Berry/Vegetable Times

February 2005

UNIVERSITY OF FLORIDA
IFAS EXTENSION

In this issue...

Calendar of Events

Feb. 10-21 Florida State Fair, State Fairgrounds, Tampa.

Mar. 3-13 Strawberry Festival. Festival Grounds, Plant City.

Mar. 3 Spring Blueberry Field Day Straughn's Blueberry Farm, Windsor, Fla. See Page 4 for details.

Mar. 8 Pesticide License Testing, Hillsborough Co. Extension Service , 5339 S. C. Rd. 579, Seffner. 9:00 am. 813-744-5519.

A monthly newsletter of the University of Florida IFAS, Gulf Coast Research and Education Center, and Florida Cooperative Extension Service.
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From Your Extension Agent — Important SWFWMD Rule Change and Robin Control

The Southwest Florida Water Management District has made a change to the rule (Rule 40D-2.352) about transferring water use permits when ownership of property changes. This goes into effect Feb. 1, 2005. If you have acquired ownership or legal control of a piece of property that has a water use permit you must apply to transfer the permit into your name within **45** days of acquiring the property. You must make this request using a specific form entitled "Notification and Request for Transfer of a Water Use Permit". If you do not make the request within the 45 day time limit the permit will become void.

To most people the song and sight of the American Robin (*Turdus migratorius)* means spring is here. A strawberry farmer feels very differently about this bird of spring. If the robins are flying over on their way up north it is a good sight. If it is the sight of robins flying into the grower's field to eat their fill of luscious strawberries it is not happy thoughts of spring that fill the grower's mind. In some years as they migrate back north the robins stop in central Florida for an extended time due to bad weather farther north. The birds are hungry and fields of red ripe fruit are a favorite feeding ground. Due to the vast numbers of robins invading a field the cost of lost fruit especially at a time when prices are good for the grower can be quite substantial. Also the cost of deterring the birds from the field is another expense for the grower. As every grower knows robins quickly adjust to any type of scare tactic you use and you have to keep changing what you do. If the birds are here for an extended time it gets to a point where nothing scares them out of the fields.

Thiram, a fungicide that is labeled for use on strawberries, has been shown to have some feeding deterrent properties for vertebrates. In some crops it has been shown to deter birds. I think it is worth trying on strawberries, since we don't have many options for this problem, but growers should not expect dramatic results. As far as thiram's effect on predatory mites, for *Amblyseius californicus* it is considered harmless on all stages and for *Phyoseiulus persimilis* it is slightly harmful on the eggs but not harmful on the nymph and adult. Please don't confuse thiram with Topsin-M. Topsin-M is harmful to the predatory mites. Thiram is used for anthracnose and botrytis control so now is a good time to be using it. If you have used thiram on strawberries and have an opinion on its effectiveness as a robin deterrent, I would be interested in hearing from you.

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Recognize These Beneficial Insects in Your Crop

Silvia I. Rondon and James F. Price

Not all insects, mites and pathogens in a strawberry crop are pests. Some (predators) eat pests or (parasitoids) parasitize them; some others (pathogens) transmit diseases to them. The organisms that control harmful pests are called natural enemies, beneficials, biological control agents or simply, 'good guys'. They may be native or introduced from other areas. Some of them are commercially available, but mostly they are freely available in our strawberry crop environment.

Predators are those that violently attack, kill, and feed directly on prey. Examples of predators of insects in strawberries are lady beetles (Fig. 1, 2, 3), syrphid flies (Fig. 4, 5), lacewings (Fig. 6, 7, 8); also spiders, predatory mites, solitary wasps, midges and ants. Parasitoids are insects that lay their eggs on or in a pest host. The developing larva lives and feeds on the host and eventually kills it. Common examples are the tiny wasps that attack aphids (Fig. 9). Pests can also acquire pathogens (viruses, bacteria, fungi) that cause disease in strawberry pests. Bees are a different class of beneficial insect since they benefit the producer not by killing pests, but by aiding in strawberry pollination.

