



# SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

March 9, 2017

**Heavy winds buffeted the area for several days once again this week battering crops and damaging plants and fruit especially in younger plantings in the Manatee Ruskin area.**

**Temperatures have been relatively mild with daytime highs in the upper 70's and low 80's and night time temps in the 50's and 60's.**

**Most areas received between a half inch and an inch and a half of rain for the period with the exception Okeechobee which reported just over a quarter inch.** Heavy dews and morning fog over the past few weeks have helped keep some diseases active.

**FAWN Weather Summary**

Date	Air Temp °F		Rainfall (Inches)	Ave Relative Humidity (Percent)	ET (Inches/Day) (Average)
	Min	Max			
Balm					
2/12 – 3/3/17	36.65	86.92	1.03	77	0.1
Belle Glade					
2/12 – 3/3/17	44.46	88.66	0.77	84	0.11
Clewiston					
2/12 – 3/3/17	44.65	86.88	0.77	81	0.11
Ft Lauderdale					
2/12 – 3/3/17	56.12	89.55	1.42	78	0.11
Homestead					
2/12 – 3/3/17	47.55	87.04	1.12	82	0.11
Immokalee					
2/12 – 3/3/17	41.19	86.88	1.39	83	0.11
Okeechobee					
2/12 – 3/3/17	34.51	89.80	0.33	81	0.1
Wellington					
2/12 – 3/3/17	50.05	89.04	1.77	81	0.11

## When in Doubt – Scout!

**Pest and disease pressure has been relatively light this season.** Heavy winds at the end of January which battered and sand blasted crops, caused extensive scarring of fruit which is being reflected in relatively high cull rates at the packinghouse. Unseasonably warm conditions have caused lettuce and other crops to bolt prematurely and is pushing early maturity in a variety of crops. An assortment of crops are coming to market including collards, cucumber, eggplant, escarole, green beans, herbs, kale, lettuce, mustard, peppers, radishes, squash, sweet corn, Swiss chard and a variety of specialty items.

**The National Weather Service forecast advises that over the weekend, a front, currently taking shape over the northern Plains states, will make a run at the area Saturday, but appears likely to wash out as it approaches the area with no major change in air mass expected.** Isolated to scattered showers along this decaying boundary are possible over the weekend.

**Next week, a stronger front to approach the area Monday or Tuesday, bringing an increased chance for scattered showers.** The air mass behind this front does not look particularly cool and it is more likely to usher drier air into the region by the middle of next week.

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

## **Insects**

### **Whiteflies**

**Around Southwest Florida, growers and scouts report that whiteflies remain the pest of the day and counts remain high in many locations but respondents indicate numbers seem to also be declining in a number of locations.**

**Reports indicate that TYLCV is moving in places especially where growers are not using TYLCV resistant cultivars, and there is a fair amount of cucurbit leaf crumple virus showing up in watermelons already.** Scouts are also finding some cucurbit yellow stunting disorder virus as well as vine decline (squash vein yellowing virus) in watermelon.

**Respondents in Miami Dade County indicate that whitefly remains common on tomato, eggplant, squash and other host crops.** TYLCV is common in many tomato fields and has reached nearly 100% infection levels in a few.

**Cucurbit crops at various locations around Miami-Dade are also showing high incidence of silverleaf stemming from heavy whitefly infestation.**

**In the Manatee Ruskin area, whitefly numbers remain fairly low in spring plantings but growers report a significant amount of TYLCV is present in several fields and could indicate problems as the season progresses.**

**In the Palm Beach area, whiteflies remain an issue in some squash and eggplant, but growers are managing to keep them under control in other crops.** Whiteflies are reportedly building up in leafy brassicas in the Glades.

**As noted above this spring is shaping up to be a bad season for whitefly and attendant problems including virus in tomatoes and melons, silverleaf in squash and irregular ripening in tomato.**

**Irregular ripening is a physiological disorder unrelated to virus but caused by feeding of whitefly nymphs, not adults.** The threshold for irregular ripening is 1 nymph per 2 leaflets. Nymphs are best monitored on the underside of the lower (5-7<sup>th</sup> node) leaves.

**The whitefly situation has been exacerbated by a warm mild dry winter and the fact that many tomato fields around South Florida have been abandoned after one pick due to low prices. In addition, due to low prices growers have been reluctant to spray.** Even though most of the abandoned acreage has been sprayed with an herbicide, in many cases, there is still plenty of green living tissue to support whiteflies as well as other pests and diseases. Some fields, I have visited literally have clouds of whiteflies streaming out of them and settling on nearby spring plantings. This situation does not bode well for spring crops.

**Field hygiene including rapid and timely crop destruction and clean up should be a high priority and should be an integral part of the overall strategy for managing whitefly populations, TYLCV incidence, and insecticide resistance.** These practices will help reduce the onset of the initial infestation of whitefly, regardless of biotype, and lower the initial infestation level during the cropping period.

