UF | IFAS Extension
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Palm Beach County

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SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

February 14, 2017

A cold front at the end of January bought some rain to the area along with heavy winds that battered crops and bought the coldest temperatures of the season. Some areas experienced light frost and a few areas in the northern interior dipped to just below freezing.

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

FAWN Weather Summary

Date	Air Temp °F		Rainfall	Ave Relative Humidity	ET (Inches/Day)
	Min	Max	(Inches)	(Percent)	(Average)
Balm					
1/20 – 2/12/17	37.86	82.92	1.57	77	0.08
Belle Glade					
1/20 – 2/12/17	37.92	87.98	0.92	82	0.08
Clewiston					
1/20 – 2/12/17	38.93	87.17	0.82	79	0.09
Ft Lauderdale					
1/20 – 2/12/17	49.82	88.30	1.06	77	0.09
Homestead					
1/20 – 2/12/17	43.76	87.82	0.62	80	0.09
Immokalee					
1/20 – 2/12/17	35.33	87.15	1.53	79	0.08
Okeechobee					
1/20 – 2/12/17	30.78	87.48	0.27	79	0.08
Wellington					
1/20 – 2/12/17	44.42	87.22	0.72	79	0.08

When in Doubt – Scout!

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.

Pest and disease pressure has been relatively light this season. This plus a favorable growing season has led to bumper crops resulting in growers suffering extremely low prices for a variety of items for an extended period. A number of fields have been abandoned as growers could not afford to harvest them. Unseasonably warm conditions have caused lettuce and other crops to bolt prematurely. A variety of crops are coming to market including collards, cucumber, eggplant, escarole, green beans, herbs, kale, lettuce, mustard, peppers, radishes, squash, sweet corn, and a variety of specialty items.

The National Weather Service forecast advises that the front that moved into South Florida Monday night will wash out over the area on Tuesday. The boundary will bring a threat of rain to most of South Florida on Tuesday. Rain chances will be highest across the Lake Okeechobee region, where there will be a chance of showers.

A weak low pressure will develop over the northern Gulf of Mexico during the middle of this week and move northeast across the Southeastern United States. This will allow for a cold front to develop over the eastern Gulf of Mexico and move southeast across the Florida Peninsula and South Florida bringing moisture into the area and a chance of rain for Wednesday night and into Thursday with the passage of the cold front.

The front will stall over the Florida Keys on Friday, as high pressure moves east across the Florida Peninsula from the Gulf of Mexico.

The front will then move back into South Florida for next weekend from the Florida Keys, as a mid to upper level disturbance moves northeast from the Gulf of Mexico across South Florida and into the Atlantic Waters. This weather pattern will allow for moisture to return to South Florida and bring a chance of showers to the area.

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 whitefly numbers are higher than they have ever seen in a number of locations. High whitefly numbers have been reported in some eggplant as well as squash, melons and other cucurbits. In some locations respondents indicate they just keep coming with some really high numbers. Growers in these locations report they keep knocking them down but the they just keep migrating back. In tomatoes affected by high whitefly numbers, growers report high levels (some say the worst that have ever seen) of irregular ripening to go along with it.

Reports indicate that TYLCV is moving in places, 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 is a big problem on tomato and squash. 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 are low in spring plantings.

East Coast whiteflies are common at mostly lower levels and are a persistent problem on some eggplant.

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 (5-7th 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 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

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

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**

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	fenpyroxiamate	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.

Thrips

On the East Coast, respondents indicate thrips pressure increasing in pepper and some eggplant and ranges from low to high depending on location. Reports indicate there has been an outbreak of thrips

vectored tomato chlorotic spot virus (TCSV) on pepper and tomato in Palm Beach County. There has been talk from growers about seeing "black' thrips in their fields. This may be Frankliniella schultzei which is fairly dark colored thrips and a known vector of TCSV.

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, growers in a few places are experiencing some problems with melon thrips. Scouts are also reports some flights of thrips migrating into fields.

Growers should learn to identify thrips species and take a soft IPM approach to reduce numbers and favor beneficials 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 to 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 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.

Respondents indicate that leafminer pressure is mostly low around Homestead.

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.

Worms

Around Southwest Florida, worm pressure has rebounded in past few days with mix of southern armyworms, fruitworms, loopers and melonworms. A few diamondback moths are showing up in crucifers.

On the East Coast, worm pressure remains mostly low.

Reports from the Ruskin area indicate that worm pressure has been steady.

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

Respondents in the Glades indicate that worm pressure has been persistent in corn at moderate levels.