It is important that growers identify, conserve and sometimes augment beneficials in their strawberry crops. Beneficials are conserved by using least toxic pesticides, but only when and where needed, and at a time that they are most effective and least damaging to beneficials.

Fig. 1 *Eggs of the pink spotted lady beetle. They are small and cigar shaped (Credit. Entomos).*

Fig. 2 *Larva of the pink spotted lady beetle (Credit. Entomos).*

Fig. 3 *The pink spotted lady beetle adult. Medium size beetle with characteristic spots on the forewings. Larva and adult prey on aphids and mites (Credit. M.E.Rice, K. S.).*

Fig. 4 *Syrphid fly larva (Credit. O.S.U.).*

Fig. 5 *Syrphid fly adult. Also known as hover fly or flower fly. Larvae and adults prey on aphids and worms (Credit. G.I.N.A.)*

Fig. 6 *Green lacewing eggs. Eggs are tiny and oblong, laid singly connected to the leaf by a long thread (Credit. O.S.U).*

Fig. 7 *Green lacewing larva. Larvae are flat with six legs (Credit. O.S.U.).*

Fig. 8 *Green lacewing adult. In general the adult is green, with net-like delicate wings (Credit. O.S.U).*

Fig. 9 *Mummified parasitized aphid on the far right. Healthy aphids on center and left (Credit. S.I.Rondon, UF).*

Web links

http://edis.ifas.ufl.edu/HS244

http://www.hos.ufl.edu/protectedag/links.htm

Tank Mixing Fungicides

Natalia Peres and Tom Kucharek

Tank mixing is a common practice that allows the grower to reduce the number of times spray machinery is used, reducing costs, soil compaction, damage to the crop, and spread of diseases. It is a complex issue and although some tank mixes are beneficial, others may be deleterious. As the number of ingredients increase in a tank mix, chances for incompatibility increase, particularly at lower spray volumes.

Loading the spray materials into the spray tank should be done with the tank at least half filled with water. The agitation system should be operating to attain thorough mixing. This minimizes the risk for physical and chemical incompatibilities because of the dilution effect of water. Dry formulations should be added to the tank first followed by the liquid formulations. As a general guide, the loading order for spray tanks should be: Wettable powders, Prills (DF's, DG's, and WDG's), Soluble powders, Flowables, Adjuvants, Emulsifiable concentrates (EC's), and Oils.

The use of adjuvants in a tank mix is a controversial topic. Adjuvants are chemicals, generally classified as non-pesticidal, that when added to a spray mix are supposed to enhance chemical effects or spray delivery. The key to success with adjuvants is to use them as little as possible because they can also cause damage to plants. Some adjuvants reduce the waxy-like coatings on the exterior of the plant. When these coatings are reduced, plants are more susceptible to chemical damage and are more likely to transpire water resulting in increased sensitivity to dry weather. The adjuvants most likely to damage plants when used with fungicides are crop oils, petroleum-based oils, and those with alcohols. Besides these adjuvants possessing phyotoxicological properties themselves, the tank mixing of them with some chemicals increases the probability for additional phytotoxicity. Another group of adjuvants that are of concern are silicon-based adjuvants. While this type of adjuvant is likely to be very beneficial in attaining entrance of herbicides into weeds and insecticides into insects, it does increase movement of bacteria into plants.

Success with tank mixing is based upon slowly acquired experience. It is not possible to test the numerous combinations that exist so if your cocktail works, don't change it until you have tested the new idea on a small scale or have asked informed sources for their opinions. While tank mixing is often essential, the grower should tank mix only what is necessary. The more chemicals that are used in the same mix, the more likely that an adverse effect on the crop will occur, and the less likely that a professional can determine what caused a problem related to the tank mix.