**Disrupt the virus-whitefly cycle in winter by creating as long a break in time and/or space as possible between fall and spring crops, especially tomato, cucurbits and other crops where whitefly vectored viruses are an issue.**

**Promptly and efficiently destroy all vegetable crops within 5 days of final harvest to decrease whitefly numbers and sources of plant viruses like TYLCV.**

**Destroy old crops quickly and thoroughly after harvest, killing whiteflies and prevent re-growth.** Spray first with a tank mix of pyrethroid and malathion to kill whiteflies in the old crop. Use a contact desiccant (“burn down”) herbicide in conjunction with a heavy application of oil (not less than 3 % emulsion) and a non-ionic adjuvant to destroy crop plants and to kill whiteflies quickly.

**Time burn down sprays to avoid crop destruction during windy periods, especially when prevailing winds are blowing whiteflies toward adjacent plantings.**

**Treat spring plantings of tomato with a systemic insecticide in the transplant water. (Table 1).** If on drip, make a second soil application in 30 days using a systemic insecticide of different mode of action Scout crops every week and apply insecticides as needed to maintain control. Target nymphs once the threat of immigration from old crops has passed (Table 2).

**Table 1; Systemic insecticides applied to soil for whitefly control**

<b>Common name</b>	<b>Mode of Action</b>	<b>Trade Names</b>	<b>Rates</b>
<b>Imidacloprid</b>	<b>4A</b>	<b>Various</b>	<b>Check Label</b>
<b>Thiamethoxam</b>	<b>4A</b>	<b>Platinum 75 SG</b>	<b>1.66 - 3.67</b>
	<b>4A</b>	<b>Venom 70% Scorpion 35 SL Certador 10%</b>	<b>5 - 7.5 oz/ac 9 -1 0.5 fl oz/ac 32.5 - 47.5 fl oz/ac</b>
<b>Flurpyradifuron</b>	<b>4D</b>	<b>Sivanto 200 SL</b>	<b>21-28 fl oz/ac</b>
<b>Verimark</b>	<b>28</b>	<b>Verimark 18.7%</b>	<b>5-10 fl oz/ac</b>

### Efficacy Ratings for Insecticides and Miticides on Tomato

		Whiteflies	Other pests controlled			
MOA	Active Ingredient	Whiteflies	Southern Armyworm	Spider mites	Stinkbugs	Leafminer
4A	dinotefuran	E**			G	
4A	imidacloprid	E**				
4A	thiamethoxam	E**			G	
4D	flupyradifurone	E**				
23	spiromesifen	E†		E		
23	spirotetramat	E†		G		
7C	pyriproxyfen	E†				
28	cyantraniliprole	E**	E			E
1B	malathion	G*				
3A	beta-cyfluthrin	G*	F		G	
3A	bifenthrin	G*			G	
3A	esfenvalerate	G*	G			
3A	fenpropathrin	G*	F		F	
3A	lambda cyhalothrin	G*	F			
3A	permethrin	G*	G			
3A	zeta-cypermethrin	G*	G		F	
4A	acetamiprid	G				
9	pymetrozine	G†				
16	buprofezin	G†				
21 A	fenpyroximate	G		G		
4A	clothianidin	F**				
Unk.	horticultural mineral oil	F†		G		
Unk.	Azadiractin	F†				
Unk.	Soap, insecticidal	F†				

\* OP+Pyrethroids tank mix.  
 \*\* Most Effective as a drench.  
 † Effective primarily against nymphs  
 Check labels before using any pesticide.

For more whitefly management tips – see:

Recommendations for Management of Whiteflies, Whitefly-Transmitted Viruses, and Insecticide Resistance for Production of Cucurbit Crops in Florida - <http://edis.ifas.ufl.edu/in871>

## **Management of Whiteflies, Whitefly-Vectored Plant Virus, and Insecticide Resistance for Vegetable Production in Southern Florida - <http://edis.ifas.ufl.edu/in695>**

### **Aphids**

**Around Palm Beach County, respondents report a spike in aphid populations with quite a few now blowing around, in some cases out of old crops, and trying to build up in nearby pepper and eggplant fields.**

**Growers and scouts in Southwest Florida, report that aphids are still fairly low overall but have flared up in some locations.**

**In the EAA, aphids are present on corn approaching maturity but have not become a problem on flags and silks. Aphids are also showing up in brassicas.**

### **Pepper Weevil**

**Pepper weevils are established in a number of pepper fields around Southwest Florida and numbers are building in a number of places as the season progresses**

**Reports from East Coast production areas indicate that pepper weevil numbers are high in many areas and will impact extended production in older pepper. Scouts report signs of finding foliar feeding in eggplant in some places. Young pepper planted near older fields are at the highest risk.**

**Pepper weevils are becoming common in the Homestead area.**

**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.**

### **Worms**

**Around Southwest Florida, worm pressure is starting to pick up with a mixed bag of southern, beet and fall armyworms plus loopers, melonworms, and fruit worms depending on the location. A few diamondback moths are showing up in crucifers.**

**On the East Coast, worms are not doing much and worm pressure remains mostly low. Respondents indicate that diamondback moths are causing some problems in leafy brassicas.**

**Reports from the Ruskin area indicate that worm pressure has been steadily increasing over the past few weeks. Respondents report a surge in diamondback moth activity in crucifers. Around Wimauma, pinworms have reached high numbers in some tomato fields and are causing problems.**

**Around Homestead, worms are active in a variety of crops.**

**Respondents in the Glades indicate that worms continue at above average numbers but have been manageable in most cases. The areas closest to the lake have seen the highest sustained pressure until tasseling when silk sprays control them.**

## **Lesser cornstalk borer**

**Around the Glades, lesser cornstalk borer trap counts remain extremely high on the sand lands around Clewiston due to the dry weather.** Depending on location numbers are up and down based on moisture levels in the field. Counts on muck soils remain steady at much lower populations.

