UF IFAS Extension UNIVERSITY of FLORIDA
An Equal Opportunity Institution

Berry Vegetable Times

March 2019

SOLUTIONS

2019 Calendar of Events

Private Applicator Prep Classes and Tests: Exam Review Classes for Private Agricultural Applicator and & CORE standards: Classes cost $15/ class. Please check with hosting agency for times and availability. May 1, 2019. To be held at Manatee County Extension Service in Palmetto. https://www.eventbrite.com/o/pesticide-amp-best-management-practices-classes-15505709468

April 25, 2019. To be held in Seffner at Hillsborough Extension Office. Host is Shawn Steed- 813-744-5519 X54147; http://tiny.cc/Hills_Prvt_Core_Trainings.

June 12, 2019. To be held at GCREC-Balm. Host is Manatee Extension. 941-722-4524. https://www.eventbrite.com/o/pesticide-amp-best-management-practices-classes-15505709468

Worker Protection Standard Train-the-Trainer Class. March 21 at Palmetto and June 13 at GCREC- Balm. Host is Manatee Extension. 941-722-4524 https://www.eventbrite.com/o/pesticide-amp-best-management-practices-classes-15505709468 Cost is $25 and starts at 9:00 am.

Pesticide License Testing at Hillsborough Extension Office. You must register with FDACS and have a voucher that you bring with you. Go to pesticideexam.IFAS.UFL.edu and hit the apply button and you will be taken to FDACS site to register. Times will appear for testing. Check website for testing dates.

If there are no dates that correspond with your work schedule you may possibly be able to schedule another time if agent is available. Contact Susan Haddock, Prohort agent, at 813-744-5519 ext. 54103.

From your agent. . . The 411 on Pesticide Licenses for Growers

People still ask questions about what type of restricted use pesticide license they should get. They wonder if they need private applicator or commercial; ag row or ag tree crop; or soil and greenhouse fumigation? Which one is right for you? If you are the grower or an employee of a farming operation, then you will fall under private applicator license. If you will be applying chemicals for hire for someone and are not an employee, then you will need a commercial license. Commercial licenses and public licenses for government employees will have the various categories - ag row crop, ag tree crop, soil, and greenhouse fumigation. As of right now if you have a private applicator license, you can buy and apply fumigants - you do not have to have a soil and greenhouse fumigant category license. That may change in the future but for now your private applicator license covers you for all your needs for your farm.

The Core category test must be passed for any of the license types. No matter the license you will need 4 CORE CEUs to renew you license. For each type of license you will then need to pass a test for that category. For a private applicator license you will have 2 tests - CORE and private applicator. Each test is 50 questions, and you will need to get 70% (35 questions) correct to pass. To renew your private applicator license you will need to have 4 private applicator CEUs to renew your license. In a 4 year period you will need to have earned 4 CORE and 4 private applicator CEUs to renew your license. You may have earned more than that but FDACS will not let you carry them over for the next 4 year renewal period. Remember you are the one responsible for holding on to your CEU forms. Be sure to fill them out with your information and sign them before sending them in when you renew.

If you have someone in your organization that needs to get their private applicator license they may want to consider taking the training classes for the

Mark Your Calendar for these Special Events

April 16 & 17, 2019

FSGA Strawberry Agritech Educational Sessions and Trade Show

Grimes Family Center, on Strawberry Festival grounds.

Contact FSGA for registration at 813-752-6822

Nov. 21, 2019

Florida AgExpo

Gulf Coast Research and Education Center at Balm

A University of Florida/IFAS and Florida Cooperative Extension Service Newsletter
Alicia Whidden, Editor, Hillsborough County Extension Service, 5339 CR 579, Seffner, FL 33584 (813) 744-5519
Jack Rechcigl, Center Director Christine Cooley, Layout and Design
Gulf Coast Research & Education Center, 14625 County Road 672, Wimauma, FL 33598 (813) 419-6670
http://gcrec.ifas.ufl.edu

license test. You receive training then take the test. Most people have a better chance of passing the test when they do the training and then take the test right afterwards. Classes are scheduled in the area so please see the Calendar of Events for dates and locations of classes that are coming up. Also if you need to send people to the WPS Train the trainer classes, those are listed in the calendar also. Once you are trained as a trainer under the new WPS manual, you are a trainer for life (no expiration) unless the rule is someday changed by the federal government.