The use of trade names in this publication is solely for the purpose of providing specific information. It is not a guarantee or warranty of the products names and does not signify that they are approved to the exclusion of others of suitable composition. Use pesticides safely. Read and follow directions on the manufacturer's label.

Fertilization and Water Management for February

John R. Duval

February is here and our plants are gearing up for rapid growth. In the next two months we will produce 60-70% of the berries for the season. In addition, the temperatures are nudging up. This means that our plants will need greater amounts of water and fertilizer to meet their optimum output. Nitrogen and potassium applications should be increased to 3/4 pounds of each per acre per day. If you are monitoring your crop nutrition with petiole sap testing, nitrogen levels should be 300-500 ppm and potassium levels should be 2000-2500 ppm. Guidelines for supplemental fertilizer applications can be found in the Vegetable Production Guide for Florida (Pg. 11 in the 2004-2005 guide) or http://edis.ifas.ufl.edu/CV134 online.

Soil water monitoring becomes more important as temperatures rise and strawberry bushes get larger. Soil water tensions should be maintained between 8 and 15 cbars for those using tensiometers and granular matrix sensors (watermark sensors). For those who are using the evapotranspriation method of irrigation scheduling 60% of the previous days ETo should be applied to the soil. Furthermore, it may be wise to split irrigation so that water is applied twice or more times a day to minimize water loss due to deep percolation (see http://edis.ifas.ufl.edu/HS145).

Bradenton GCREC Faculty and Staff Relocate to the New Balm Center

As of February 7, faculty and staff from Bradenton will be occupying the new GCREC Balm Center. The center's address is 14765 CR 672, Wimauma, FL 33598. The main phone number is (813) 634-0000. The Dover Center remains open until the strawberry season is over. Visit our website at http://gcrec.ifas.ufl.edu for all the details and a new directory.

8:45 a.m. **Late Registration** - Meal not included

9:15 a.m. **FBGA Annual Business Meeting** - Mr. Joe Keel, FBGA president, presiding.

9:35 a.m. **Recent history and current status of Florida's blueberry industry** - Dr. Jeff Williamson, horticulturist, Horticultural Sciences Dept., IFAS, University of Florida, Gainesville, FL

10:00 a.m. **Update on blueberry insect pest management** - Dr. Oscar Liburd, entomologist, Dept. of Entomology and Nematology, IFAS, University of Florida, Gainesville, FL

10:30 a.m. **Spring and summer blueberry disease management** - Dr. Phil Harmon, Department of Plant Pathology, IFAS, University of Florida, Gainesville, FL

11:00 a.m. **Will there be enough honey bees for blueberry pollination in the future?** - Mr. Jerry Hayes, chief of apiary inspection, Dept. of Plant Industry, FDACS, Gainesville, FL

11:25 a.m. **Presentation by Florida Fruit and Vegetable Association - TBA.**

11:45 a.m. **Preview of the field tour** - Dr. Paul Lyrene, blueberry breeder, Horticultural Sciences Dept., IFAS, University of Florida, Gainesville, FL

12:00 noon **Lunch** -

1:00 p.m. **Field tour** - Dr. Paul Lyrene, blueberry breeder, Horticultural Sciences Dept., IFAS, University of Florida, Gainesville, FL

2005 Spring Blueberry Field Day Pre-registration

Where: Alto Straughn's Blueberry Farm
Windsor, Fla.
When: Thursday, March 3, 2005.

Please pre-register now for the Annual FBGA Spring Field Day. Pre-registrations must be post-marked by February 19, 2005 to guarantee a meal.

About the Field Day - On-site registration (meal not included) will begin at 8:45 a.m. The program will begin with the annual business meeting at about 9:15 a.m. Presentations will be followed by lunch and an afternoon tour of the farm, including a look at advanced selections from the University of Florida breeding program. We are planning to offer Florida CEU credits for this meeting.