## **Thrips**

**On the East Coast, respondents indicate thrips are increasing and affecting pepper quality in most areas in Palm Beach County.** They are reportedly less of a problem in Martin and St Lucie counties.

**Around Homestead, common blossom thrips and western flower thrips, vector of TCSV and other tospoviruses continue to be a threat.** Growers should scout fields carefully to detect their presence in tomato as well as weedy hosts near the fields and in the surrounding area. Tomato chlorotic spot virus is widely present in a number of tomato fields. Reflective plastic mulch may be useful to repel thrips early in the cropping cycle.

**Melon thrips are also causing problems around Miami Dade County.** Reports indicate numbers are high in eggplants and adults are being found in squash, cucumber, beans and okra as well.

**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.**

**Around Southwest Florida, thrips palmi are still around, causing some problems in pepper and watermelon.**

**Around Hillsborough County, thrips numbers remain low but appear to be increasing as they migrate out of flowering oak trees.**

**Growers should learn to identify thrips species and take a soft IPM approach to reduce numbers and favor beneficial insects such as minute pirate bug which have been shown to help control populations.**

**Radiant, Movento, Torac, Exirel and Requiem in rotation can be used to manage thrips.** Addition of non-ionic surfactant in tank mix will increase effectiveness on insecticides.

## **Leafminer**

**Growers in the Manatee Ruskin are report that leafminer numbers are increasing in spring plantings.**

**Reports from East Coast growing areas in Palm Beach and Martin Counties indicate that leafminer continues to cause problems in a number of places.**

**Around Immokalee, leafminers remain a persistent problem on tomato, eggplant, pepper and cucurbits.** Numbers are up and down depending on location.

**Respondents indicate that leafminers continue to cause problems in many EAA crops.**

**In Miami-Dade County, leafminers are quite common on many vegetable crops including tomato, pepper, basil, even cabbage.**

**Leafminers are particularly damaging on celery, crucifers, cucurbits, okra, potato and tomato.** In south Florida, populations peak between October and March while in central Florida they are a problem in both spring and fall.

**Certain insecticides may decimate beneficial insects including those that attack leafminer.** This often results in a larger leafminer problem if the pesticide reduces numbers of leafminer parasites.

**Several parasites for this insect have been recorded in Florida, but parasitic wasps are most common.** Up to 90% parasitism in non-sprayed tomatoes has been observed in Florida.

**To determine whether leafminer larvae are dead or alive, leaflets can be held up to the sun and examined with a hand lens.** Living larvae are a pale yellow and flush with the end of the mine. The back and forth feeding movements are readily visible, although movement may cease when larvae are disturbed or molting. Dead larvae do not show movement and are usually discolored and removed from the ends of mines.

**It is important that the scouting program include not only an assessment of the number of leafminers present but also the natural enemies.**

**Growers can use Entrust, Radiant, Coragen, Verimark, Exirel, Durivo, Agrimek, Tigard, and Neemix for leafminers depending on the crop and label.**

### **Spider mites**

**Spidermites are increasing in a number of locations and some of melons and tomatoes around SW Florida have been sprayed.**

**Spidermites are also starting to show up in a number of locations around South Florida on cucurbits, eggplant and tomatoes.**

### **Broad Mites**

**Around South Florida, broad mites remain widely present at mostly low levels in pepper and eggplant.**

### **Silkfly**

**In the EAA, silk flies are present in typical numbers for this time of year with the pressure varying by location. In general, the closer to the lake, the higher the pressure.**

**Around Homestead, corn silk fly number are increasing and will most likely grow worse with the progression of season.**

**Growers should scout corn fields carefully for silk fly infestation.** Certis Bait pellets have shown significant reduction of adults and silkfly damage on corn ears. Pyrethroids can also be used to reduce silk fly adults.

### **Stinkbugs**

**Growers and scouts are finding stinkbugs and leaf-footed bugs especially in older plantings and some growers have had to apply pyrethroids.** Several scouts have noted an increase in stinkbugs especially where more selective insecticide are being applied.

## **Yellow-margined Leaf Beetle**

**A few yellow-margined leaf beetle have been reported in leafy brassicas in the EAA and Hendry County.**

**The adult beetle is about 5 mm long and predominately dark brown, bronze or black.** The margins of the elytra or hardened forewings characteristic of beetles are marked with a margin of yellow or brown, a characteristic which gave this species its common name.