Lesser cornstalk borer

Around the Glades, lesser cornstalk borer trap counts have increased and remain extremely high on the sand lands around Clewiston due to the dry weather. Pressure is headed downward in areas with better moisture. Counts on muck soils remain steady at much lower populations. Scouts report that some young corn has been under heavy but spotty, lesser cornstalk borer pressure.

Pepper Weevil

Pepper weevils are established in a number of pepper fields around Southwest Florida and are steadily increasing as the season progresses

Reports from East Coast production areas indicate that pepper weevils are increasing and are widespread in 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.

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.

Aphids

In the Glades, aphids have been active in some greens and brassicas.

Winged aphids have been showing up on a variety of susceptible crops around Palm Beach County.

Growers and scouts continue to reporting surges of winged aphids moving into crops around Southwest Florida and have seen some colony formation.

Low numbers of aphids are present around Miami Dade County.

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 leaffooted 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.

Diseases

Late Blight

Late blight has been moving around and is now present at mostly low levels on a number of farms in Collier and Hendry Counties.

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.

The forecast for foggy mornings and the possibility of showers over the next few days is conducive for further disease development.

Growers would be well advised to scout susceptible crops carefully and evaluate their fungicide programs.

Late blight is caused by the fungus Phytophthora infestans, which is a pathogen of potato and tomato.

The disease thrives under cool and wet conditions.

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. 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/pdffiles/cv/cv13700.pdf

Bacterial Spot

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

On the East Coast, bacterial spot is present on some pepper and tomato. Incidence is low.

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

Early Blight

A few reports of Alternaria on tomato are starting to come in from several locations around south Florida. Some of this is associated with leafminer damage.

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

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

Stemphylium leaf spot

Respondents in the Glades have reported 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.

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.

<u>Tomato Yellow Leaf Curl</u>

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.

<u>Watermelon mosaic virus</u>

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

Northern corn leaf blight

Growers and scouts in the EAA continue to find low levels of NCLB in sweet corn.

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

Initial symptoms of the disease 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 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.

Lettuce downy mildew

Reports indicate that low levels of downy mildew has been found on lettuce in the Glades.

Symptoms of downy mildew appear initially as chlorotic yellow spots on the upper leaf surface. Under favorable conditions, a white cottony-like fungal growth indicative of sporulation may be seen on the lower leaf surface.

During the early stages, leaf spots are often delineated by the veins of the leaf, giving an angular appearance. Lesions become increasingly chlorotic and eventually turn brown. Although downy mildew is most severe on the older outer leaves, the disease may become systemic over time, infecting heads internally. Lesions may also provide entry for secondary fungi such as Botrytis.

The list of fungicides currently labeled for lettuce downy mildew control includes maneb, fosetyl Al, metalaxyl, and several copper compounds. Recently some newer compounds including Orondis, Presidio, Previcur Flex, Ranman Reason, Revus, and Tanos have been added to growers control options.

Resistance in B. lactucae to the fungicide metalaxyl has been reported in Florida and its efficacy may be reduced. Since labels and recommendations change frequently, growers should consult UF/IFAS recommendations for currently labeled fungicides for downy mildew control in Florida. http://edis.ifas.ufl.edu/pdffiles/cv/cv29300.pdf

With the onset of favorable environmental conditions, fungicide applications should begin at about the 1- or 2-leaf stage and continue throughout the duration of the crop. Applications must be made prior to infection if adequate control is to be maintained. If downy mildew is known to be present in the area, growers should launch a fungicide program immediately.

News You Can Use

January 2017 Weather Summary - Warmer Than Normal
NWS-Miami
February 2nd, 2017

2017 started off in much the same way 2016 ended, with mainly warmer than normal temperatures across South Florida. Only 5 cold fronts moved through South Florida in January, three of these coming in the last 8 days of the month. This resulted in an extended stretch of warm temperatures from the 10th through the 27th. All sites recorded an above normal amount of 80+ degree days, including 22 days at Miami International Airport which is the 3rd highest number of 80+ degree days in January on record. Except for a brief cool snap on the 8th and 9th, the only extended period of cool weather occurred from the 28th through the end of the month.

The relative lack of cold fronts affecting South Florida also resulted in drier than normal conditions for many areas, especially in Broward and Palm Beach counties as well as most of Southwest Florida.

One episode of severe weather occurred during the pre-dawn hours of January 23rd when a squall line driven by a strong low pressure area aloft swept across South Florida. The squall line spawned tornadoes of EF-1 intensity (winds 90 to 107 mph) in northern Palm Beach County and northern Miami-Dade County. In addition, winds of 40-50 mph were recorded over most of South Florida as the line of thunderstorms moved through.

