



# SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

**November 1, 2016**

**Cooler drier air moved into the area in the wake of Hurricane Matthew signaling the end of the rainy season and bringing blue skies and Chamber of Commerce weather to South Florida.** Growers on the East Coast report some twisted plants and damage in the wake of Matthew.

**With the exception of the lower East Coast, where – 2-3 inches of rainfall was recorded, most of the rest of South Florida received only trace amounts of precipitation for the period.** Temperatures have been mild with daytime highs mostly in the low to mid 80’s and nights dipping into the mid- low 60’s. Despite dry weather, heavy dewfall has kept some diseases active.

**Growers have started to harvest a range of vegetables with cucumbers, eggplant, herbs, peppers, squash, tomato, watermelon and specialty items beginning to come on the market.**

**FAWN Weather Summary**

Date	Air Temp °F		Rainfall (Inches)	Ave Relative Humidity (Percent)	ET (Inches/Day) (Average)
	Min	Max			
<b>Balm</b>					
10/10 – 10/31/16	45.09	86.88	0.00	78	0.1
<b>Belle Glade</b>					
10/10 – 10/31/16	51.69	88.12	0.05	83	0.1
<b>Clewiston</b>					
10/10 – 10/31/16	52.43	87.94	0.14	80	0.1
<b>Ft Lauderdale</b>					
10/10 – 10/31/16	62.47	85.89	2.01	74	0.1
<b>Homestead</b>					
10/10 – 10/31/16	58.06	87.67	3.01	17	0.1
<b>Immokalee</b>					
10/10 – 10/31/16	49.51	89.76	0.03	81	0.1
<b>Okeechobee</b>					
10/10 – 10/31/16	48.38	88.16	0.18	82	0.1
<b>Wellington</b>					
10/10 – 10/31/16	57.81	87.13	0.62	77	0.1

**The National Weather Service forecast indicates a surface high centered north of the region over the southern Appalachians and low pressure over the northwest Caribbean Sea will prevail through the short term bringing drier air from the western Atlantic, which will allow for skies to clear and rain chances to diminish.** Tuesday should be dry day with some isolated showers working in from the northeast into Palm Beach county/and potential Atlantic coastal areas on Wednesday afternoon.

**Highs should reach mid 80s most areas through mid-week.** Lows will range from mid 60s northwest to mid-70s along the Atlantic coast. Breezy northeast winds will prevail.

**A cold front is poised to move through by Friday, ushering in more dry air along with some slightly cooler temperatures for the weekend.** Showers will be in the isolated to perhaps scattered category and mainly over eastern half of South Florida Thursday and Friday.

**Temperatures behind the front will be near slightly below normal, with highs around 80 degrees and lows in the 60s.**

**For additional information, visit the National Weather Service in Miami website at <http://www.srh.noaa.gov/mfl/newpage/index.html>**

## **Insects**

### **Worms**

**On the East Coast, worm pressure is moderate with beet armyworm and loopers predominating, a few fall armyworm are also being found in older pepper in some places.** Some problems have been reported with melonworms and pickleworms in cucumber and squash.

**In the Glades, fall armyworm is widely present in corn but reports indicate that worm pressure has been noticeably lower this season compared to previous seasons.** There are no reports of problems with worms in ears so far.

**Around SW Florida, worm pressure increased around the full moon but has dropped off in recent days and reports indicate that a mix of beet, southern and fall armyworms are present in mostly low numbers.** Respondents indicate they are seeing a few more loopers in tomatoes as well as an increase in tomato fruitworm numbers. Melonworms are still active in cucurbits.

**Growers and scouts in the Manatee Ruskin report that worm pressure is steady at mostly low levels. Beet armyworms are being found in peppers, cabbage, and tomato.** Fall armyworms are high in new corn plantings.

**Armyworms have also been active in some strawberries around Plant City.**

**Around Homestead, worm pests are currently very low but growers report finding low levels of beet armyworm in a variety of crops.**

**Fall means worm time in Florida.** Fortunately, growers have a wide array of excellent worm control materials at their disposable these days.

**Scouting is extremely important in detecting worms early before they can do significant damage.** The Florida Tomato Scouting Guide indicates a pre-bloom threshold of 1 larva/6plants and post-bloom threshold of 1 egg mass or larva/field.

**The different armyworms especially the younger instars are similar in color, size and markings and can be difficult to tell apart.** The following information was excerpted from the Florida Tomato Scouting Guide to help growers identify these different worms.

