit or day-neutral varieties may suffer damage. Cherries, both tart and sweet, elderberries, peaches and plums are also susceptible, but harvests may occur before SWD populations buildup. Thin-skinned grapes can be infested directly, though cracked or damaged berries are more susceptible.

Female SWD can lay eggs directly into sound fruit. They prefer ripe fruit, but can lay eggs in fruit even as ripening begins. Therefore, keep an eye on fruit development in your fields. Egg laying activity is greater under conditions of low light, such as dawn and dusk or in dense plant canopies, weed-shaded areas in a planting, or parts of the planting shaded by adjacent woods or buildings. Adult SWD, in general, are most active during cool, humid times of the day. We have had significantly cool and moist weather this spring and first catch of SWD has occurred in a few areas in New York already (early June).

Protecting crops from SWD infestation Continued...

Examine your plantings for conditions that promote SWD infestation and take steps to eliminate them. Although we cannot change the weather, we can alter conditions in the planting to reduce the cool, dark, humid areas preferred by SWD. Canopy, weed and irrigation management will make the environment less favorable. If your fruit planting lends itself to full enclosure, consider [exclusion netting](#) to keep SWD out.

- **Canopy** – Pruning and training systems must maintain an open canopy to increase sunlight and reduce humidity. This will make plantings less attractive to SWD, will reduce SWD activity and will improve spray penetration and coverage. Added benefits include improved fruit color and flavor promoted by sunlight, easier picking by workers and customers, and easier weed management. Pruning tactics have been developed to achieve excellent fruit yield and open the canopy. I will detail these in [a later blog](#). Although the best time to prune is over, knowing different strategies now will help you in the future.
- **Weeds** – Mow row middles and field edges routinely to reduce preferred habitat for SWD within and around the planting. Eliminate weeds within rows to increase sunlight penetration into the canopy, reduce preferred habitat, and improve spray penetration into and deposition on the canopy.
- **Irrigation** – Repair leaking drip lines and avoid overhead irrigation when possible. Allow the ground and mulch surface to dry before irrigating. Eliminate problem areas where water puddles are slow to dry out. Raised beds are essential for raspberry production to reduce Phytophthora root and crown rot and will also help maintain a dry environment under the planting.



Fruit of tartarian honeysuckle, also considered an invasive plant in New York, can support SWD development.

As fruit begins to ripen, know if SWD has been found in your area. If you are monitoring SWD with your own traps, check them routinely. If feasible, check them daily. It is easier to sort through a small number of vinegar flies caught in traps to look for SWD than it is to sort through 40-400. Females usually arrive first, but males are soon to follow and often caught along with females.

- The blog – Keep up with notices on the [SWD blog](#).
- Newsletters – Read your local Extension [newsletters and alerts](#).
- Map – Review the New York monitoring network's [SWD distribution map](#).

Protecting crops continued...

If SWD is in your area and susceptible fruit is just about ripe, insecticide treatments could begin. This will be especially true in years when SWD arrives early, because SWD populations will build to high levels placing even summer-maturing fruits at risk, particularly when weather conditions are ideal for SWD activity—cloudy, cool, moist. When SWD populations are high, treatments should be applied every five to seven days and repeated in the event of rain. Choose the most effective insecticides with preharvest intervals that work for your picking schedule. Rotate insecticides according to their modes of action to prevent the development of insecticide resistance. Insecticide sprays will kill or suppress SWD adults, thereby reducing egg laying and slowing population buildup.

- **Insecticides** – Based on the [Cornell Pest Management Guidelines](#) for tree fruit, grapes and berry crops we've put together quick guides to the latest list of approved insecticides for use against SWD on [berries](#) and on [tree fruit & grapes](#). Always read and follow the pesticide label instructions.
- **Resistance management** – Insects treated with the same pesticide repeatedly may develop resistance to that pesticide's mode of action. The Insecticide Resistance Action Committee (IRAC) has developed groupings for modes of action. When materials in one IRAC group are used exclusively over an entire growing season and over years, they are at high risk of becoming worthless as a control measure due to resistance development. Always rotate between IRAC groups, as described on the label.
- **Protecting pollinators** – If your crop is flowering, that means there are pollinators visiting flowers. Therefore, spraying insecticides will place pollinators at risk of non-target exposure to insecticides, unless these materials are applied when pollinators aren't active, such as during dawn or dusk, or when the crop is no longer flowering. This can be particularly challenging for raspberries and blackberries, which may have a long bloom period that spans fruit ripening. Organic-approved products with the active ingredients spinosad, azadirachtin, and pyrethrum are toxic to pollinators. No matter which insecticide you choose, always read the label and keep pollinators safe from insecticide exposure.

