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SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

November 2, 2015

The National Weather Service determined that the 2015 south Florida rainy season, which started on May 10th, concluded on October 17th as the second in a series of weak cold fronts moved through the area, bringing slightly drier air and an end to the daily pattern of sea-breeze-driven showers and thunderstorms.

The past few weeks have been markedly drier and a little cooler and less humid following the end of the 2015 rainy season. The humidity has been a little more bearable and daytime temperatures remain warm running in mid-80's to low 90's with most nights in the mid to upper 60's.

FAWN Weather Summary

Date	Air Temp °F		Rainfall (Inches)	Ave Relative Humidity (Percent)	ET (Inches/Day) (Average)
	Min	Max			
Balm					
10/11 – 11/2/15	60.57	87.82	0.90	81	0.10
Belle Glade					
10/11 – 11/2/15	62.69	90.72	0.40	84	0.10
Clewiston					
10/11 – 11/2/15	65.77	90.77	0.20	81	0.11
Ft Lauderdale					
10/11 – 11/2/15	74.21	91.06	2.89	78	0.11
Homestead					
10/11 – 11/2/15	66.27	89.91	0.74	85	0.10
Immokalee					
10/11 – 11/2/15	63.19	92.07	0.16	82	0.11
Okeechobee					
10/11 – 11/2/15	60.21	90.59	0.58	72	0.11
Wellington					
10/11 – 11/2/15	65.7	92.88	1.53	82	0.11

“Remember, when in doubt - scout.”

Last week brought breezy conditions and some growers reported some wind damage with wind whipped plants, desiccated foliage and bloom drop.

Crops coming to market include light volumes of cucumber, eggplant, green beans, herbs, pepper, squash, sweet corn, tomato, and various specialty items. Prices and quality are generally good.

The National Weather Service reports a ridge of high pressure will be the dominant weather feature for south Florida through the week. This ridge will keep temps above average with additional records possible. Another record high could be reached at Naples today, which would be the 3rd consecutive day of at least tying a record high there.

Nighttime lows will stay above average as well with upper 70s east coast and low-mid 70s interior-Gulf coast with a few record warm minimum temps possible as well.

Mostly dry weather is forecast today through Tuesday with just a few showers possible over the western interior this afternoon as a gulf sea breeze develops. Isolated showers are possible just about anywhere on Tuesday as moisture increases slightly. Chances of a shower increase slightly mid-week as some convergence and increased moisture moves west across the Caribbean. The chance of showers continues into the upcoming weekend. No significant rains are expected though with any showers being passing/brief this week.

Dewpoints will remain in the lower to mid-70s, so it'll be sultry with only the calendar saying that it's fall.

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

Insects

Worms

Around Immokalee, worm pressure remains steady with southern and beet armyworms being found widely. In some places, prior to the recent full moon, scouts reported finding as many as 2-3 SAW egg masses, on one plant. Loopers have also become common in tomatoes. Growers and scouts also report finding some fall armyworms, melonworms, hornworms and a few fruitworms.

In the EAA, worm pressure has been severe in sweet corn in some places around Belle Glade. The oldest plantings are starting to silk and worm levels are typically high for this time of year but responding to spraying. Respondents indicate that loopers are problematic in leafy vegetables.

On the East Coast, reports indicate that worm pressure is increasing with mostly low to moderate levels of fall and some southern armyworm being found in pepper with some fruit damage reported.

Melonworms remain problematic in cucurbits where they can rapidly become a problem if not detected and controlled.

Around the Manatee/Ruskin area, worm pressure has been (SAW, BAW, loopers, and a few fruitworms) steady but growers report they are obtaining good control if they select the proper materials and apply at recommended rates.

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

The cabbage looper overwinters in south Florida where it poses a year-round threat. It feeds readily on crucifers but also attacks a wide range of vegetables crops commonly grown in Florida including beans, cucurbits, lettuce, pepper, potato, tomato, and many others.

Cabbage loopers are leaf feeders, and during the first three instars confine their feeding to the lower leaf surface, leaving the upper surface intact. The fourth and fifth instars chew large holes usually away from the leaf margin. In the case of cabbage, the later instars may bore into the developing head. Larvae consume three times their weight in plant material daily. Feeding sites are marked by large accumulations of sticky, wet fecal material.