Have a great spring season!

Alicia Whidden

Is Pestalotiopsis a new threat to Florida strawberry production?

Juliana S. Baggio[1], James C. Mertely[2], and Natalia A. Peres[3], Strawberry Pathology, GCREC-UF

1 Postdoctoral Associate, 2 Research Coordinator/Diagnostician, 3 Professor

Pestalotiopsis is a fungus that causes diseases on different plants, including strawberries. Although a severe outbreak was observed in Florida fields this past season (Figure 1), Pestalotiopsis is not new to strawberry production. In fact, Drs. Charles Howard and Earl Albregt, former professors at the U.F.Strawberry Lab in Dover, reported for the first time a strawberry fruit rot caused by Pestalotia longisetula (or Pestalotiopsis) in 1972, causing severe losses in Florida fields.

Figure 1. Pestalotiopsis disease outbreak in Florida strawberry fields. Photo credits: James Mertely.

The fungus has also been reported to infect fruit (Figure 2A) and leaves (Figure 2B) in other strawberry producing areas worldwide, such as Brazil, Egypt, Iran, Israel, and Spain. Only recently, the fungus has been described causing root and crown rots in Florida, as well as Argentina, Bangladesh, Belgium, and Spain. Back in the 2012-13 Florida strawberry season, our group repeatedly isolated Pestalotiopsis from brown necrotic areas in crown and roots of weak and dying transplants in commercial fields. We suspected it could contribute to establishment difficulties, as plants were stunted (Figure 2C) and eventually collapsed. In some cases, the fungus is isolated along with other root pathogens such as Colletotrichum acutatum and crown rot pathogens such as Colletotrichum gloeosporioides, Phytophthora cactorum, and Macrophomina phaseolina.

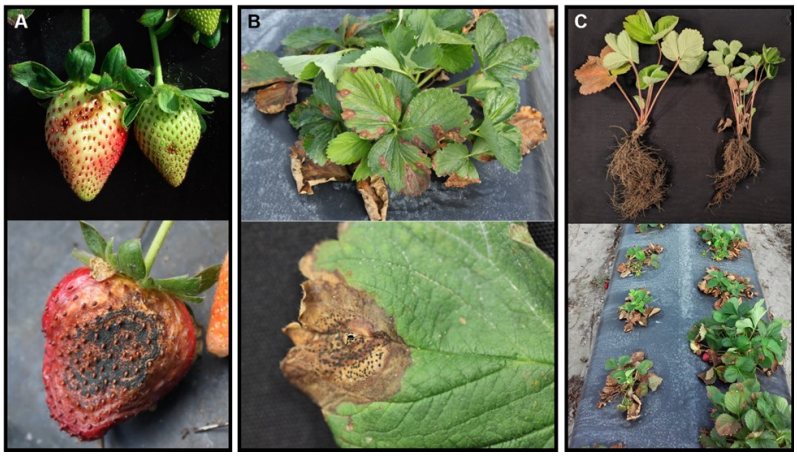

Figure 2. Symptoms caused by Pestalotiopsis: A) initial (upper) and late (bottom) on fruit; B) symptoms on leaves and fungus black structures (bottom); C) stunting of plants caused by root and or crown infection. Photo credits: Juliana Baggio and James Mertely.

(Continued on page 3)

The serious outbreak in Florida fields during this season was associated to a single nursery source in North Carolina and was considered a new threat to strawberry production by many growers, since there are no fungicides labeled to control this disease in the U.S. Our group is currently working on trials to understand the disease and figure out ways to manage it.

Among a collection of Pestalotiopsis isolates collected from Florida strawberry fields throughout the years, we found that, high temperatures (77 to 86ºF) are favorable for the fungus development. The fungus produces spores on the surface of infected tissues that are spread by water. Therefore, the severe outbreak this season may be related to unusually heavy rains between December 19-21, followed by days of relatively hot weather after Christmas. Thus, limiting operations when plants are wet is important to minimize spread from field to field. Most isolates were able to infect and produce root and crown rot symptoms that ranged from wilting to stunting (Figure 2C), to collapse and death of the entire plant. We also screened isolates in the laboratory for their sensitivity to azoxystrobin (Abound), captan, fluopyram (Luna), penthiopyrad (Fontelis), flutriafol (Rhyme), tetraconazole (Mettle), fludioxonil (Switch), and thiophanate methyl (Topsin). Among these, only captan and fluodioxonil (Switch) significantly inhibited growth of the fungus. Unfortunately, isolates were found to already have resistance to the strobilurin fungicides (Abound, Cabrio, Flint, etc).