Regularly inspect fruit in the planting for symptoms and signs, paying close attention to fruit ripening in areas prone to SWD activity—near woods, shaded or wet areas—span a random transect of the planting. Sample ripe fruit and examine it microscopically for egg breathing tubes or check for larvae with salt flotation. Get infested fruit out of the planting so SWD populations don't have a chance to buildup.

- **Symptoms** – Fruit can be inspected for evidence of larval feeding. Small holes in berries where the eggs were laid may leak juice when the berry is gently squeezed; this is especially diagnostic on blueberry, cherry, and plum. Infested red raspberry fruit may leave a red juice stain on the berry receptacle when the fruit is picked. Fruit with small indents or bruises where the berry surface appears to have flattened or deflated may be damaged. Help with identifying symptoms is found in the fact sheet, [Recognize Fruit Damage from Spotted Wing Drosophila \(SWD\)](#), from Oregon State University.
- **Breathing tubes** – Egg breathing tubes are two tiny, evanescent, white hairs attached to the egg laid just below the fruit skin. In blackberry, grape, blueberry and cherry it may be relatively easy, though tedious, to find these on fruit in which eggs have been laid, but magnification is essential. A 20x hand lens or loop or a dissecting microscope is needed, and patience. Examine the entire fruit surface. Fuzzy fruit, such as raspberry, are harder to examine because of the difficulty distinguishing breathing tubes from normal plant hairs. To confound the inspection, once eggs hatch, the breathing tubes fall off. You may be able to train your eye to see SWD egg breathing tubes.

Protecting crops continued...

- **Sample fruit** – Salt flotation can be used effectively to keep records of infestation levels in your harvests. At least 100 fruit per block per harvest should be observed for infestation. Immerse fruit in a solution of 1 Tbsp. (14.8 cc) table salt per 1 cup (236.6 ml) water. The salt solution causes larvae to move out of fruit and float into the salt solution. Suggested methods were adapted for New York growers by Laura McDermott in [Guidelines for Checking Fruit for SWD Larvae in the Field](#) (pdf).
- **Sanitation** – Excellent sanitation will reduce SWD populations. Fruit should be harvested frequently and completely to prevent the buildup of ripe and over-ripe fruit. Unmarketable fruit should be removed from the field and either frozen, “baked” in clear plastic bags placed in the sun, or disposed of in bags off-site. This will kill larvae, remove them from your crop, and prevent them from emerging as adults.

Protect your harvests and customer base. Pick only the best and perhaps still slightly firm fruit to help them last longer in your markets. Chilling fruit after harvest is an essential step in prolonging shelf life. Picking crews can pick overripe or suspect fruit into a separate container to get them out of the field. Although the larvae of SWD are safe to eat, most people won't want to do so. Informing customers about SWD and making sure they refrigerate fruit once home will help them understand how to deal with this invasive insect, and still benefit from eating nutritious and delicious fresh fruit.

- **Cool berries** – Chilling berries immediately after harvest to 32° – 33° F will slow or stop the development of larvae and eggs inside the fruit. U-Pick customers should be encouraged to follow this strategy to improve fruit quality at home.
- **Proactive** – Be proactive with your customers. Let them know that you are doing everything you can to manage SWD in your fruit crops. Inform them about refrigerating or freezing fruit as soon as they get home. Highest quality of preserves, jams and jellies will be achieved if prepared soon after purchase.

The take home message for SWD management—use a combination of tactics, choose IPM.



Blackberries severely infested with SWD will hang limp, drip liquid, and dry out on the fruit cluster; inset shows a larva dissected from the blackberry fruit.



Checking fruit for larva with salt flotation at a New York State Berry Growers Association sponsored workshop.



Beautiful, ripe raspberries without SWD, that's the goal of every berry grower these days! Including Dale Ila Riggs, The Berry Patch, Stephentown, NY.