Location of the Field Day - Alto Straughn's Blueberry Farm is located in eastern Alachua County on CR 234 just north of Windsor Fla. CR 234 runs between Hwy 20 and Hwy 26, east of Newmans Lake which is just east of Gainesville. If coming from Hwy 26, turn south on CR 234, continue about 1 to 2 miles. Look for the blueberry farm and field day sign on your right. If coming from Hwy 20, turn north on CR 234, proceed about 6 to 7 miles through Windsor. Look for the blueberry farm and sign on your left at the farm entrance. Please complete and return the bottom of this form to the address provided.

Florida Blueberry Growers' Association
P.O. Box 163, Island Grove, FL 32654

Thank you for your continued support of the Florida Blueberry Growers' Association!

Please cut here and return to above address.

Name(s) attending the Short Course

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SPECIAL GCREC FACT SHEET

Sap Beetle (Coleoptera: Nitidulidae) Management in Strawberries

Silvia I. Rondon, James F. Price and Daniel J. Cantliffe

Sap beetles (Coleoptera: Nitidulidae) are conspicuous arthropods that feed on flowers, fruits, sap, fungi, stored products, decaying and fermenting plant tissues from diverse trees and crops, including strawberries. Sap beetles work in association with yeasts and other fungi causing the fermentation of infested plant parts (Fig. 1). They also are known to transport a variety of microorganisms that cause plant diseases; a few species can behave as predators of various ornamental pests (Dowd, 1991; Dowd and Weber, 1991). Sap beetles are often considered minor pests; however, their main impact is due to the contamination of products caused by adults and larvae.

Figure 1. Strawberry fruits infested with a sap beetle adult. CREDITS: J.F. Price, UF/IFAS, GCREC-Bradenton.

Description

Sap beetles, also known as Nitidulids or picnic beetles, like most of the beetles, present complete metamorphosis: eggs, larvae, pupae, and adults. Eggs are white and small; larvae are about the same size as the adults, white, with lateral projections on abdominal segments, presenting a light brown head (Fig. 2); adult strawberry sap beetles are less than 1/8 inch (3.2 mm) long to 1/4 inch (6.4 mm) wide, oval shaped, usually black, brown, or grayish (Fig. 3).

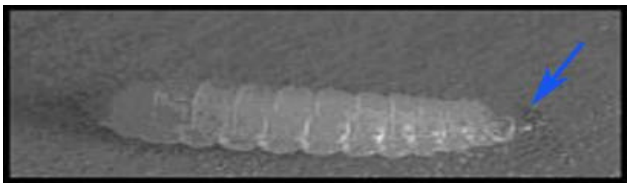

Figure 2. Sap beetle larva. CREDITS: K. Gray, Oregon State University.

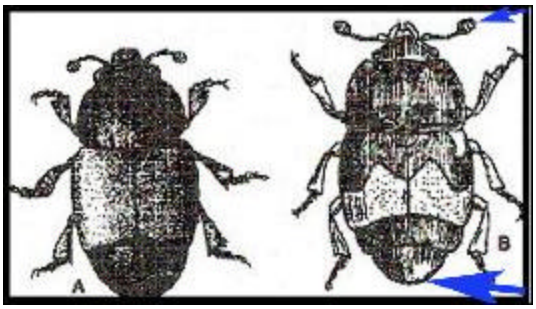

Figure 3. Nitidulids adults can be recognized by the unexposed tip of abdomen heavily sclerotized and antenna distinctly capitate. (A) Carpophilus pallipennis (Say) (2.3 mm); (B) Carpophilus hemipterus (L.) (2.8 mm). CREDITS: Arnett, Jr. et al., 1980

Sap Beetles in Florida

There are more than 2,500 species of Nitidulid described with more than half of the genera cosmopolite. Six genera are endemic of North America; twenty-one genera have been reported in Florida including the genera *Carpophilus*, *Stelidota*, *Glischrochilus*, and *Epuraea* (Parsons, 1943). Potter (1995) indicated that nine Nitidulid species can be found on strawberry fruits in east Hillsborough County (Plant City, FL). These species are: *Carpophilus freemani* Dobson, *C. fumatus* Boheman, *C. humeralis* (F.), *C. mutilatus* Erichson, *Colopterus insularis* (Castelnau), *Stelidota geminate* (Say), and *S. ferruginea* Reitter. Approximately 94% of the Nitidulid population is represented by *H. luteolus*, *L. insularis*, and *C. fumatus*, however, consideration must be given to all. Correct identification should be followed by preventive methods to control damage by sap beetles.