We have recently started additional trials at GCREC to assess cultivars for disease resistance, and to evaluate the performance of fungicides in field conditions. We are also investigating possible alternative hosts. If you have any questions and want to know more about our findings, do not hesitate in contacting us (Juliana Baggio, jbaggio@ufl.edu, 813-419-6629, James Mertely, jcmert@ufl.edu 813-419-6599, or Natalia Peres, nperes@ufl.edu, 813- 419-6602).

Giving blackberry buds a wake-up call with gibberellic acid and defoliants

Syuan-You Lin and Shinsuke Agehara

Blackberry is a temperate deciduous crop, and it has evolutionarily developed an adaption strategy to stay dormant during cold winter and wake up in the warm springtime. Plant dormancy is induced by short days and low temperatures in fall. As plants go dormant, they track chilling units to perceive the passage of winter. To initiate flower and fruit development at the optimum timing, plants wake up from dormancy only after sensing a specific number of chill hours followed by a certain amount of cumulative warming. Missing either environmental signal, chilling or warming, can prevent plants, or buds in case of blackberry, from waking up!

The number of chill hours required by blackberry cultivars ranges from 300 to 900 hours (Table 1). Unfortunately, winter is too warm for blackberry plants in Florida, not providing a good wake-up call. As a result, plants have unsynchronized and poor bud break, low numbers of flowers, and subsequently poor fruit yields. Developing low-chill cultivars can overcome these issues fundamentally, but it is difficult to achieve in a short amount of time. Thus, formulating bud-breaking strategies will improve blackberry production more practically and efficiently.

Table 1. The average chill hours in Balm in the last 10 years and estimated chilling requirements for three tested blackberry cultivars.

Chill hours (<45°F)	Estimated chilling requirement (hr)		
	'Natchez'	'Navaho'	'Ouachita'
226	300	800-900	400-500

(Continued on page 4)

We have conducted several experiments to test different chemical options to artificially induce bud break. One of the promising strategies is to apply gibberellic acid (GA), a natural plant hormone, which can serve as an alternative well-functioning alarm to appropriately wake up blackberry plants even under warm winter.

Since 2015, GA has been sprayed on three commercial blackberry cultivars with various chilling requirements, 'Natchez', 'Navaho' and 'Ouachita' (Fig. 1), at Gulf Coast Research and Education Center in Wimauma. Our results have demonstrated that GA can indeed wake up blackberry buds and improve fruit earliness and yields, especially for those with higher chilling requirements (e.g. 'Navaho' and 'Ouachita') without affecting fruit quality. However, the effectiveness of GA relies on many factors, including cultivars, different dormancy stages at the time of application, and post-dormancy flower development.

We are currently investigating dormancy and flowering physiology mediated by GA, and even more, testing few plant growth regulators and defoliants to find out the best and eco-friendly bud-breaking agents. This information will help us figure out the best application timing and rate of bud-breaking agents to improve Florida's blackberry production.

Fig. 1. 'Natchez' (left), 'Navaho' (middle), and 'Ouachita' (right) blackberries. Plants were treated with gibberellic acid in late February.

GCREC's Night Moves

Meet our new robotic UV operator, Thorvald. Developed by Saga Robotics from Norway. Collaborators with Dr. Peres are Rensselaer Polytechnic Institute (RPI) and Cornell University – both in New York state, The Norwegian Institute of Bioeconomy Research and the Norwegian University of Life Sciences in Norway… and a group of amazing interns and students who always helped with the night applications, which have proved to reduce mold and mildew issues on strawberry. This technology will allow growers to save money and the environment by using UV lighting instead of chemicals. For information or a demonstration contact Dr. Peres at nperes@ufl.edu.