Invasive pest of fruit crops: Spotted Lanternfly

Although not yet found in New York, spotted lanternfly could potentially come into the state. This insect has a large list of hosts, which could affect berry crops as well as other crops you may grow. Below is information taken from the NYS IPM Program Invasive Species and Exotic Pests Factsheet:

<https://ecommons.cornell.edu/bitstream/handle/1813/43943/spotted-lanternfly-NYSIPM.pdf>

Spotted Lanternfly (*Lycorma delicatula*)



The spotted lanternfly, also known as Chinese blistering cicada, is a plant hopper native to China and Southeastern Asia. Discovered in Pennsylvania in 2014, the spotted lanternfly presents a threat to both woody and non-woody hosts that are present throughout the United States. While the insect has many hosts, the greatest agricultural concern falls on grapes, apples, and stone fruits. Effort is underway to try to eradicate this insect in Pennsylvania.

Concern

Due to the fact that this insect has already been found in the United States, there is great concern about its effect on vineyard, orchard, and forest industries. Its presence could lead to crop loss and increased management costs. Spotted lanternfly eggs are laid on any smooth surface, including plants, trunks, stones, and bricks. Because of this, egg masses may be spread unknowingly. Spotted lanternfly nymphs are able to feed on many hosts, while adults prefer Tree of Heaven (*Ailanthus altissima*) and grapevine (*Vitis vinifera*).

Description

Spotted lanternfly adults are very colorful when their wings are displayed during hopping. They have red hind wings with black spots, have a black head, and a yellow abdomen with black bands. Their grayish forewings have black spots with a distinctive black brick-like pattern on the tips. There is one generation per year, with adults developing in July, laying eggs in September, and overwintering as eggs. Each egg mass contains 30-50 eggs that are covered in a waxy brown substance. The first nymphs to develop are wingless, black, and have white spots, while the final nymph stage turns red before becoming adults. Adult males are slightly smaller than the inch-long females, but are almost identical in appearance. Adults and nymphs commonly gather in large numbers on host plants to feed, and are easiest to see at dusk or at night.

Damage

This plant hopper is able to feed using specialized mouth parts that can pierce the plant and suck up sap. Both nymphs and adults feed this way, on leaves, stems, and trunks. Piercing the plant's tissues and feeding on the sap weakens the plant, causing it to ooze and weep, which may result in a fermenting odor and a gray/black trail on the bark. Spotted lanternflies also excrete honeydew while feeding, which overtime may encourage the growth of sooty mold if infestation levels are high. The presence of the fermenting odor and honeydew may also attract other insects.

For More Information

Pest Alert: Spotted Lanternfly. 2014. USDA-Animal and Plant Health Inspection Service: Plant Protection and Quarantine. https://www.aphis.usda.gov/publications/plant_health/2014/alert_spotted_lanternfly.pdf

Pest Alert: Spotted Lanternfly. 2015. Lawrence Barringer, Pennsylvania Department of Agriculture. http://www.agriculture.pa.gov/Protect/PlantIndustry/spotted_lanternfly/Documents/Lycorma%20delicatula%20Pest%20Alert%2002-09-2015.pdf

Protected Culture for Strawberries Using Low Tunnels

Marvin Pritts and Laura McDermott;
Horticulture Section, School of Integrative Plant Science Cornell University Ithaca, NY, mpp3@cornell.edu

A major limitation for strawberry growers is the short season when berries are typically available to sell. The first strawberries ripen in mid-June and harvest ends near the 4th of July. Rainy weather during harvest, especially on weekends, can have a significant negative financial impact on growers, particularly if they market through pick-your-own. It would greatly benefit growers if berries could be protected from the weather and produce over a longer season, into the summer and late fall, as this would extend the season and open up new markets.

Many parts of the world are using plastic tunnels to protect berries and extend their season. The newest plastics greatly reduce ultraviolet light that normally would promote fungal spore germination and they reduce infrared light that produces heat. By coupling this plastic technology with varieties that are day length insensitive, one can extend the season both earlier and later than the typical season.



Albion' strawberries harvested in late fall in Ithaca, NY

With the financial support of the New York Farm Viability Institute, we were able to experiment with these new dayneutral strawberry varieties both on research farms and in grower fields. Given that this is a new concept for New York, we learned some things about what to do to manage these berries, and also a great deal about what not to do. The results of our findings are described in this document. While more research is needed to fine-tune the production system, enough is now known to offer the system to New York growers with the assurance that a reasonably profitable crop can be produced.

Background

In the 1980s, varieties of strawberries (dayneutral) with the capacity to produce flowers during all day lengths (spring, summer and fall) were released to the public. While there was initial excitement with these new varieties and their flavor was excellent, grower interest waned because 1) yields were low, 2) fruit size was small, 3) berries were expensive to pick, and 4) tarnished plant bug (TPB) damaged the ripening fruit.