**The eggs are bright orange, elongate, and laid singly or in small groups on plant stems, under fallen leaves or on the soil surface.**

**The normal hosts for this species are all in the Crucifer plant family.** Vegetable crops that are damaged include broccoli, cabbage, cauliflower, collards, mustard, radish, turnip, and watercress. The yellow-margined leaf beetle is a particular problem on Chinese cabbage and other leafy Brassicas in the Glades, especially for organic growers.

**Most damage occurs in the spring when both the larvae and adults are found feeding on crucifers, where they feed on the foliage and leaf margins, making small holes.** Adults and larvae may defoliate the host. Larvae, especially early instars, work in groups to strip individual stems.

## **Diseases**

### **Late Blight**

**Late blight appears to be slowing down in most places around Southwest Florida but and is now present a number of farms in Collier and Hendry Counties and has reached pretty serious levels in some locations.**

**There has been one report of late blight from Manatee County.**

**The gusty winds and rain at the end of the month helped to move it around and foggy mornings over the past few weeks have helped keep it going.**

**Since this disease can spread so rapidly, growers should scout their fields thoroughly each day, especially when cool and wet conditions conducive to disease development prevails.**

**Late blight symptoms on leaves appear as irregularly shaped brown to purplish lesions with indefinite border lesions that can span veins.** The lesions may be seen any time of day, on any stage of plant growth and on leaves of any age. Velvety, white fungal growth may appear on the lower surface of affected leaflets early in the morning before leaves dry and/or in the lower canopy.

**On stems, purplish lesions may be found anywhere on the stem.** Cottony, white growth of fungus on stems with lesions can often be seen early in the morning and/or in the lower canopy. Stems with lesions are brittle and break easily. Lesions are confined to epidermis and cortex. Leaf rolling and wilting is often associated with stem lesions and purpling of leaflets may occur in some varieties.

**Begin a spray program with fungicides if late blight is in your area or weather conditions are suitable for late blight development.** After potato harvest, kill infected foliage to minimize tuber infection.

**Currently, fungicides are the most effective means of controlling late blight and will remain the primary tool until cultivars with resistance to this disease become available.** Fungicides slow the rate at which the disease develops in the field by creating a protective barrier on the foliage.



**Just applying a chemical, however, does not necessarily equate with effective disease control.** Relative effectiveness of a product, coverage, and timing must be factored into the equation for maximum benefit.

**Numerous fungicide products are registered for late blight control.** Protectants, as the name implies, protect foliage from infection by spores. Protectant chemicals must be well distributed over the leaf surface and must be applied before spores land on leaves. They are ineffective against established infections.

**PROTECTIVE applications of chlorothalonil are your first line of defense for managing late blight.** Timing is critical - applications must be made when conditions are conducive for disease development and before infection occurs!!!

**They may kill some established infections and may suppress production of new spores.** Even a short break in spray schedules, despite what is said regarding some of the newer fungicides, can result in a dramatic increase in blight under the proper conditions.

**Consult current UF/IFAS recommendations for all labeled fungicides for the control of late blight on tomato in Florida.**

**Go to for the most recent update:** <http://edis.ifas.ufl.edu/pdffiles/cv/cv13700.pdf>

**Due to low prevailing prices, many tomato fields have been picked once or twice and abandoned, even though most have been sprayed with a burn down herbicide, coverage in many fields has been so-so and I am seeing a lot of green amongst the dead foliage which could provide an ideal breeding ground and source of inoculum for nearby by fields.** In a few locations abandoned fields have resulted in serious problems for neighboring plantings. Abandoned fields should be sprayed and then disked under.

**In addition, low prices have caused some growers to be hesitant to spend money on crop protectant materials and unfortunately the more efficacious materials tend to be pricey.** Should markets rebound this may prove to be a false economy as it could negatively impact successive plantings.

**In Florida, it has been observed that seldom does a widespread late blight epidemic occur on tomatoes in the Manatee-Ruskin area unless the disease was present in the Immokalee area and/or Dade County.** Since late blight has been confirmed on tomato in Immokalee growers in other areas are advised to adhere to a preventative spray program.

**See USAblight for more info and photos -** <http://usablight.org/lateblight>

### **Target Spot**

**Around Immokalee, target spot remains mostly low in tomato.**

**Respondents on the East Coast target spot is becoming common in older tomato. Incidence ranges from low to fairly high depending on the location.**

**Growers and scouts should be alert for the presence of target spot as canopies begin to close in 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.

**Target spot has become one of the hardest to control pathogens in tomato. Good rotations and tank mixes are the best option.**

**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/cv/cv13700.pdf>

**Under Florida law, abandoned tomato fields that have not been destroyed within five days after final harvest are subject to an Immediate Final Order (IFO) per Rule - FAC Chapter 5B-59.003, Tomato Plant Destruction.**

**You can report abandoned tomato fields by sending an email to the Division of Plant Industry describing the physical location of the property.** Their first route of destruction would be to make contact with the growers and request compliance, if this does not occur an IFO is issued in which the grower has 10 days to correct the problem.