Young larvae are initially whitish, but become pale green as they commence feeding on foliage. Larvae have three pairs of prolegs, and crawl by arching their back to form a loop and then projecting the front section of the body forward. The mature larva is predominantly green, and is usually marked with a distinct white stripe on each side.

The moth is mottled gray-brown in color. The hind wings are light brown at the base, with the distal portions dark brown. The forewing bears silvery white spots which serve to distinguish cabbage looper from most other crop-feeding noctuid moths.

The cabbage looper moth is highly dispersive, and can fly up to 200 km. Eggs are deposited singly on either the upper or lower surface of the leaf, although clusters of six to seven eggs are not uncommon. The number of instars ranges from four to seven. Life cycle is highly temperature dependent with shorter cycles under higher temperatures.

Looper populations are somewhat variable in occurrence, being very abundant one year, and then scarce for two to three years, this is likely due to natural infections by nuclear polyhedrosis virus.

Over the past few years, chemical manufacturers have produced a variety of new tools in the battle against leps so that growers now have a wide array of excellent worm control materials in their arsenal

Growers are reminded to rotate between products of different chemical classes to avoid the buildup of possible pest resistance. The range of materials to choose from and the use of IRAC numbers make this task relatively easy to do.

Consult UF/IFAS recommendations for currently labeled insecticides for cabbage looper control in Florida vegetables.

Whiteflies

In the Manatee/Hillsborough area reports indicate that whitefly remain at mostly low levels in tomatoes except in a few hotspots.

Around Southwest Florida, whitefly pressure is mostly low but virus is present in a few hotspots where TYLCV incidence has reached 5% or more.

Around Homestead, silverleaf whitefly populations are increasing in Miami-Dade County with adults and other development stages being found on a variety of vegetable crops. Respondents are already finding TYLCV infected plants in several tomato fields which is earlier than in previous years.

On the East Coast, whitefly pressure remains mostly low.

Recommendations

- **Post-planting Practices.**

- Scout for whitefly adults and apply a short reentry interval insecticide if necessary prior to cultural manipulations such as pruning, tying, etc.
- Rogue tomato plants with symptoms of TYLCV at least until second tie.
- Plants should be treated for whitefly adults prior to rogueing and, if nymphs are present, should be removed from the field, preferably in plastic bags, left in the sun and then disposed of as far from production fields as possible.
- Manage weeds within crops to minimize interference with spraying

- **Insecticidal Control Practices**

- Delay resistance to neonicotinoid and other insecticides by using a proper whitefly insecticide program. Follow the label!
- Apply a neonicotinoid one time to transplants in the production facility, 7-10 days before shipping. Use products in other chemical classes, including Fulfill, soap, etc. before this time.
- Use a soil application containing a neonicotinoid (group 4A) or cyantraniliprole (group 28) no more than once each during a single crop.
- Do not repeat with a foliar application of either mode of action. If only foliar applications of these insecticides are to be made, than restrict each mode of action to a single 6-week period within any crop cycle.
- As control of whitefly nymphs diminishes following soil applications, use rotations of insecticides of other chemical classes as needed based on scouting recommendations.
- Consult the Cooperative Extension Service for the latest recommendations.
- Use selective rather than broad-spectrum control products where possible to conserve natural enemies and enhance biological control.
- Do not apply insecticides on weeds on field perimeters. These could kill whitefly natural enemies, and thus interfere with biological control, as well as select for biotype Q, if present, which is more resistant to many insecticides than biotype B.

Consult UF/IFAS recommendations for currently labeled insecticides for whitefly control in Florida vegetables.

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

Broad Mites

Around Southwest Florida, reports indicate that broad mites are flaring up in several pepper and eggplant fields.

On the east Coast, broad mites are showing up in most pepper fields at the small fruit stage.

Spotty occurrence of broad mites has also been reported in Homestead and the Ruskin area.

Broad mite can be a major problem on pepper and other crops in Florida. The species has a world-wide distribution and can affect a large number of hosts including vegetables such as basil, eggplant, green beans, potato, and tomato.

This destructive pest attacks terminal leaves and flower buds and causes them to become malformed.

Broad mite feeding distorts plant tissue, causing leaves to become hardened, thickened and narrow, giving them a “strappy” appearance. The blooms abort and plant growth is stunted when heavy pressure is present.