- **Beet armyworm: (*Spodoptera exigua*)** is generally less numerous than southern armyworm but is more difficult to control. The larva is generally green, mottled with white spots with black spot over the middle pair of true legs. 1 - 1 1/4 in. long at maturity. The adults have light brownish gray front wings with indistinct lines and are active at night. The eggs are laid in masses of 50 75 eggs covered with a felt like mass of scales from female's body. Eggs are generally found on underside of leaves and hatch in 3 days.
- **Southern armyworm: (*Spodoptera eridania*)** The larva is a dark caterpillar with a yellowish brown head and a yellowish line along the side of body that is interrupted by a large dark spot on first abdominal segment. Approximately 2 in. long at maturity. Large larvae have 2 rows of dark triangles on dorsal surface. The young larvae feed on under surface of leaflets leaving upper epidermis intact to give a "window pane" appearance. The adult has the front wing streaked with cream, gray, light brown and black and hind wing white with some dark on margins. Large masses of 100 200 eggs covered with moth body scales are found on underside of leaves
- **Tomato fruitworm: (*Helicoverpa zea*)** Larval color is variable, ranging from very dark to light green or pink with alternating longitudinal dark and light stripes. The skin is covered with short sharp micro spines. Adults are active at night, with a 1-1/2 in. wingspan. Males display a cream colored forewing with orange or olive cast, while females have a light yellow brown forewing with indistinct vertical lines. Eggs are waxy white and ribbed, with a flat base, and are deposited singly usually on lower surfaces of leaves adjacent to or near flowers. Eggs hatch in 2 3 days.
- **Cabbage or soybean looper: (*Trichoplusia ni* or *Pseudoplusia includens*)** Larva is pale green with white line alongside of body and only 3 pair of prolegs. Mature size 1 – 1 1/4 in. Adult is a grayish brown moth that is active at night. Front wings marked near center with a figure 8 shaped, silver white spot. Eggs are greenish white, ridged but flattened laterally and are found singly on upper or lower leaf surfaces of upper canopy leaves.

**The Florida Tomato Scouting Guide has excellent color photographs to help you identify these and other common tomato pests.** It can be found on the web at <http://erec.ifas.ufl.edu/tomato-scouting-guide/>

**Dr Dak Seal Entomologist at UF/IFAS TREC reports that Verimark applied at planting followed by Novaluron/Radiant (28 DAP), indoxcarb (42 DAP) will provide excellent control of diamondback moth, fall and beet armyworms as well as melonworms.** *Bacillus thuringiensis* based insecticides can be used in between two application of above treatments to have a worm free crop. Neemix applied earlier in the crop production cycle can help reduce beet armyworm populations.

**Dak notes that Intrepid is effective in controlling all worms.** It is an insect growth regulator. Once young lepidopteran larvae come in contact with Intrepid, they stop feeding. Death may occur immediately or several hours later. He advises growers not to be disappointed if they see some of them are still alive or walking around after an application as they are looking for some resting place to die. Intrepid is benign to natural enemies, and thus, a good IPM and IRM tool. It has a long residual toxicity (about two weeks). It is most effective when applied against freshly emerged larvae.

**He adds that Rimon is another effective growth regulator in controlling fall armyworm and other worm pests.** Rimon also provides excellent control of cucumber beetle. (Note: Rimon can cause phyto on some crops be careful to read and follow the label with regard to tank mixes and rates – GM)

## Whiteflies

**In the Manatee Ruskin area, whitefly numbers have been mostly low with some higher counts being reported in a few locations.** Scouts report finding some pupae in some older fields with higher counts and not that virus is around and silverleaf is present in some squash where numbers are higher.

**Around Immokalee, whitefly numbers are variable between locations but remain in the normal range for late October with counts varying from 1 in 20 plants and up to 5 per plant depending on location.** High whitefly numbers have been reported in some eggplant as well as silverleaf in some zucchini.

**On the East Coast, whitefly pressure remains mostly low.**

**In Miami Dade County, whitefly populations are low.**

**Proper scouting is essential to combat this pest. Over the years, UF entomologists have developed usable action thresholds that have been successful for many tomato farmers.** However, these thresholds are only guidelines. Farm managers may modify them to fit their particular situations and expectations. \*

### **Silverleaf whitefly thresholds**

**0-3 true leaves 10 adults/plant\***

**3-7 true leaves 1 adult/leaflet**

**NOTE - \*If the source of whiteflies is believed to be tomato, especially if infected with tomato yellow leaf curl virus, the threshold will be lower!**

**Growers are reporting good whitefly control with Verimark, Sivanto, and Venom applied in transplant water.**

**Dak Seal notes that neonics applied at planting followed by drip application of Verimark (28 DAP) and then foliar application of Venom, Knack, Requiem and fungus based insecticides (PFR) applied in a program will provide significant suppression of whiteflies and whitefly vectored TYLCV.** This program will also reduce tospoviruses. Sivanto has performed well in controlling whitefly. If labelled, it can be used in a program with Movento and other insecticides.