**Please contact Tyson Emery if you have any further questions.**

Tyson Emery  
Chief- Bureau of Plant and Apiary Inspection  
Division of Plant Industry  
Florida Department of Agriculture and Consumer Services  
email: [tyson.emery@freshfromflorida.com](mailto:tyson.emery@freshfromflorida.com)  
Phone: (352) 395-4709

See rule at <https://www.flrules.org/gateway/RuleNo.asp?ID=5B-59.003>

### **Bacterial Spot**

Around Southwest Florida, bacterial spot is present at low levels but is still creeping around in some pepper and tomato fields.

On the East Coast, bacterial spot is increasing in non-resistant pepper and in tomato.

Bacterial leaf spot remains active in a number of tomato fields around Homestead.

### **Bacterial Speck**

Low levels of bacterial speck have been reported around SW Florida following recent rains.

### **Early Blight**

**Alternaria is increasing on tomato around south Florida.** Some of this is associated with leafminer damage.

### **Target Spot**

**Reports indicate that target spot is also increasing on tomato in a number of places around South Florida.** The Manatee Ruskin area remains clean as most plants are still young.

## **Powdery Mildew**

Growers and scouts report that powdery mildew is active and increasing in cucurbits around SW Florida, mostly squash but also a few watermelons.

Powdery mildew is present in cucumber and squash around Palm Beach County and is also starting to show up on some Cubanelle pepper as well.

Growers and scouts indicate that powdery mildew is widespread in cucurbits around Homestead including squash and bitter melon.

Dill producers are reporting some issues with powdery mildew on dill.

Growers are getting good control with products like Fontelis, Quintec, Torino, and Rally.

## **Downy Mildew**

On the East Coast, downy mildew has jumped on mature squash in recent days.

Around Immokalee, downy mildew continues to cause some problems in cucurbits.

Downy mildew is also present on squash in Homestead.

In the EAA and elsewhere, downy mildew is causing some issues in cole crops including cabbage, kale and radish.

In the Glades, downy mildew on lettuce remains persistent, generally at low levels due to good management.

Downy mildew continues to plague basil producers and is increasing with cooler humid nights and foggy conditions.

## **Phytophthora**

**Reports from Palm Beach County indicate Phytophthora is causing problems in some older pepper in areas where it is traditional a problem including some patching and aerial infection.** It is also hitting some eggplant where fruit are becoming infected on the ground as well as some double crop squash.

## **Stemphylium leaf spot**

**Respondents in the Glades continue to report some issues with Stemphylium leaf spot on spinach.**

**Initial symptoms of Stemphylium leaf spot on leaves consist of small (0.13 to 0.25-inch diameter), circular to oval, gray-green leaf spots.** As the disease progresses, leaf spots enlarge, remain circular to oval in shape, and turn tan in color.

**Older spots coalesce, dry up, and become papery in texture.** Visual signs of fungal growth are generally absent from the spots; hence this problem is readily differentiated from foliar diseases in which purple growth (downy mildew), green spores (Cladosporium leaf spot), or acervuli (anthracnose) develop within circular lesions.

**Overall, symptoms resemble the tan, circular spots caused by pesticide or fertilizer damage.**

**Weeds or other reservoir hosts have not been identified.** This pathogen is seed-borne. Hot water or chlorine treatment of seed may help reduce chances of seed-borne transmission.

**Dr Richard Raid Pathologist at UF/IFAS EREC reports that strobilurin fungicides have been effective in the past trials but is conducting additional trials to look at other compounds.**

**Dr Raid invites growers who wish to discuss control options to contact him at [rnraid@ufl.edu](mailto:rnraid@ufl.edu)**

### **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.**

**Growers and scouts report an “outbreak” of TCSV on tomato and pepper in a fairly localized area in Palm Beach County.** Incidence in pepper has reached 30% in some fields.

**In the Homestead area, respondents indicate that almost all tomato fields have low levels of TCSV.**

**The virus is spread by thrips.** TCSV is known to be transmitted by three species of thrips: common blossom thrips (*Frankliniella schultzei*), western flower thrips (*F. occidentalis*), and flower thrips (*F. intonsa*) (Wijkamp et al. 1995). The first two are the likely culprits in Florida.

**Interestingly, TCSV and TSWV are not transmitted at similar efficiencies by the same thrips.** In studies, the most efficient TCSV vectors appears to be the dark form of *F. schultzei* followed by *F. occidentalis*. There has been talk by growers in the affected area of Palm Beach County of seeing “black” thrips in their fields, possibly *F. schultzei*.

**Growers should scout fields and target thrips more aggressively if they are seeing viral plants becoming common in their fields.**

**In young fields, where growers are seeing a few scattered infected plants, growers would be advised to remove infected plants to limit secondary spread.**

**Early symptoms of infection are difficult to diagnose.** In young infected plants the characteristic symptoms consist of inward cupping of leaves and leaves that develop a bronze cast followed by dark necrotic spots.

**Tomato chlorotic spot virus causes necrosis in tomato leaves and stems, and causes ringspots and other deformations of the fruit.** The symptoms are nearly identical to those of groundnut ringspot virus and laboratory diagnosis is necessary to distinguish on from the other.