Protected Culture for Strawberries Using Low Tunnels Continued



'Tribute' strawberry from the 1980s with outstanding flavor and shape, but small size.

A new generation of dayneutral varieties was released in 2004. Although these originated from California, they were relatively well adapted to the Northeast, producing much larger fruits and higher yields than earlier releases. They produce fruit the year of planting and continue fruiting into the fall. After overwintering, they produce another flush of fruit in spring. The fall crop and the second-year spring crop can be protected from rain and cold temperatures by covering rows with plastic on metal hoops – a technology called “low tunnels.” The tunnel plastics not only exclude rain but they can decrease the amount of ultraviolet light and infrared radiation - reducing spore germination and heat load on the plants.

The combination of day neutrals and low tunnels has the capacity to extend the strawberry season from 3 weeks to 5 months. A second year planting will produce fruit from June through early-July and the first year planting will produce fruit from late July until early November...

The full version of this article can be viewed on the Cornell Fruit Resources website through
<http://www.hort.cornell.edu/fruit/pdfs/low-tunnel-strawberries.pdf>.

A presentation version can also be viewed on YouTube through the following link
<https://www.youtube.com/watch?v=5ErInTZNuxM&feature=youtu.be&list=PLHPXm2Es8aQDjpBFIK082BB3NIdeJXM6k>

The Fall of the Brown Marmorated Stink Bug in New York's Hudson Valley

Originally posted on The Jentsch Lab blog page by Peter Jentsch pjj5@cornell.edu
<https://blogs.cornell.edu/jentsch/2017/02/28/the-fall-of-the-brown-marmorated-stink-bug-in-new-yorks-hudson-valley/>

Last summer we captured an important biological control agent, a parasitoid wasp that uses the eggs of the Brown Marmorated Stink Bug (BMSB) for its own reproductive success. This tiny wasp, is the size of a pencil tip, capable of laying its eggs in the eggs of BMSB. We were able to entice this newly invasive insect to lay its eggs in the sentinel BMSB eggs we provided along the wooded edge of an organic Jalapeno Pepper planting in Marlboro NY. Once we reared the wasp out of these eggs at the [Hudson Valley Research Laboratory](#) in Highland, NY, specimens were sent to USDA, and to our amazement, it was [confirmed as the Samauri Wasp, *Trissolcus japonicus*](#).

Researchers believe this wasp to be the most effective tool for reducing BMSB in the United States, where the stink bug has spread over the past 20 years. As this tiny wasp is captured, reared and moved to locations where BMSB is a pest, it will significantly reduce home infestations of BMSB from occurring in the fall, reducing the need to spray the exterior, and in some cases the home interior, to keep the stink bug from entering and overwintering in homes.

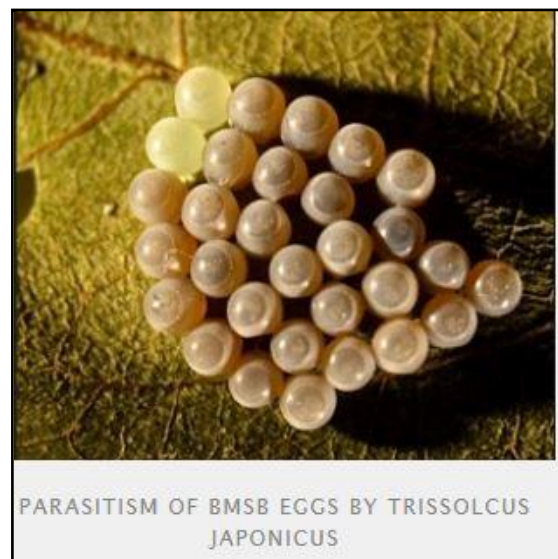
More importantly, this parasitoid can save fruit and vegetable farmers millions of dollars in management costs and yearly loss of crops as BMSB populations decline.

If we can distribute and establish the wasp in New York, it will be the David and Goliath story of the decade.

The project we are conducting is twofold. First we need everyone's help to locate the BMSB in the US. We are doing this by creating a National Citizen Science Project to locate the Brown Marmorated Stink Bug within the continental US. The attached PDF file and web site links embedded in the PDF describe the hows and whys.