**Since initial finds of the Q biotype whitefly *Bemisia tabaci* in Palm Beach County, Q-biotype has been detected in 13 counties including Broward, Duval, Highlands, Hillsborough, Martin, Miami-Dade, Palm Beach, Pinellas, Seminole, St. Johns, St. Lucie, Pasco, Orange counties, primarily on landscape and nursery crops. It has been found in field grown vegetables in Palm Beach and St. Johns counties (1 detection in each location).**

**Growers should be aware of this especially if they encounter control issues as populations are prone to develop resistance to insect growth regulators (IGRs) and neonicotinoid insecticides.**

**Dr Cindy McKenzie, Ph.D., Research Entomologist, USDA, ARS, US Horticultural Research Laboratory has offered to test whitefly samples for growers.**

## Leafminer

**On the East Coast, respondents indicate that leafminer pressure is moderate and appears to be increasing in tomato and eggplant.**

**Growers and scouts in the Manatee Ruskin area report that leafminer activity is steady at mostly low-moderate and growers are spraying for leafminer in most fields.**

**Around SW Florida, leafminer pressure is mostly low but some reports that numbers are beginning to elevate to treatable thresholds in some locations.**

**Leafminer incidence is low in the Homestead area.**

**Dak Seal advises that vegetable growers should scout for this pest from the beginning of their planting and notes that growers can use SpinTor, Radiant, Coragen, Durivo, neonicotinoids, Agrimek, and Neemix for leafminers when population abundance is high.**

### **Pepper Weevil**

**There have been reports of a few pepper weevils showing up in a few fields around SW Florida notably in the Felda area.**

**Pepper weevils are also beginning to show up in older pepper planting on the east Coast.**

**In the Manatee Ruskin area, pepper weevils are beginning to show up in some fields and knock some young fruit off.**

**Scouting is importance as with other pests to detect infestations at an early stage.** In the absence of Vydate, growers may want to look at Exirel, Actara, Rimon, Dimilin and the pyrethroids to knock down adults.

### **Thrips**

**Thrips have been mostly low in South Florida but scouts continue to report finding a few thrips vectored Groundnut Ringspot Virus and Tomato Chlorotic Spot Virus infected plants here and there.**

**On the East Coast, thrips are starting to show up some in older pepper with a few larvae present in blooms and on fruit.**

**Thrips are also showing up early this season in pepper around Hillsborough County.**

**Around Homestead, common blossom thrips and western flower thrips, vector of TCSV and other tospoviruses, can be observed on weed hosts near the fields and in the surrounding area.** Growers should scout fields carefully to detect their presence in tomato. Reflective plastic mulch may be useful to repel thrips early in the cropping cycle.

**Melon thrips abundance is high on eggplants planted earlier.** Adults are being found in squash, cucumber, beans and okra, but the numbers remain mostly low. At low population levels, growers should apply soft chemistry to try and hold populations down and use a non-ionic surfactant in the tank mix to improve control.

### **Broad Mites**

**Respondents report that broad mite numbers have flared up in several pepper and eggplant fields around SW Florida.**

**Growers and scouts in East Coast pepper production areas indicate that broad mites are widely present at mostly low levels.**

**Broad mites have also been reported from several locations in the Manatee Ruskin area.**

### **Spider mites**

**With drier weather a few two spotted spider mites have been showing up on eggplants and several other crops.**

### **Cucumber beetles**

**A few cucumber beetles have been showing up here and there around South Florida**

**The banded cucumber beetle is omnivorous, attacking numerous plant species and plant parts.** While the pest prefers feeding on weeds in the genus *Amaranthus*, it attacks a wide range of vegetables. Vegetables affected include cucumber, squash, bean, pea, sweet potato, okra, corn, lettuce, onion, and cabbages. Damage may occur to foliage, blossoms, crown, and roots. Delayed growth, plant stunting and stand loss can result from heavy feeding damage by adults.