January Precipitation

Rainfall was mostly 1 to 2 inches below normal along and north a line from Naples to West Palm Beach. South of this line, rainfall tended to be near to above normal, except for sections of southern Miami-Dade County where it was slightly below normal. The combination of January dryness as well as dryness dating back to last fall has led to abnormally dry conditions for a large part of the peninsula

January Temperatures

Outside of two cool episodes on January 8th and 9th and from the 28th through the end of the month, January was a warmer than normal month with temperatures averaging about 2 to 4 degrees above normal. A total of 12 daily record warm temperatures were recorded from the four main climate sites below (5 record highs, all at Miami International Airport, and 7 record warm minimums). Three record cold temperatures were recorded, all of them being cool maximums on January 29th at Fort Lauderdale, Naples and West Palm Beach.

Warmest recorded temperature for the month was 87 degrees at several sites on January 7th and 22nd, with widespread readings in the mid-80s on at least 8 days during the month. The coldest temperature was 36 degrees in LaBelle and Ortona on January 31st, with unofficial readings between 33 and 35 degrees across interior sections of Southwest Florida.

- ***Miami International Airport*** had an average January temperature of 72.6 degrees Fahrenheit. This is 4.4 degrees above the 30-year normal and is the 13th warmest January on record. The average high temperature was 81F and the average low temperature was 65F. The warmest January temperature was 87 degrees on the 7th and 22nd and the coolest was 51 on the 8th and 30th.

- ***Palm Beach International Airport*** had an average January temperature of 68.9 degrees Fahrenheit. This is 3.2 degrees above the 30-year normal. The average high temperature was 77F and the average low temperature was 60F. The warmest January temperature was 86 degrees on the 3rd and 22nd and the coolest was 43 on the 31st.

- ***Fort Lauderdale/Hollywood International Airport*** had an average January temperature of 70.7 degrees Fahrenheit. This is 1.7 degrees above the 30-year normal and is the 15th warmest January on record. The average high temperature was 78F and the average low temperature was 64F. The warmest January temperature was 85 degrees on the 7th and 22nd and the coolest was 48 on the 8th.

- ***Naples Municipal Airport*** had an average January temperature of 68.2 degrees Fahrenheit. This is 3.7 degrees above the 30-year normal and is the 14th warmest January on record. The average high temperature was 78F and the average low temperature was 59F. The warmest January temperature was 86 degrees on the 2nd and the coolest was 42 on the 8th.

Outlook for February-April and Potential Hazards

Latest outlooks by the NOAA Climate Prediction Center (CPC, **Figures XX and XX**) indicate a continuation of the winter pattern of increased odds of above normal temperatures and below normal precipitation.

Although the outlooks calls for increased odds of warmer than normal temperatures, cold snaps can still occur and lead to freezing conditions over parts of South Florida in February and early March.

Wildfire season begins to peak in March and April. The potential for drier-than-normal conditions this spring may cause an active wildfire season, as well as lead to drought conditions.

For the latest South Florida weather information, including the latest watches, advisories and warnings, please visit the National Weather Service Miami Forecast Office's web site at weather.gov/southflorida.

http://www.weather.gov/media/mfl/news/January2017Summary.pdf

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

Here is a link to the latest article, CEU Series: Learning About Pesticide Resistance is Anything but Futile where you will find links to all the previous articles. http://tinyurl.com/gwwrcs8

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.

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.

According to the newly revised WPS regulations, another major change is that beginning in 2017 employers must provide respirator as well as fit testing, training and medical evaluation that conforms to OSHA standards for any handler required to wear a respirator by the labeling as part of the PPE requirement.

Under the new rules PS also requires recordkeeping of completion of the fit test, training and medical evaluation.

Here are some resources that may be of assistance in meeting these requirements.

The regulations do not state that there is any required training that an employer is required to have prior to conducting the fit testing.

Some folks have received a fit testing training from 3M, but it is not required as long as the fit testing is done in a manner as to comply with OSHA regulations.

The OSHA regulations are listed below. It will require the purchase of fit testing equipment, see the OSHA regulations for the types of equipment you need.