The second phase we plan to conduct began in spring and summer, 2017. Our goal is to again capture, rear then distribute and establish *Trissolcus japonicus* in the agricultural environment of New York State. Significant funds are needed to make this a reality. We will be working with land grant university and USDA entomologists, researchers technical support staff throughout the US to utilize this wasp for one objective, the biological control leading to the demise of the Brown Marmorated Stink Bug in the Hudson Valley of NYS and ultimately, the US.

You can help by letting us know where the insect is. Sign on to the [National March Madness Citizen Science Project](#) to put your [BMSB in your homes on the map!](#)



Survey Details Impact of 2016 Drought on New York Farming

Written by Blaine Friedlander;

Originally posted on <https://cals.cornell.edu/news/survey-details-impact-2016-drought-new-york-farming>

A survey of more than 200 New York farmers late last summer – during the worst drought in two generations – found that more than 70 percent of unirrigated, rain-fed field crops and pasture acreage had losses between 30 and 90 percent, according to a new report published by the [Cornell Institute for Climate Smart Solutions](#).

For farmers all over the state, arid conditions were so pervasive that fruit and vegetable growers who had capacity to irrigate lacked water to keep up with the drought. Irrigated farms estimated crop losses of up to 35 percent, said Shannan Sweet, NatureNet postdoctoral science fellow with Cornell's [Atkinson Center for a Sustainable Future](#) and The Nature Conservancy.

“New York’s farmers have asked if they should expect more dry summers like the one we had in 2016. The answer is: We don’t know,” said Sweet, also a postdoctoral associate in the Horticulture Section of the School of Integrative Plant Science, working with David Wolfe, professor of horticulture. “Climate scientists forecast that the number of frost-free days will continue to increase and summers will be getting warmer, increasing water demand for crops.”

The warmth and lack of snow in December 2015, the scarce snow in January and February 2016, and low rainfall and high temperatures during the growing season led to drought conditions throughout New York State. Streams in western and central New York broke records for low water flow by late July and August.

New York’s Department of Environmental Conservation put the state on a drought watch, while the Finger Lakes region and western portions of the state, in particular, battled dry conditions. The drought was so acute that the U.S. Department of Agriculture’s Farm Service Agency declared most counties in the region natural disaster areas. This resulted in eligibility for financial relief in the form of low-cost loans for farmers, according to Sweet.

Western New York farmers lost an average of 39 percent of their field crops, compared with 22 percent for eastern New York farmers. Western farms saw 48 percent forage crop losses, 45 percent for soybeans and 40 percent for corn, according to the report, “[Anatomy of a Rare Drought: Insights From New York Farmers](#).”

Fruit growers in western New York lost about 52 percent of their crop, due to the drought, as grape growers in that region lost 26 percent. Western berry producers lost 96 percent, while the state’s eastern berry growers lost about 75 percent, according to the survey.

Survey Details Impact of 2016 Drought on New York Farming Continued

Producers who irrigated used moveable sprinkler pipes and large “gun” sprinklers, according to the report. Farmers who lacked irrigation equipment used hoses, garden sprinklers and hand-watering to save their crops.

Sweet said that of the farmers who irrigated, 65 percent reported using well and pond water, while 15 percent used municipal water supplies, a method that turned out to be cost-prohibitive.

To protect against drought, farmers said they would expand irrigation capacity, increase water-holding capacity, improve soil organic matter, obtain drought-resistant crops, [consult online tools for long-range forecasting](#), and seek training about drought.

Due to creeping climate change, farmers are seeing more heavy rainfall and drought events.

“The recent rainfall trend we’ve seen are heavy rainfall events – more than 2 inches in 48 hours – and severe short-term droughts in summer that could increase in frequency,” said Sweet. “Flooding and drought will continue to challenge New York farmers.”

[This article also appeared in the Cornell Chronicle.](#)



Cornell University
College of Agriculture and Life Sciences

Ag Business Tuesdays

Are you a farmer in Eastern New York with a question about the management side of your farm business?

The Cornell Cooperative Extension Eastern NY Commercial Hort Team, in collaboration with CCE County offices, is offering **free farm business technical assistance appointments** this summer on Tuesdays at various locations in our service region.

Topics for consultations can include:

- labor regulations and management
- risk management (insurance and best practices)
- land use regulations and zoning
- other food-regulations (labels, processing)
- personal finance and farm transition planning
- tax and other grant and incentive programs
- bookkeeping and recordkeeping
- pricing products and market channel assessment
- contract terms and negotiation and loan programs and financing decisions.

At your appointment we can either help to answer your questions or direct you to the right resources.