**Some of the most serious injury results from larval feeding on the roots of sweet potato and other vegetables.** In addition to feeding damage, the banded cucumber beetle is known as a vector of several pathogens including such as Stewart's wilt in corn and several viral diseases in beans. Larval feeding may also increase the incidence and severity of Fusarium wilt in cucurbits.

**Insecticides are used to prevent damage to roots by larvae.** Typically, granular insecticides are applied over the row, either at or just after planting.

**Foliar insecticides are sometimes needed to prevent damage to seedlings, but adults are rarely abundant enough to warrant control on large plants.** Chemical control of adults is through contact or bait insecticides. Baits may be attractive as they selectively treat the beetles as they eat the baits.

### **Aphids**

**A few scattered aphids continue to blow around and show on crops around South Florida.**

### **Diseases**

#### **Bacterial Spot**

**Around Southwest Florida, bacterial spot has slowed down and is mostly confined to the lower canopy but is still a concern and continues to spread with heavy dews.**

**In Manatee and Hillsborough County, tomato growers have seen plenty of damage from bacterial spot this year with the bottom third of some plantings affected.** Spread has slowed down with drier weather behind the cold front a couple weeks ago. Since then dew points have inched their way back up resulting in some heavy dews allowing the disease to continue to progress. Harvest activity is also assisting spread in affected fields, in such cases growers should avoid putting workers in to field before they have dried.

**Disease has also been severe in specialty pepper fields and much less in younger plantings of tomato and bell peppers, but still some blighting of infected lower leaves has occurred.**

**On the East Coast, bacterial spot is showing up on non-X10 bacterial spot resistant bell pepper varieties as well as hot peppers at low levels.** Bacterial spot in some older tomato increased following Hurricane Matthew but has moderated with dry weather since then.

**Some bacterial leaf spot is present on young tomato in Homestead which has seen considerable rainfall over the past few weeks.**

**The traditional recommendation for bacterial spot control consists of copper and maneb or mancozeb.** Attention to application techniques is as important as choice of material in achieving adequate control. The effectiveness of copper is limited, because of the widespread occurrence of copper tolerance among strains of *Xanthomonas*.

**In the past few years, a number products have come on the market that have given good results in research trials when used in rotation or together with traditional controls such as copper.** These include Tanos (DuPont) as well as the SAR elicitor Actigard (Syngenta), Double Nickel 55 (Certis), Regalia (Maronne Bioinnovations) and Serenade and Sonata (AgraQuest).

### **Target Spot**

**Around Immokalee, target spot is cranking up in early tomato planting as fields approach maturity.**

**Target spot activity is also increasing in the Ruskin area with higher dew points and fields staying wet longer in the mornings.**

**Growers and scouts should be alert for the presence of target spot as the weather changes seasonally and canopies begin to close in early tomato plantings.**

**Foliar symptoms of target spot caused by *Corynespora cassiicola* consist of brown black lesions with subtle concentric rings giving them a target-like appearance.** Lesions can be confused with early blight. Foliar symptoms of early blight caused by *Alternaria solani* also consist of brown black lesions with conspicuous concentric rings and but are often associated with a general chlorosis (yellowing) of the leaf.

**Disease development is favored by periods of high humidity and free moisture (rain or dew) and temperatures between 70 - 94°F.** *Corynespora cassiicola* has a broad host range, while *Alternaria solani* is limited to specific solanaceous hosts (tomato, potato, eggplant, and nightshade).

**Disease Management: Strategies for early blight and target spot are very similar, and require an integrated approach for best results.**

- 1. Rotate tomato fields to avoid carryover on crop residue. Avoid rotations among solanaceous crops.**
- 2. Eliminate any volunteers and weed species (especially solanaceous weeds) that can act as a reservoir.**
- 3. Start with clean, healthy transplants preferably produced in facilities removed from tomato production.**
- 4. Maintain proper fertility, nitrogen deficiencies favor the development of early blight.**
- 5. Apply fungicides in a preventive manner when conditions favor disease development**

**Dr Gary Vallad, Plant Pathologist at GCREC has documented extensive resistance to strobilurin fungicides**

**Newer fungicides such as Endura, Scala, Inspire Super, Reason, Luna, Tanos and Fontelis have provided growers with new tools to manage this disease.** Consult UF/IFAS recommendations for currently labeled fungicides for target spot control in Florida tomatoes. <http://edis.ifas.ufl.edu/pdf/files/cv/cv13700.pdf>

### Early Blight

A few reports of *Alternaria* on tomato are starting to come in from several locations around south Florida.

### Phytophthora

Some scattered problems with *Phytophthora* in pepper have been reported in East Coast growing areas.