General respirator and PPE information:

http://edis.ifas.ufl.edu/pdffiles/PI/PI11400.pdf

http://edis.ifas.ufl.edu/pi156

OSHA Medical Questionnaire (must be viewed by a medical professional, can also use the online services, some are listed below)

http://1.usa.gov/pWiI1O

OSHA Mandatory fit testing procedures

http://1.usa.gov/2sQOpG

OSHA daily Mandatory fit test (does not require chemicals and does not replace the qualitative fit test). This should be done on a daily basis by anyone wearing a respirator.

http://1.usa.gov/pnXJTg

Online medical certification questionnaires -

http://www.respexam.com/

https://www.respiratorcertification.com/public/

http://www.mchaneysafety.com/RespiratorMedicalEvaluation.aspx

http://www.honeywellsafety.com/USA/oshamedcert/?LangType=1033

There are many more sites like these, a quick search online will give you more options.

3M fit testing kit and instructions
http://bit.ly/pcdGbt

3M fit testing video – English (there is also a Spanish version)

http://bit.ly/pcdGbt

3M website on establishing a respirator protection program (contains the two links above)

http://bit.ly/pcdGbt

Any information on the 3M website is their property and is not guaranteed to comply with OSHA regulations.

We, at the University of Florida, do not endorse the use of the 3M program as a replacement for OSHA regulations but feel that it may provide a starting point in the development of a respirator protection program.

Pesticide Potpouri

Torac

EPA Has granted renewal of the Section 18 for Torac on fruiting vegetables for thrips control through March 1, 2018.

Please remember that applicators must have a copy of the Section 18 label in their possession when making applications.

Trigard

There have been changes to the Trigard insecticide as follows:

• Addition of pollinator precaution language on page 3
• Change of PHI on potatoes from 7 days to 17 days

Meetings

February 15, 2017 **Lettuce Breeding Evaluation** 10:00AM – 12:00PM
UF/IFAS Everglades REC Auditorium
3200 E. Palm Beach Road Belle Glade, FL

Contact Dr. Sandoya gsandoyamiranda@ufl.edu if attending.

February 16, 2017 **WPS Train the Trainer Class** 8:30 AM - 2:30 PM
Clayton Hutcheson Ag. Center
Exhibit Hall A
Palm Beach County Cooperative Extension Service
559 N. Military Trail West Palm Beach, FL 33415

Cost - $25

Call for details or any questions you may have at 561.233.1725 or email at EEScott@pbcgov.org

February 21, 2017 **WPS Train the Trainer Class** 9:00 AM – 3:00 PM
Hendry County Extension Office
1085 Pratt Boulevard
LaBelle, FL 33935

Cost - $10

To register, call 863-674-4092 or email dcabrera@ufl.edu

The Worker Protection Standard (WPS) applies to farm, forest, nursery and greenhouse operations that produce agricultural plants.

Affected operations must comply with most of the NEW revisions beginning January 2, 2017. This workshop is approved to meet the new mandatory trainer requirements. The training is organized as an interactive presentation to update you on the new requirements, to refresh your overall understanding of WPS, and to meet the new mandatory trainer certification requirements.

NOTE: all persons with a Train the Trainer certificate are required to be retrained under the revised Worker Protection Standard and employees covered by the WPS will have to be trained annually beginning in 2017.

In addition: there are a number of new changes under the revised Worker Protection Standard and many of these changes take effect on January 2, 2017. These classes will bring you up to speed on those changes.

Lettuce Advisory Committee Meeting

February 22, 2017 UF/IFAS Everglades REC Auditorium 12:00 PM - 2:30 PM
3200 E. Palm Beach Road Belle Glade, FL

Cost - None

Birds without Borders

February 23, 2017 UF/IFAS Everglades REC Auditorium 6:00 PM – 9:00 PM
3200 E. Palm Beach Road Belle Glade, FL

Cost - None

https://www.eventbrite.com/e/birds-without-borders-tickets-31638573826

Dollar Plan Federal Crop Insurance for Fresh Market Peppers, Sweet Corn and Tomatoes Feedback

February 28, 2017 8:30 AM - 2:30 PM
Clayton Hutcheson Ag. Center
Conference Room
Palm Beach County Cooperative Extension Service
559 N. Military Trail West Palm Beach, FL 33415

Contact Richard Allen at rallen@wattsandassociates.com if you have questions or are unable to attend and would like to provide your input.

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

FSMA Preventive Controls for Human Food Rule classes
April 24-26, 2017

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

Discovering Farmland – cultivating conversations about agriculture
http://www.discoveringfarmland.com/

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

You can find UF/IFAS Palm Beach County Vegetables on Facebook
https://www.facebook.com/vegetableandtropicalfruituf.ifas.extpbc

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

All the best to you and yours for a Happy Valentine's Day

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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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