You can meet with the ENYCH ag business management specialist, Liz Higgins, in person during your appointment at one of the alternative locations and dates below.

You can also schedule an appointment on one of the dates to consult by phone or by video conference, regardless of your location. Access to a computer with high-speed internet access is needed for video conference. Preference for appointments is given to farmers in the 17 counties in NY served by the Eastern NY Team.

Planned location for July 2017:

July 25 CCE Warren County, Warrensburg NY

Liz will also be doing farm visits in the counties on the following Wednesday. If you would like a farm visit, contact her directly at emh56@cornell.edu.

Appointments are in **1.5-hour increments starting at 9:00 am**. In some cases, early morning or early evening appointments may be available. **Pre-registration in advance is required** - we cannot accommodate walk-ins. To register go to: <http://bit.ly/2oSamG0> or call (518) 949-3722 and leave your *name, preferred date and preferred time and the best way to reach you*.

Upcoming Events!

Ag Business Tuesdays- Warren County July 25th, 2017

CCE Warren County Warrensburgh, NY

More Info: <https://enych.cce.cornell.edu/event.php?id=736>

Empire Farm Days August 8-10, 2017

Rodman Lott and Son Farms, 2973 State Route 414, Seneca Falls, NY 13148

Event website: <http://empirefarmdays.com/>

NASGA 2017 Summer Tour Minneapolis, MN, August 15th & 16th

2017 NASGA Summer Tour will be based out of the Embassy Suites by Hilton Minneapolis Downtown
Register here: <http://www.nasga.org/n-american-strawberry-growers-summer-tour.htm#>

Best Management Practices for High Tunnel Nutrition and Soil Health September 13, 2017

Poughkeepsie Farm Project 51 Vassar Farm Lane Poughkeepsie, NY 12603

More info: <https://enych.cce.cornell.edu/event.php?id=773>

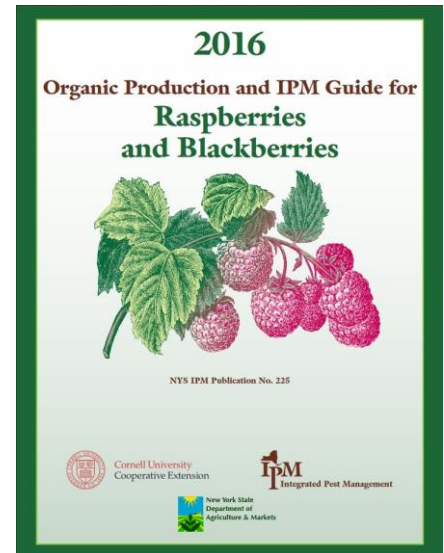
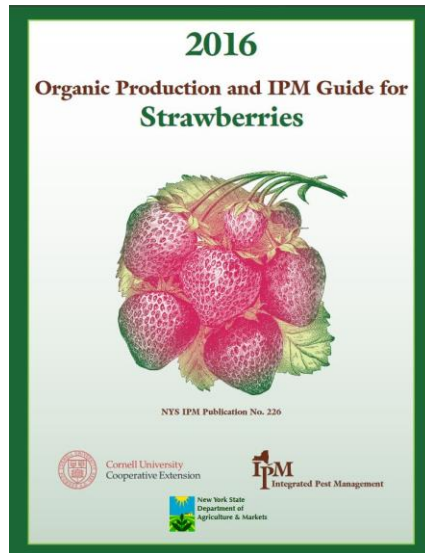
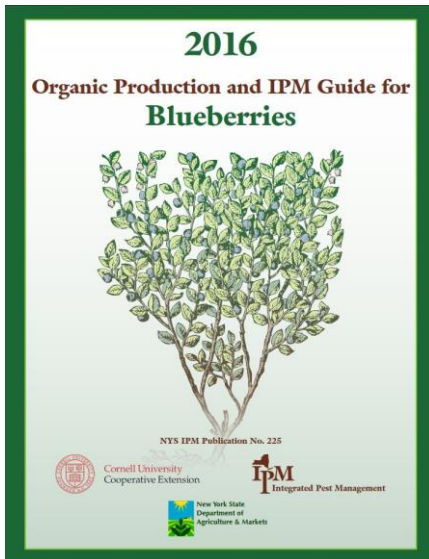
Great Lakes Expo December 5-7, 2017

Devos Place Conference Center and The Amway Grand Plaza Hotel Grand Rapids, Michigan
Registration opens September 25, 2017

Organic and IPM Guides for Berries

A number of organic and IPM guides are available for download through ecommons. Each guide includes an outline of both cultural and pest management practices. Each also include topics that have an impact on improving plant health and reducing pest problems.