Malformed terminal buds and stunted growth is often a telltale sign that broad mites are present. Mites are usually seen on the newest leaves and small fruit. Leaves turn downward and turn coppery or purplish. Internodes shorten and the lateral buds break more than normal.

Broad mites are extremely tiny and are difficult to see without a 10X or stronger hand lens. The mites may crowd into crevices and buds. Mites prefer the shaded side of fruit and the underside of leaves, which usually faces the plant, so scouts must be diligent and carefully inspect affected plants to detect these tiny creatures.

Broad mite injury can be confused with herbicide injury, nutritional (boron) deficiencies or physiological disorders.

The broad mite has four stages in its life cycle: egg, larva, nymph and adult. Adult females lay about five eggs per day over an eight- to 13-day period and then die. Adult males may live five to nine days.

Eggs hatch in two or three days and the larvae emerge from the egg shell to feed. Larvae are slow moving and do not disperse far. After two or three days, the larvae develop into a quiescent larval (nymph) stage. Quiescent female larvae become attractive to the males which pick them up and carry them to the new foliage.

Female mites are about 0.2 mm long and oval in outline. Their bodies are swollen in profile and a light yellow to amber or green in color. Males are smaller (0.11mm) and faster moving than the female.

Males and females are very active, but the males apparently account for much of the dispersal of a broad mite population in their frenzy to carry the quiescent female larvae to new leaves. When females emerge from the quiescent stage, males immediately mate with them.

Broad mites are known to use insect hosts, including bees and whiteflies, to move from plant to plant.

While a number of products such as AgriMek Oberon and Portal are labeled for control of this pest, sulfur, insecticidal oils or soaps may provide effective if used early. Due to short life cycles, frequent repeated sprays may be necessary to obtain control.

Leafminer

On the East Coast, leaf miner remains mostly quiet but is becoming more common in some older tomato.

Reports from Homestead indicate that leafminers are increasing in a variety of vegetable crops.

Reports from Hillsborough County indicates that leafminer populations have increased above threshold levels in a couple fields but otherwise remain at mostly low levels.

Around Southwest Florida, leafminer numbers are increasing but numbers generally remain below threshold levels although some growers speculate they will require treatment in the coming days.

Respondents in the EAA report a slight uptick in leafminer activity in the leaf crop.

In general, leafminers remain below treatable thresholds and parasites appear to be keeping them in check. Ten genera of parasitoid wasp populations have been recorded in Florida and they are very effective at the beginning of the cropping season. Use of harsh chemicals can wipe them out, aggravating leafminer problems. Vegetable growers should scout for this pest and evaluate parasitism rates before spraying.

Dr Dak Seal Entomologist at UF/IFAS TREC advises that growers can use Spintor, Radiant, Coragen, Durivo, Agrimek, Trigard and some neonicotinoids such as Venom for leafminers when populations are high.

Pepper Weevil

Around Southwest Florida, growers and scouts report that pepper weevils are present with both larvae and adults now being found in several locations.

Pepper weevil are also being reported in several East Coast locations in bell pepper approaching maturity.

Aphids

Low numbers of aphids continue to be reported on a variety of crops around South Florida. Numbers appear to be increasing in some locations but no problems are being reported to date.

Grower and scouts in the EAA are reporting some problems with Uroluecon aphids (daisy aphids) in leafy vegetables. These are medium-sized to rather large aphids which may be shiny red, reddish brown or blackish brown. The antennae are about as long as the body.

Corn Silk Fly

Around Belle Glade, silk fly adults are present in corn but maggots are not showing up in silks yet.

Dr Dak Seal reports that silk fly adults were observed in a recent survey on various fruits and wild hosts and are waiting for sweet corn. Dak notes that due to the oriental fruit fly situation, growers in the quarantine area are prohibited to harvest avocado, banana, papaya and other fruits. These fruits will serve as important breeding hosts of silk fly. Dak notes that silk fly population will increase with increasing decomposed fruits.

Dak reports Certis Bait pellets show significant reduction of CSF adults and CSF damage on corn ears. In addition, pyrethroids can be used to reduce silk fly adults.

Cucumber beetles

A few cucumber beetles are showing up around South Florida and causing some problems in a few places.

Thrips

Dak Seal reports that melon thrips numbers are surprisingly high this early in the season. He reports that he randomly collected 100 bean leaves and placed them in a plastic bag in the laboratory for five days. From these leaves, he collected 200 pupae.