**The use of virus-free transplants, insecticides to control thrips, rouging infected plants, SAR elicitors such as Actigard, and UV-reflective mulch will likely be effective managing TCSV.**

### **Tomato Yellow Leaf Curl**

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

TYLCV remains low in East Coast.

TYLCV is common around Homestead and infection rates are approaching 100% in some isolated fields.

TYLCV is increasing around SW Florida and has reached 3% incidence in some older fields and isolated plants are showing up in new plantings in some younger fields.

**With the huge number of whitefly moving off abandoned fields, lack of cold weather and very high whitefly counts being reported in a number of new planting, the situation is ripe for virus to explode in the spring crop.** Growers would be advised to rapidly and efficiently destroy abandoned fields and aggressively target whiteflies in younger plantings.

**Rouging infected plants in younger fields is advised.**

### **Watermelon mosaic virus**

Growers in few locations around Southwest Florida are experiencing problems with mosaic in melons and squash.

Growers and scouts in Homestead report mosaic virus is common in squash.

### **Cucurbit leaf crumple virus**

Around Homestead, cucurbit leaf crumple virus is widely present in squash.

In Southwest Florida, cucurbit crumple leaf virus is widely present at low levels in watermelons.

### **Cucurbit Virus Advisory**

**Cucurbit crumple leaf virus (CuLCrV) along with squash vein yellowing virus (SqVYV) (aka vine decline) and Cucurbit yellow stunting disorder virus (CYSDV) are all whitefly transmitted viruses which have appeared relatively recently in Florida.** Scouts are already finding all three viruses in watermelon around SW Florida.

**The fact that watermelon growers around SW Florida saw major issues with CYSDV last spring and a re-emergence of vine decline (SqVYV) after several relatively quiet years, coupled with the fact that CuLCrV is widely present at low levels in squash and water melons this past fall suggests growers should be alert this spring and practice aggressive scouting and whitefly management in these crops.**

**We have had another relatively mild winter to date without any cold weather to take out the wild cucurbit hosts (balsam apple, bur cucumber etc.) of these viruses so there is high probability that these viruses could over winter and be ready to jump into spring plantings.**

**In addition, we are seeing very high whitefly numbers around SW Florida. Even though these are primarily moving out of tomato (a non-host), they are hunger and could acquire one or more of these viruses while moving around before settling down in a squash or melon field.**

**As you may know Georgia watermelon producers experienced major issues with cucurbit crumple leaf virus this fall.** Crumple leaf also infects beans and caused major issues in beans as well.

**In short, the stage is being for these whitefly vectored viruses to be an issue in spring watermelon production (and other cucurbits) in South Florida.**

**While there is no way to know if the will be a problem, growers are advised to scout fields for whiteflies and virus.**

## Management practices:

Be alert for and eliminate cucurbit weeds around melon fields.

Use a soil-applied neonicotinoid insecticide such as imidacloprid (Admire®), thiamethoxam (Platinum®), or dinotefuran (Venom®) should be used at planting for longer season cucurbits, such as watermelon and calabaza, and possibly for green beans (imidacloprid only).

If a foliar application of a neonicotinoid insecticide such as acetamiprid (Assail®), dinotefuran, or thiamethoxam (Actara®), is used instead of a soil application, it is best to apply it in the first 30 days of the crop, before flowering (pollinator protection).

Switch to non-neonicotinoid insecticide classes after flowering, and do not use any neonicotinoid class insecticides for the remaining cropping period.

Spiromesifen (Oberon®) is effective against immature stages of the whitefly.

IGRs - (buprofezin (Courier ®), pyriproxyfen (Knack®) to control nymphs may be effective.

See Recommendations for Management of Whiteflies, Whitefly-Transmitted Viruses, and Insecticide Resistance for Production of Cucurbit Crops in Florida - <http://edis.ifas.ufl.edu/in871>

Efficacy Table for Single Mode of Action Insecticides and Miticides Labeled for Cucurbit Vegetables in Florida - <https://www.scribd.com/document/341391847/Efficacy-Insecticides-Cucurbits-003>

## Corn leaf blight

Growers and scouts in the EAA are seeing low levels of both northern corn leaf blight and southern corn leaf blight in sweet corn.

Northern corn leaf blight caused by the fungus *Exserohilum turcicum*.

**Initial symptoms of the NCLB include yellow spots that develop on the foliage.** These enlarge to form tan or straw-colored dead areas about 4 to 6 inches long and one half inch wide. NCLB produces a long, elliptical lesion, while those of southern corn leaf spot tend to be oblong and much smaller than those produced by NCLB.

**Southern corn leaf blight is caused by the fungus *Bipolaris maydis*.** Symptoms of Southern corn leaf blight typically occur on leaves. Mature foliar lesions can be rounded on the sides but they tend to be parallel-sided, often restricted by the veins.

**Lesions are light tan in the center with a reddish-brown border.** A greenish growth near the center of the lesion may be evident if spores are present. Mature lesions range from 1/4 to 1 1/2 inches in length and may be tapered, flat or serrated on the ends.

**Lesions caused by southern corn leaf blight are much smaller (up to 1/2 inch wide and 1-inch-long) than those caused by northern corn leaf blight.** SCLB blight lesions are also lighter in color (light tan to brown), and have parallel sides rather than the tapering sides of lesions caused by *E. turcicum*.