Biology and Ecology

Sap beetles fly into strawberry fields from wooded areas (overwintering sites) at about the time when temperatures exceed 16°C (67°F) and berries begin to ripen. Adult sap beetles attack fruits throughout the growing season (2 generations). Adults live approximately 2 to 2½ months. A few hours after mating oviposition occurs. After hatching of eggs, larvae burrow inside the berries, feeding on the flesh for approximately 1½ weeks. Subsequent to that period, larvae fall onto the ground, burrow inside the soil, and pupate. Sap beetles have a wide range of feeding habitats, saprophagous and mycetophagous, feeding on fruits and other plant parts which are ripening or decomposing (Myers, 2001; Peng and Williams, 1990).

Damage

There are two types of damage inflicted by sap beetles: direct (feeding cavities) and indirect (dissemination of microorganisms). Cavities in berries also serve as oviposition substrate. Larvae inside the berries is usually unnoticed until berries begin to decompose as a result of the damage. Because overripe berries are attractive to sap beetles, damage is often greatest during harvesting when pickers leave large numbers of ripe and overripe berries in the field, row middle, pathways, and ditches (Fig. 4).

Figure 4. Overripe berries in the field. Sap beetles are attracted to the fermenting fruit. CREDITS: S.I. Rondon, UF/IFAS, Horticultural Sciences Department.

Control

Sap beetles are not usually economically important in field fresh market strawberries; however, when overripe fruits are harvested for processing, sap beetles may infest the fruit and make the product unmarketable (Price, personal communication). Taking in consideration the ecology of the pest, the following practices are recommended.

1. If possible, avoid planting strawberry next to woody area.
2. Pick berries before they become overripe.
3. Remove all damaged or overripe fruit from the field, especially in warm to hot weather.
4. Similar sanitation practices should be done with other fruits and vegetables.
5. Picking and placing infested fruit into the row middle is an alternative method for reducing numbers of adults in the field (Potter, 1995). Fruits decompose faster in the middles than they do on the plant or bed. This faster decomposition usually doesn't allow the beetle enough time to complete its life cycle. Keep in mind that fermenting berries may attract beetles capable of migrating from long distances (Potter, 1995).
6. For monitoring, place pitfall traps or "trap buckets" of overripe fruit outside field borders to intercept immigrating beetles and reduce numbers in the crop (Price, personal communication).
7. Biological control by means of augmentative releases of nematodes is currently under study (Dowd et al., 1995). In addition, researchers at the Ohio State University are studying the usefulness of *Brachyserphus abruptus*, a parasitic wasp, to control strawberry sap beetles (Williams et al., 1984).
8. Apply recommended insecticides when conditions justify. Insecticides recommended to control sap beetles include Brigade®, Diazinon®, and Pyrenone®. Some formulations of Malathion® and Sevin® are registered for control of sap beetles on other crops and are allowed to be used on strawberry. Insecticide use is limited by frequent harvests. Frequent and thorough applications should be made during early period of activity. Follow label instructions for best results.

Literature Cited

Arnett, R.H. Jr, N.M. Downie, and H.E. Jaques. 1980. How to know the beetles. 2nd edition. McGraw - Hill. 414 pp.
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Potter, M.A. 1995. The Nitidulidae (Coleoptera) associated with strawberry in eastern Hillsborough country, Florida. Thesis. University of Florida, Department of Entomology and Nematology. 98 pp.
Williams, R.N., M.J. Weiss, K.V. Miller, and J.J. Werner. 1984. A summary of experiments for control of sap beetles which attack fruit crops. Research circular-Ohio Agricultural Research and Development Center 283:66-68.