### Southern Blight

Drier weather has pretty much stopped southern blight on tomato which was working in wet areas of some fields. Growers report good control from Fontelis earlier in the season when the disease was active.

### Phomopsis

Phomopsis is showing up on some eggplant in Palm Beach County.

### Downy Mildew

Downy mildew remains low but has increased in occurrence on squash and cucumber with frequent morning dews around the Manatee Ruskin area.

Around Immokalee, downy mildew has made an appearance in a few watermelon, cantaloupe and squash fields. Incidence and severity remains low.

Downy mildew is also present on squash in Homestead.

### Powdery Mildew

Powdery mildew showing up in the mature squash around Hillsborough and Manatee Counties.

Growers and scouts are also finding mostly low levels of powdery mildew in some cucurbits around SW Florida, mostly squash but also a few watermelons.

### Plectosporium Blight

Dr Gary Vallad Pathologist at UF/IFAS GCREC reports that *Plectosporium* blight, which can easily be confused with wind damage, has been showing up on squash and affecting fruit in the Manatee Ruskin area.

*Plectosporium* blight is caused by the fungus *Plectosporium tabacinum* (formerly *Microdochium tabacinum*).

*Plectosporium tabacinum* infects stems, leaf veins, and fruit. Symptoms of *Plectosporium* blight are very distinctive and easily distinguished from other cucurbit diseases. Initially, lesions on stems and leaf veins are small, white, and diamond-shaped. Lesions quickly coalesce, causing the entire surface of the vine or leaf vein to turn white and may be mistaken for wind burn. Because leaf lesions are restricted to the veins and do not spread to the interveinal tissue, they may be overlooked in the early stages of disease development. Leaves on severely affected vines die and complete defoliation may occur in severe cases.

**On fruit the white lesions are more circular and less diamond-shaped. Spots on the flesh remain small and scattered.**

***Plectosporium tabacinum* occurs in soil and decaying plant material. Little is known about the disease cycle, but spores are most likely spread by wind and rain.**

**Regular application of label rates of chlorothalonil (e.g. Daconil 2787) provides excellent control of *Plectosporium* blight.** The fungicide, trifloxystrobin (e.g. Flint), also provides excellent control of this disease. This fungicide should be rotated with chlorothalonil to prevent the development of fungicide resistance in the fungal population. Inspire Super and other strobilurin fungicides such as Cabrio, Evito and Quadris are also labeled for control of this disease.

### **Gummy stem blight**

**Gummy stem blight has gotten serious in some watermelon fields around SW Florida.**

### **Anthracnose of cucurbits**

**Respondents in SW Florida report that a few locations have seen significant outbreaks of anthracnose on watermelons this fall, which is unusual for this area.**

**Anthracnose, caused by the fungus *Colletotrichum lagenarium*, is a destructive disease of cucurbits which occurs during warm and moist seasons.** Significant damage can occur to cucumber, muskmelon, and watermelon unless resistant varieties are grown. Squash and pumpkins are rarely, if ever, infected by the pathogen.

**All aboveground plant parts can be infected.** Symptoms vary among the three principal cucurbits infected. Leaf lesions begin as water soaked and then become yellowish circular spots. On watermelon foliage the spots are irregular and turn dark brown or black. On cucumber and muskmelon, the spots turn brown and can enlarge considerably. Stem lesions on muskmelon can girdle the stem and cause vines to wilt. Stem cankers are less obvious on cucumbers.

**The most striking diagnostic symptoms are produced on the fruit, where circular, black, sunken cankers appear.** On watermelon the spots may measure 1/4 to 1/2 in. (6 to 13 mm) in diameter and up to 1/4 in. (6 mm) deep. When moisture is present, the black center of the lesion is covered with a gelatinous mass of salmon colored spores. Cankers lined with this characteristic color can never be mistaken for any other disease. Similar lesions are produced on muskmelon and cucumber.

**The anthracnose fungus survives on diseased residue from the previous vine crop.** The pathogen may also be carried on cucurbit seed. Under wet conditions the fungus releases airborne spores (conidia) that infect vines and foliage.

**The fungus depends on wetness and fairly high temperatures, 75°F (24°C) being considered optimum.** Conidia do not germinate below 40°F (4.4°C) or above 86°F (30°C) or if they are not supplied with a film of moisture.

**In addition, the pathogen must have water to free the conidia from their sticky covering in the fruiting body.** The fruiting body is slightly saucer-shaped and lined with microscopic stalks. The microscopic stalks produce the conidia, which amass in sticky, flesh-colored tendrils. As long as the tendrils remain dry, the conidia cannot escape, but a heavy dew may dissolve the mucilaginous covering and then rain drops splash them several feet.