**Northern corn leaf blight, like southern corn leaf blight, moves from the lower canopy to the upper canopy.** Fungal sporulation may be observed with a hand lens on foliar lesions following periods of high humidity. When severe, lesions may become so numerous that they coalesce and turn the entire leaf necrotic.

## **Southern rust**

**Respondents also report finding low levels of southern rust in sweet corn as well.**

**Growers should begin spraying at the first sign of rust.**

## **Bean Rust**

**Reports from the Glades indicate that low levels of rust are starting to show up in some beans.**

**Initial signs of bean rust on common bean include fungal sori, seen as small white specks under the leaf epidermis, and rust colored pustules.** These pustules are found mainly on the underside of the leaf and are often surrounded by a chlorotic ring.

## **News You Can Use**

### **EPA Finalizes Steps to Better Protect Bees from Pesticides**

EPA's is releasing a final policy which describes methods for addressing acute risks to bees from pesticides. Applications of acutely toxic pesticides would be prohibited under certain conditions when bees are most likely to be present. While the restrictions focus on managed bees, EPA believes that these measures will also protect native bees and other pollinators that are in and around treatment areas. New label language will protect managed bees under contract to provide crop pollination services.

The final Policy to Mitigate the Acute Risk to Bees from Pesticide Products is more flexible and practical than the proposed policy. For example, a product that retains its toxicity to bees for a shorter time might be allowed to be applied under certain circumstances. Also, in some cases, pesticide application would be allowed when it is unlikely that pollinators will be foraging for crops that have extended bloom periods. The EPA will begin implementing this policy in 2017 by sending letters to registrants describing steps that must be taken to incorporate the new labeling.

EPA continues to encourage efforts by states and tribes to reduce pesticide exposure to bees and other insect pollinators through locally-based measures, such as through Managed Pollinator Protection Plans (MP3s). EPA will continue to assist the American Association of Pest Control Officials in developing performance measures for MP3s and will continue to monitor the progress and effectiveness of pollinator protection plans in reducing bee exposure to pesticides. EPA has also engaged the Pesticide Program Dialogue Committee in examining the best ways to measure the effectiveness of MP3s.

For more information on the proposal, its supporting documents, and comments received, please see regulatory docket EPA-HQ-OPP-2014-0818.

<https://www.regulations.gov/docket?D=EPA-HQ-OPP-2014-0818>

EPA's Actions to Protect Pollinators

<https://www.epa.gov/pollinator-protection/epa-actions-protect-pollinators>

Pollinator Protection at EPA

<https://www.epa.gov/pollinator-protection>

### **Tomato Plant Destruction**

Under Florida law, abandoned tomato fields that have not been destroyed within five days after final harvest are subject to an Immediate Final Order (IFO) per Rule - FAC Chapter 5B-59.003, Tomato Plant Destruction.

You can report abandoned tomato fields by sending an email to the Division of Plant Industry describing the physical location of the property. Their first route of destruction would be to make contact with the growers and request compliance, if this does not occur an IFO is issued in which the grower has 10 days to correct the problem.

Please contact Tyson Emery if you have any further questions.

Tyson Emery  
Chief- Bureau of Plant and Apiary Inspection  
Division of Plant Industry  
Florida Department of Agriculture and Consumer Services  
email: tyson.emery@freshfromflorida.com  
Phone: (352) 395-4709

See rule at <https://www.flrules.org/gateway/RuleNo.asp?ID=5B-59.003>

### **Opportunities to Get Core CEU's Online**

The CEU Series is published in Growing Produce on-line and is approved by FDACS and provides a convenient way to earn CORE CEU's. Simply read an article and answer the questions at the end of the article. A passing score of 75% or greater will earn you one CORE CEU.

There are currently several articles available and a new one will be published bi-monthly.

CEU Series: Learning About Pesticide Resistance is Anything but Futile  
CEU Series: Improve Your Integrated Pest Management Program  
CEU Series: Key in On the Contents of Pesticide Labels  
CEU Series: Precaution Needed When Working with Pesticides  
CEU Series: Get The Lowdown on Federal Pesticide Laws  
CEU Series: Take into Account the Toxicity when Handling Pesticides  
CEU Series: Be Aware of Bees When Applying Pesticides

Here is a link to the latest article, CEU Series: Be Aware of Bees When Applying Pesticides where you will find links to all the previous articles. <http://tinyurl.com/j7bshef>

### **EPA Manual Available on How to Comply with the Revised Worker Protection Standards**

The EPA in conjunction with the Pesticide Educational Resources Collaborative (PERC) has made available a guide to help users of agricultural pesticides comply with the requirements of the 2015 revised federal Worker Protection Standard (WPS).

You should read this manual if you employ agricultural workers or handlers, are involved in the production of agricultural plants as an owner/manager of an agricultural establishment or a commercial (for-hire) pesticide handling establishment, or work as a crop advisor.