Additional Information

Related Web sites:
http://creatures.ifas.ufl.edu/field/corn/sap_beetles.htm
http://strawberry.ifas.ufl.edu/

Footnotes
This document is HS993, one of a series of the Horticultural Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Publication date: October 2004. Please visit the EDIS Web site at http://edis.ifas.ufl.edu.

SPECIAL GCREC FACT SHEET

Anthracnose Fruit Rot of Strawberry

J.C. Mertely and N.A. Peres

Anthracnose fruit rot, caused by the fungus *Colletotrichum acutatu*m, is an important disease for strawberry production worldwide. Other species of *Colletotrichu*m, such as *C. fragarie* and *C. gloeosporioide*s, are less frequently involved in fruit rot. Although fruit rot is the most important symptom caused by *C. acutatu*m, the fungus can also attack other parts of the plant including the crown, leaves, petioles, and roots.

Pathogens and Symptoms

Symptoms of anthracnose fruit rot appear as dark and sunken lesions on infected fruit (Fig. 1). The appearance of crusty masses of spores on and under strawberry seeds is more diagnostic of this disease (Fig. 2). On green fruit, anthracnose lesions are small (1/16 to 1/8 inch across) hard, sunken, dark brown or black. Lesions on ripening fruit are larger (1/8 to 1/2 inch) hard, sunken, and tan to dark brown. During wet weather, the lesions become covered by sticky, light orange ooze composed of millions of spores (conidia) in a mucilaginous matrix (Fig. 3). When conditions are favorable for infection, multiple lesions nearly cover the fruit and lesions may appear on petioles (Fig. 4). Strawberry flowers are highly susceptible and blighted flowers turn brown and remain attached to the plant (Fig. 5), a symptom also produced by the fungus *Botrytis cinere*a. Small black spots on young button-sized fruit may also develop from flower infections (Fig. 6).

Disease Development and Spread

When conditions are favorable, anthracnose fruit rot is the most important disease of strawberry in Florida. Crop losses occur mostly in the field, since forced air pre-cooling and refrigeration suppress disease development after harvest. Because *C. acutatum* is a strong invader of runner plants in the nursery, infected transplants are a common source of inoculum for the production field. Weeds and other plants around production fields may also be colonized by inoculum from a diseased strawberry crop. In theory, these non-strawberry hosts could provide disease inoculum for the next crop, although this has not been demonstrated. *C. acutatum* appears to spread first on the foliage, often without causing visible symptoms. Some conidia are formed on green leaves and petioles, and more are produced as the tissue ages and dies. Molecular analysis of *C. acutatum* revealed that the population on strawberry reproduces asexually and has limited diversity. Conidia (asexual spores) are moved from the foliage to flowers and fruit by splashing water and harvesting operations. There they germinate and infect. As anthracnose lesions develop, abundant spores are formed which may be moved to other plants and new fields on equipment and harvesters. Warm wet weather favors infection and disease spread.

Control

Anthracnose fruit rot is best controlled by exclusion, i.e., by not introducing the pathogen into the field in the first place. Transplants should be obtained from pathogen-free nurseries. In addition, moving personnel and equipment from diseased fields into healthy fields should be avoided without proper cleaning and disinfection. Planting resistant cultivars such as Carmine and Sweet Charlie has consistently controlled anthracnose, possibly because *C. acutatum* lacks the genetic diversity to overcome this resistance. When moderately susceptible cultivars (e.g., Strawberry Festival) or highly susceptible cultivars (e.g., Camarosa and Treasure) are grown, regular applications of fungicides are often needed to suppress the disease.