**Cultural control methods include:**

- 1. Use commercially produced, disease-free seed.**
- 2. Rotate vine crops with unrelated crops in a three-year rotation.**
- 3. Practice good sanitation by plowing under fruits and vines at the end of the season.**
- 4. Choose anthracnose-resistant varieties if at all possible. Resistant cucumber slicers include Cobra, Dasher II, Daytona, Indy, Speedway, Thunder and others. Many pickling cucumbers are tolerant or resistant, as are many watermelon varieties. No anthracnose-resistant muskmelon varieties are currently available for the southeast.**

**Apply approved fungicides to the crop at regular intervals, more often if frequent rains occur. See the UF/IFAS Vegetable Production Handbook for Florida for labeled fungicides**  
<http://edis.ifas.ufl.edu/pdffiles/cv/cv12300.pdf>.

### **Anthracnose**

**Anthracnose starting to show up on pepper in some East Coast production areas.**

**Control of this disease is best accomplished through integrated management techniques.** Since the disease may be introduced on seed, only clean pathogen-free seed should be planted. Disinfection of seed with hot water treatment of seed is useful in reducing potential infections. Transplants should be kept clean by controlling weeds and Solanaceous volunteers around the transplant houses.

**Fields should be well drained and be free from infected plant debris.** If disease was previously present in a field, crops should be rotated away from Solanaceous plants for at least 2 years. Sanitation practices in the field include control of weeds and volunteer peppers plants.

**Resistance is available in some varieties of chili peppers but not in bell peppers.** Wounds in fruit from insects or other means should be reduced to the extent possible because wounds may provide entry points for *Colletotrichum* spp. and other pathogens like bacteria that cause soft rot.

**For late-maturing peppers, when disease is present, apply a labeled fungicide several weeks before harvest.** Products such as Chlorothalini (Bravo), various strobilurin fungicides (Amistar, Cabrio, Flint, Heritage, or Quadris), Fontelis, Inspire Super, Luna and Tanos will help control the disease. Anthracnose can be controlled under normal weather conditions with a reasonable spray program.

### **Tomato Chlorotic Spot Virus**

**Around Southwest Florida, scouts have found a few scattered single TCSV infected plants here and there in a few tomato fields.**

### **Tomato Yellow Leaf Curl**

**A few scattered TYLCV infected plants have been reported in tomatoes in all production areas around South Florida.**

**TYLCV incidence is beginning to creep upwards in the Manatee Ruskin area where it has reached 5-6 percent in some earlier plantings.**

### **Black Rot**

**Respondents report that black rot is showing up on some early plantings of cabbage and broccoli.**

**Black rot is caused by the bacterium, *Xanthomonas campestris pv. campestris*.** Cabbage, broccoli, cauliflower, kale, collards, radish, and other members of the cabbage family are susceptible.

**In the field, the disease is easily recognized by the presence of large yellow "V"-shaped areas extending inward from the margin of a leaf, and by black veins in the infected area.** Usually only a few of the outer leaves are involved.

**Diseased areas enlarge and progress toward the base of the leaf, turn yellow to brown, and dry out.** The veins of infected leaves, stems, and roots turn black as the pathogen multiplies. On cauliflower, black rot commonly appears on the leaves as numerous, minute brown specks. The infected lower leaves of cabbage and cauliflower are usually stunted, turn yellow to brown, wilt, and drop prematurely.

**The control of this disease is based on sanitation.** There are no commercially acceptable varieties resistant to the disease at this time. Spraying with copper fungicides may help reduce spread but are not recommended as copper sprays cause black spots on foliage

## News You Can Use

### Rainy Season Recap

- Wetter than normal western areas of South Florida
- Mainly drier than normal east coast metro
- Warmer than normal:
- West Palm Beach: Hottest summer on record
- Miami International: 8th hottest summer on record
- Fort Lauderdale Int'l: 5th hottest summer on record
- Naples Municipal: 7th hottest summer on record
- One significant tropical threat (Hurricane Matthew), but relatively minor impacts

### Top 10 Rainfall Sites for 2016 Rainy Season

Location	May 15- Oct 16	Departure from Normal
Naples/Golden Gate (NWS COOP)	50.09	+9.59
LaBelle (NWS COOP)	47.60	+11.11
Ortona (NWS COOP)	46.36	+7.78
NWS Miami - Sweetwater (NWS COOP)	45.62	+0.51
Homestead General Airport (NWS COOP)	42.53	+0.38
Miami International Airport (NWS ASOS)	42.14	-0.34
Muse (NWS COOP)	42.00	
Fort Lauderdale Beach (NWS COOP)	41.98	+1.61
Immokalee (FAWN)	41.91	+7.49
South Bay/Okeelanta (NWS COOP)	40.90.	