Each guide was updated in 2016 and can be downloaded through the links below.



Blueberry

<https://ecommons.cornell.edu/bitstream/handle/1813/42887/2016-org-blueberry-NYSIPM.pdf?sequence=5&isAllowed=y>

Strawberry

<https://ecommons.cornell.edu/bitstream/handle/1813/42890/2016-org-strawberries-NYSIPM.pdf?sequence=5&isAllowed=y>

Raspberries and Blackberries

<https://ecommons.cornell.edu/bitstream/handle/1813/42889/2016-org-rasp-blackberry-NYSIPM.pdf?sequence=5&isAllowed=y>

Bees face heavy pesticide peril from drawn-out sources

Written by Blaine Friedlander;

Originally posted on <http://news.cornell.edu/stories/2017/04/bees-face-heavy-pesticide-peril-drawn-out-sources>

Honeybees - employed to pollinate crops during the blooming season - encounter danger due to lingering and wandering pesticides, according to an analysis of the bee's own food.

Researchers used 120 pristine honeybee colonies that were placed near 30 apple orchards around New York State. After allowing the bees to forage for several days during the apple flowering period, the scientists examined each hive's "beebread" – the bees' food stores made from gathered pollen – to search for traces of pesticides.

In 17 percent of colonies, the beebread revealed the presence of acutely high levels of pesticide exposure, while 73 percent were found to have chronic exposure.

The new Cornell study was published April 19 in Nature Scientific Reports.

"Our data suggest pesticides are migrating through space and time," said lead author Scott McArt, assistant professor of entomology, who explained that bees may be gathering pollen from nontarget wildflowers, field margins and weeds like dandelions where insecticides seem to linger.

"Surprisingly, there is not much known about the magnitude of risk or mechanisms of pesticide exposure when honeybees are brought in to pollinate major agricultural crops," he said. "Beekeepers are very concerned about pesticides, but there's very little field data. We're trying to fill that gap in knowledge, so there's less mystery and more fact regarding this controversial topic."

More than 60 percent of the found pesticides were attributed to orchards and surrounding farmland that were not sprayed during the apple bloom season, according to the study. McArt said that persistent insecticides aimed at other crops may be surrounding the orchards. In addition, pre-bloom sprays in orchards may accumulate in nearby flowering weeds.

"We found risk was attributed to many different types of pesticides. Neonicotinoids were not the whole story, but they were part of the story," he said. "Because neonicotinoids are persistent in the environment and accumulate in pollen and nectar, they are of concern. But one of our major findings is that many other pesticides contribute to risk."

Mass-blooming crops flower in big bursts during the pollination season, so crop producers rent armies of honeybees to supplement the work of wild bees. "There are so many flowers at one given time, often there may not be enough wild bees to perform sufficient pollination services,"

Bees Continued...

Crop pollination by insects, particularly bees, can be valued at more than \$15 billion annually to the U.S. economy, according to research by Nicholas Calderone, professor emeritus of entomology. Producers and beekeepers are now concerned about the high rates of hive declines – estimated to be about 42 percent in 2014-15 domestically. In New York, the losses are often over 50 percent.

To understand the economics, beekeepers may charge more than \$100 per colony for pollination services for apple producers in New York, almond producers in California and blueberry growers in North Carolina. For large farms, several hundred to a thousand pollinating colonies are brought in via large trucks.

Commercial beekeepers sometimes assume they will lose entire colonies, which is why pollination service rates have tripled or quadrupled over the past 15 years, McArt said. He recently shared his research with growers at a New York State Integrated Pest Management meeting, and several farmers said they are interested in altering crop management practices to reduce honeybee injury.

The New York State Department of Environmental Conservation and the Department of Agriculture and Markets assembled a [Pollinator Protection Plan](#) in 2016. Scientists are developing best management practices, reviving pollinator populations, researching and monitoring, and developing outreach and educational programs for beekeepers and producers.

Co-authors on the study, "[High Pesticide Risk to Honeybees Despite Low Focal Crop Pollen Collection During Pollination of a Mass Blooming Crop](#)," are lab manager Ashley Fersch; graduate student Nelson Milano; Lauren Truitt '17; and former research associate Katalin Böröczky.