In central Florida, strawberry disease management is based on the use of captan or thiram. Regular weekly applications of these broad-spectrum protectant fungicides prevent extensive colonization of the plant and suppress flower and fruit infections. Because weather conditions are less favorable early in the season, those applications can be made at lower label rates. Often a few anthracnose-infected flowers and fruit in late January or early February lead to epidemics during warm, rainy weather in February and March. During the critical January to March period, protectant fungicides should be applied at higher label rates and additional fungicides may be needed for anthracnose control. Additional fungicides can be applied when the disease appears, or proactively throughout the critical period. If the decision made is to wait, fields should be scouted regularly to detect anthracnose early. Plants should be examined for blighted flowers (Fig. 5) or black spots on small green fruit (Fig. 6) approximately one week after rain events. When the disease is found, a strobilurin fungicide such as Abound® or Cabrio® should be tank mixed with the standard protectant. Switch® is a good alternative to the strobilurins when double cropping is not planned. Captevate®, Pristine®, and Switch® are particularly useful during the main bloom period in late January and early February. Each product contains two active ingredients that either suppress anthracnose and/or protect flowers from *Botrytis cinerea*. One active ingredient in Captevate® is captan. Tank mixes or

higher rates of protectant fungicides should be continued until the end of the season, or until dry weather completely suppresses the disease. Strobilurin fungicides such as Abound®, Cabrio®, and Pristine® should not be applied more than four or five times per season to avoid the development of resistance. If a blocking program is followed, no more than two sequential applications of Abound®, Cabrio®, Pristine®, Captevate®, or Switch® should be made. More information about these products is given in the Table 1.

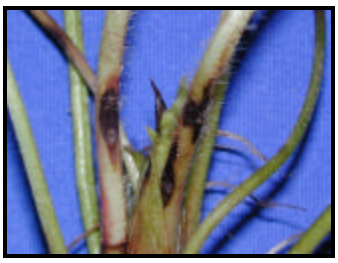

Fig. 4. Anthracnose lesions on petioles Photo: UF, GCREC

***Fig. 1.** Anthracnose lesions on a ripening fruit. Credits:UF, GCREC*

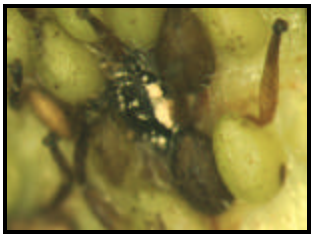

***Fig. 2.** Spores of C. acutatum on seed. Credits: UF, GCREC*

Fig. 5. Recently blighted flower Photo: UF, GCREC

***Fig. 3.** Spore mass of C. acutatum on anthracnose lesion. Credits: UF, GCREC*

Fig. 6. Anthracnose lesion on small fruit Photo: UF, GCREC

Table 1. Products labeled in Florida for control of Anthracnose fruit rot.

Trade Name	Active ingredient	Type	PHI or REI* (hours)	Comments
Captan	captan	multi-site protectant	24	Suppresses anthracnose and Botrytis. Should not be mixed with bicarbonate or sulfur fungicides
Thiram	thiram	multi-site protectant	72	Suppresses anthracnose less effectively, and Botrytis more effectively than captan.
Abound	azoxystrobin	strobilurin	4	Do not add silicone surfactants or mix with EC formulations.
Captevate	captan + fenhexamid	protectant + anilide	24	Captan suppresses anthracnose and fenhexamid control Botrytis.
Cabrio	pyraclostrobin	strobilurin	24	Controls anthracnose and suppresses powdery mildew.
Pristine	boscalid + pyraclostrobin	carboxamide + strobilurin	24	Pyraclostrobin controls anthracnose and boscalid control Botrytis.
Switch	cyprodinil + fludioxonil	pyrimidine + pyrrole	12	For anthracnose and Botrytis. One year plant-back restriction.

*PHI = Post harvest interval. REI = Restricted entry interval.
Recommendations given in this fact sheet are based on experimentation and statements from the manufacturer. Consult your product label for specific use requirements and restrictions.