### South Florida 2016-2017 - Dry Season Outlook

South Florida officially rolled into the dry season Oct. 17, ending a summer that tied the hottest on record for West Palm Beach and entering an uncertain winter under the influence of La Niña.

The National Weather Service in Miami noted the beginning of the dry season Friday — a declaration made after considering rainfall rates, dew-point temperatures and the waning frequency of afternoon summertime thunderstorms.

The average date for the dry season kick-off just happens to be Oct. 17, but Robert Molleda, the warning coordination meteorologist for the NWS in Miami, said it was just coincidence that the two dates were the same this year.

Dry season usually lasts through mid-May, with the average start date of the rainy season being May 20.

There is 60-70% chance of La Niña through January 2017

### **La Niña Primer**

- La Niña is part of ENSO (El Niño Southern Oscillation) along with its counterpart El Niño
- Occurs every 3-7 years on average
- Naturally occurring phenomena resulting from interactions between the ocean surface and the atmosphere over the tropical Pacific
- Changes in the ocean surface temperatures affect tropical rainfall patterns and winds over the Pacific Ocean, which in turn impact the ocean temperatures and currents
- Ocean temperatures not all...need to see atmospheric “coupling”. La Niña is the “cold” phase of ENSO (cooler waters)

### **La Niña’s Influence on South Florida Weather**

- Jet Stream farther to north causes winter storm tracks to pass well north of Florida
- This leads to less moisture and instability in association with fronts moving through Florida
- End result is a tendency towards less “storminess” and less rainfall during cool months
- La Niña “sets the stage”, not a cause

### **South Florida 2016-2017 - Dry Season Outlook**

- Increased odds of above normal temperatures Confidence: Moderate
- Increased odds of below normal precipitation and storminess (tornadoes, severe t’s storms, hail, flooding) Confidence: Moderate to High
- Freeze probability near normal (1-2 nights of freezing temperatures mainly the interior) Confidence: Moderate to High
- Outlook reflects weak La Niña conditions (stronger La Niña would result in higher confidence)
- La Niña’s Potential Impacts on South Florida

**Seasonal outlooks are “just that”, a “general, big-picture view of a set of conditions that will probably exist in the future” (Merriam-Webster)**

- These outlooks are associated with a large degree of uncertainty with regards to specifics
- Extended dry periods can lead to drought conditions which affect water supply
- Higher threat of wildfires, especially in March, April and May
- Less arctic air intrusions, but possibility of longer warm periods could make crops more sensitive to cold outbreaks that can still occur

## **EPA Worker Protection Standard (WPS) Revision**

As you may know the EPA Worker Protection Standard (WPS) was revised in 2015 and it became effective on Jan 2, 2016.

There are a number of changes and the majority of the rule revisions will be effective on January 2, 2017. This will give farmers and states time to adjust to the new requirements, as well as time for EPA and states to develop updated materials for training and other purposes.

Here are some references to help

Quick Reference Guide to The Worker Protection Standard (WPS) Revised in 2015

<http://pesticideresources.org/wps/hosted/quickrefguide.pdf>

AGRICULTURAL WORKER PROTECTION STANDARD (WPS) - COMPARISON OF THE NEW PROTECTIONS TO THE EXISTING PROTECTIONS – October 2015

This table summarizes key provisions in the EPA's current WPS regulation and the 2015 revisions. It does not cover all of the details in the rule nor does it include all of the information needed to comply with the regulation.

<https://www.epa.gov/sites/production/files/2015-09/documents/comparison-chart-wps.pdf>

Pesticides; Agricultural Worker Protection Standard Revisions - A Rule by the Environmental Protection Agency on 11/02/2015

The text of the revised WPS

<https://www.federalregister.gov/documents/2015/11/02/2015-25970/pesticides-agricultural-worker-protection-standard-revisions>

EPA Pesticide Safety website

<https://www.epa.gov/pesticide-worker-safety/revisions-worker-protection-standard#when>

**All workers will have to be trained annually beginning in 2017 and all persons holding a Train the Trainer Certificate will have to be retrained.**

### **Produce Safety Alliance Grower Training**

(PSA, for those who fall under the Produce Safety Rule – most commercial farms and some packing houses)

November 7, West Palm Beach <https://psa110716.eventbrite.com>

November 30, Balm <https://psa113016.eventbrite.com>

December 9, Homestead <https://psa120916.eventbrite.com>

Who Should Attend - Fruit and vegetable growers and others interested in learning about produce safety, the Food Safety Modernization Act (FSMA) Produce Safety Rule, Good Agricultural Practices (GAPs), and co-management of natural resources and food safety. The PSA Grower Training Course is one way to satisfy the FSMA Produce Safety Rule requirement.