The New York Farm Viability Institute funded this research.

New York State Pollinator Protection Plan

June 24, 2016



Insects and Diseases According to Crop

Throughout the growing season various pests affect the growth of your berry crops. Below is a brief overview of these common pests, which were derived from this year's Cornell Pest Management Guidelines for Berry Crops:

Highbush Blueberries

- Summer PreHarvest
 - Blueberry Maggot
 - Japanese Beetle
 - Anthracnose Fruit Rot
 - Blueberry Stem Borer
 - Spotted Wing Drosophila
- Harvest
 - Spotted Wing Drosophila

Brambles

- Summer Fruiting Raspberries and Blackberries
 - Petal Fall to Fruit Ripening
 - Spotted Wing Drosophila
 - Strawberry Sap Beetle, Picnic Beetle
 - Tarnished Plant Bug
- Primocane-Fruiting Raspberries (Fall Bearing)
 - When Canes are Approximately 18" Tall
 - Japanese Beetle
 - From Petal Fall Through The Beginning of Harvest
 - Spotted Wing Drosophila
 - Sap Beetle
 - Tarnished Plant Bug
 - Botrytis Fruit Rot/Gray Mold
 - Harvest
 - Spotted Wing Drosophila

Strawberries

- Post-Harvest
 - Leaf Spot, Leaf Scorch, Leaf Blight
 - Twospotted Spider Mite

Ribes

- Special Pests
 - Slugs and Snails
 - Spotted Wing Drosophila

Cranberries

- Dormant
 - Red Leaf Spot and Red Shoot Disease
- Bud Break
 - Cottonball
- Bloom
 - Upright Dieback and Viscid Rot
 - Early Fruit Rot
- Harvest to Post Harvest
 - End Rot

Elderberries

- Bloom
 - Powdery Mildew
- Fruit Ripening through Harvest
 - Spotted Wing Drosophila

Juneberries/Saskatoons

- Diseases of Juneberries and Management Options
 - Entomosporium Leaf and Berry Spot
 - Saskatoon-Juniper Rust
 - Powdery Mildew
 - Fireblight
- Insect Pests of Juneberries and Management Options
 - Saskatoon Sawfly
 - Woolly Elm Aphid
 - Slugs and Snails

Further details and management options can be found in the Guidelines, which can be purchased at <https://store.cornell.edu/p-196340-2017-cornell-pest-management-guidelines-for-berry-crops.aspx>

Detailed fact sheets on these insects and disease are available through the Cornell Fruit Resources Page (<https://blogs.cornell.edu/berries/>) as well as on the NYS IPM Program website (<https://nysipm.cornell.edu/agriculture/fruits/publications>)

Cornell Fruit Resources: New and Improved!

Cornell Fruit Resources is officially updated and available to use. The new design and layout was created to be more user friendly as well as informational. As before, the pages are categorized according to crop type. The Berry Page can be accessed through this link <https://blogs.cornell.edu/berries/> as well as off of the home page <http://fruit.cornell.edu/>.



Any input is welcome. Feel free to email the contacts below with any comments or future suggestions!

General Inquiries	Craig Cramer; cdc25@cornell.edu
Berry Page	Marvin Pritts; mpp3@cornell.edu
Tree Fruit Page	Julie Carroll; jec3@cornell.edu
Grape Page	Tim Martinson; tem2@cornell.edu



Horticulture Section
School of Integrative
Plant Science

Cornell University
Ithaca, NY

PHONE:
607-255-4568/1789

FAX: 607-255-0599

E-MAIL:
hort@cornell.edu

We're on the Web!

See us at:

<http://hort.cals.cornell.edu/>

New York Berry News (NYBN) is a seasonal commercial berry production newsletter provided by Cornell berry team members. It is designed to help promote and strengthen commercial berry crop production in New York State. NYBN is available free of charge in pdf format at: <https://blogs.cornell.edu/berries/new-york-berry-news/>

Visit the NYBN web site to view back issues or to subscribe to monthly e-mail notices with table of contents and a link to the most current issue.

More on individual team members and their areas of expertise may be found at: <https://nysipm.cornell.edu/agriculture/fruits/cce-programs>

UPCOMING EVENTS all posted on page 13



Questions or comments about the New York Berry News?

Ms. Nicole Mattoon
NYS IPM Program – Geneva Campus
630 W. North Street, Geneva, NY 14456
315-787-2624
nem42@cornell.edu