The "How to Comply" manual includes:

- details to help you determine if the WPS requirements apply to you;
- information on how to comply with the WPS requirements, including exceptions, restrictions, exemptions, options, and examples;
- "Quick Reference Guide" - a list of the basic requirements (excluding exemptions, exceptions, etc.);



- new or revised definitions that may affect your WPS responsibilities; and explanations to help you better understand the WPS requirements and how they may apply to you.

The revised EPA Pesticide Worker Protection Standard “How to Comply” Manual is available at:  
<https://www.epa.gov/pesticide-worker-safety/pesticide-worker-protection-standard-how-comply-manual>

# Meetings

**March 17, 2017 Spanish Worker Protection Standard Train the Trainer 8am – 5pm**

Clayton Hutcheson Ag. Center in Exhibit Hall A  
559 N. Military Trail  
West Palm Beach, FL

Cost is \$25 (lunch & handouts included)

RSVP to [eescott@pbcgov.org](mailto:eescott@pbcgov.org) or call (561) 233-1725

**March 24, 2017 Marine Microbial Ecology - A holistic approach 10:45am**

**Special Friday Seminar by Ulrich “Uli” Stingl, Ph.D.**  
Assistant Professor, Microbial Ecology at UF/IFAS FLREC

UF/IFAS Everglades REC Auditorium  
3200 E. Palm Beach Road Belle Glade, FL

**March 24, 2017 Changing High-Value Plant Traits with Genetics and Environments 1:30pm**

**Special Friday Seminar by Kevin Folta**  
Professor and Chairman of the UF’s  
Horticultural Sciences Department

UF/IFAS Everglades REC Auditorium  
3200 E. Palm Beach Road Belle Glade, FL

**March 24, 2017 Spanish Worker Protection Standard Train the Trainer 9am – 3pm**

UF/IFAS Hendry County Extension Office  
1085 Pratt Boulevard  
LaBelle, Florida

Cost is \$20

RSVP to [m.watkins@ufl.edu](mailto:m.watkins@ufl.edu) or call (863) 674-4092.

## **March 29, 2017 UF/IFAS Southwest Florida Research and Education Center Open House**

SWFREC will be having an Open House on Thursday, April 6, 2017 from 10 am to 3 pm.

Open to the public – come learn about research and extension activities that touch every community in southwest Florida

RSVP by phone at 239-658-3400 or email [jderleth@ufl.edu](mailto:jderleth@ufl.edu)

## **April 6, 2017 UF/IFAS Everglades Research and Education Center Open House**

The Everglades Research and Education Center will be having an Open House on Thursday, April 6, 2017

Registration begins at 8 a.m.

Included will be:

- Field Tours
- Lab Tours
- Presentations
- Poster exhibit

The day will conclude with a complimentary lunch.

The theme for the day is “The Value of Science”

Please wear sensible clothes and shoes for touring Farm Trials

Please register online by Monday, April 3

<https://www.eventbrite.com/e/erec-open-house-tickets-31727972219>

<b>April 6, 2017</b>	<b>Spanish Pesticide Applicator Training - CORE</b>	<b>9 am</b>
<b>April 7, 2017</b>	<b>Spanish Pesticide Applicator Training - Private</b>	<b>9 am</b>

Hendry County Extension Office  
1085 Pratt Boulevard  
LaBelle, Florida

Cost is \$10 per class.

RSVP to [m.watkins@ufl.edu](mailto:m.watkins@ufl.edu) or call (863) 674-4092.

**FSMA Produce Safety Alliance Classes** - registration on-line through Event Brite

March 13 – Arcadia, FL - <http://psa031317.eventbrite.com>

March 16 – Homestead, FL - <http://psa031617.eventbrite.com>

March 20 – St. Augustine, FL - <http://psa032017.eventbrite.com>

April 20 – Tavares, FL - <http://psa042017.eventbrite.com>

May 17 – Palmetto, FL - <http://psa051717.eventbrite.com>

**April 24-26, 2017**

**FSMA Preventive Controls for Human Food Rule classes**

For more information and to register, use the links below:

Lake Alfred, February 8-10 <https://www.eventbrite.com/e/fspca-training-lake-alfred-registration-28581155004>

Gainesville, April 24-26 <https://www.eventbrite.com/e/fspca-training-gainesville-registration-29441832313>

# Websites

**Seeing Theory - Statistics, is quickly becoming the most important and multi-disciplinary field of mathematics.** Statistical literacy is essential to our data driven society. A common source of misunderstanding of scientific data is confusion about statistics and probability. This site has some very cool visualizations to explain the basics of probability and statistics. <http://students.brown.edu/seeing-theory/>

**EDIS** is the Electronic Data Information Source of UF/IFAS Extension, a repository of all IFAS Extension publications - <http://edis.ifas.ufl.edu/>

**Frequently Asked Questions on FSMA - Questions & Answers on the Food Safety Modernization Act -** <http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm247559.htm>

**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 **Gene McAvoy on Twitter @SWFLVegMan** - <https://twitter.com/SWFLVegMan>

**Check out UF/IFAS Vegetables and Tropical Fruit on Facebook**

<https://www.facebook.com/vegetableandtropicalfruituf.ifas.extpbcc>

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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.

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