What to Expect

The trainers will spend approximately seven hours of instruction time covering content contained in these seven modules:

- Introduction to Produce Safety
- Worker Health, Hygiene, and Training
- Soil Amendments
- Wildlife, Domesticated Animals, and Land Use
- Agricultural Water (Part I: Production Water; Part II: Postharvest Water)
- Postharvest Handling and Sanitation
- How to Develop a Farm Food Safety Plan

In addition to learning about produce safety best practices, key parts of the FSMA Produce Safety Rule requirements are outlined within each module. There will be time for questions and discussion, so participants should come prepared to share their experiences and produce safety questions.

### Benefits of Attending

The course will provide a foundation of Good Agricultural Practices (GAPs) and co-management information, FSMA Produce Safety Rule requirements, and details on how to develop a farm food safety plan. After attending the entire course, participants will be eligible to receive a certificate from the Association of Food and Drug Officials (AFDO) that verifies they have completed the training course.

### PSA TRAINING AGENDA

8:30 Registration and Refreshments	1:30 Module 5: Agricultural Water
9:00 Welcome and Introductions	Part 1: Production Water
9:15 Module 1: Introduction to Produce Safety	2:15 Part 2: Postharvest Water
10:00 Module 2: Worker Health, Hygiene, and Training	3:15 Break
11:00 Break	3:30 Module 6: Postharvest Handling and Sanitation
11:15 Module 3: Soil Amendments	4:30 Module 7: How to Develop a Farm Food Safety Plan
12:00 Module 4: Wildlife, Domesticated Animals, and Land Use	5:00 Final Questions and Evaluations
12:45 Lunch	

### **Food Safety Preventive Controls Alliance**

(FSPCA, those who fall under the Preventive Controls for Human Food Rule) – some packinghouses

November 16-18, West Palm Beach <https://www.eventbrite.com/e/fspca-training-west-palm-beach-registration-26053345257>

FDA has recognized this course as the “standardized curriculum” for the Preventive Controls for Human Foods Rule. Successfully completing this course is one way to meet the requirements to become a “Preventive Controls Qualified Individual.”

Under the Preventive Controls for Human Foods Rule, the responsibilities of a preventive controls qualified individual include to perform or oversee:

1. Preparation of the Food Safety Plan
2. Validation of the Preventive Controls
3. Records Review
4. Reanalysis of the Food Safety Plan



**December 1, 2016**

**Fall Vegetable Field Day**

**3:00 to 6:00 PM**

UF/IFAS Southwest FL Research and Education Center  
2685 State Rd 29 North  
Immokalee FL

To register or for additional information, please contact Jennifer Derleth at [jderleth@ufl.edu](mailto:jderleth@ufl.edu)

**December 5, 2016**

**WPS Train the Trainer class**

**9:00 AM – 2:30 PM**

Hendry County Extension Office  
1085 Pratt Boulevard  
LaBelle, Florida

Cost is \$20 – contact Debra at 863-674-4092 or [dcabrera@ufl.edu](mailto:dcabrera@ufl.edu) to reserve a place.

### **Websites**

**2016-2017 UF/IFAS Vegetable Production Handbook of Florida** - This handbook is designed to provide Florida growers with the latest information on crop cultivars, cultural practices, and pest management. Free hard copies of the handbook are available at UF/IFAS research and education centers and county extension offices. It can be viewed or downloaded at [http://edis.ifas.ufl.edu/topic\\_vph](http://edis.ifas.ufl.edu/topic_vph)

### **Check out Southwest Florida Vegetable Grower on Facebook**

<https://www.facebook.com/pages/South-Florida-Vegetable-Grower/149291468443385> or follow me on

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The **South Florida Pest and Disease Hotline** is compiled by **Gene McAvoy** and is issued on a biweekly basis by the **Hendry County Cooperative Extension Office** as a service to the vegetable industry.

*Gene McAvoy*

Gene McAvoy

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