Dak reports finding similar numbers of thrips from other host crops.

To avoid problems, he advises growers:

- A. Do not use insecticides unless you are sure about pest status of the thrips on your crop. In order to be sure, get your thrips identified by the nearest available thrips authority (extension agents, scouts, researchers, etc.). Some thrips can be harmless or even beneficial.
- B. Once the species is confirmed to be a harmful one, immediately plan your IPM program.
- C. Scout fields regularly to confirm the level of infestation- if population is below threshold level, use environmentally compatible products, such as Trilogy, Neemix, Requiem, and Grandevo. These products can be used alone or in combination (Trilogy + Requiem or Neemix + Grandevo).
- D. If thrips populations are showing increasing pattern, use Radiant in combination with Movento followed by Closer/Exirel. All of these above mentioned insecticides will provide suppression of thrips populations but none of them is silver bullet.

Elsewhere around South Florida thrips remain very low in most locations and appear to be mainly Florida flower thrips. Some increase in numbers has been noted in pepper in the Palm Beach area but no damage has been reported.

Oriental Fruit Fly

The last oriental fruit fly was caught on Oct 10, 2015 and it is now 22 days since a fly was caught. Based on temperature projections that affect OFF life cycles and provided there are no additional finds, the estimated End Date of Quarantine will be February 23, 2016.

Reports indicate that some vegetable growers are delaying planting host crops like tomato due to uncertainty regarding this pest. Others have reported shifted acreage to non-host crops like beans.

The Oriental fruit fly is considered one of the most serious of the world's fruit fly pests due to its potential economic harm. It attacks more than 430 different fruits, vegetables and nuts.

The thorax of adult flies is typically mostly dark with two prominent, yellow stripes dorsally, a yellow scutellum, and yellow areas laterally; the abdomen has a prominent, 'T'-shaped, black pattern on a light brown background, plus variable other dark markings laterally. The wings are clear, except for a thin, continuous brown band extending from the stigma to the wing tip, and a thin, oblique, band of brown overlapping the posterior cubital cell. The face has a conspicuous black spot below each antenna.

See more at <http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Pests-Diseases/Exotic-Fruit-Flies/Oriental-Fruit-Fly-Information/Industry-Program-Information>

Diseases

Bacterial Spot

Around Immokalee, bacterial spot has really slowed in most places but not completely stopped. The earliest planting which received the most rain were most severely affected. Some peppers continue to show new infections with a few fields displaying some leaf drop. Several pepper fields especially where resistant plants have been planted have no bacterial spot showing.

Respondents in the Manatee Ruskin area report continuing problems with bacterial spot in some fields but note that overall it remains relatively low.

Bacterial spot remains low in most East Coast locations with some low level bacteria in a few tomato plantings and almost none in pepper. Most growers are planting bacterial spot race 1-10 resistant pepper varieties.

Reports from Miami Dade County indicate growers are also seeing some bacterial spot on tomato.

Target Spot

Growers and scouts in the Manatee/Ruskin area report that target spot is increasing on older tomato and growers are starting to find lesions on fruit in some fields.

Around Immokalee, target spot is starting to start low in the bush in some older tomato fields.

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

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

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

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

Newer fungicides such as Endura, Scala, Inspire Super, Reason 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.

Downy mildew

Respondents in Palm Beach County report that downy mildew is starting to appear in a few squash and cucumber fields.

Around Southwest Florida, downy mildew is showing in a few watermelon fields, but is much more prevalent in squash and is now showing in cucumber and cantaloupe fields as well.

Downy mildew is also active on cucurbits in the Homestead area.

Symptoms of cucurbit downy mildew are characterized by foliar lesions, which first appear as small chlorotic patches on the upper side of the leaves. These lesions may appear water-soaked, especially during periods of prolonged leaf wetness caused by rainfall, dew, or irrigation. Later symptoms may coalesce into large necrotic areas, which may result in defoliation and reduction of yield and marketable fruit.

Spray programs for downy mildew are most effective when initiated prior to the first sign of disease since once a planting becomes infected; it becomes more and more difficult for fungicides to control downy mildew. A range of fungicides is available for the control of downy mildew depending on the crop. Newer oomycete specific products are useful in combatting the disease.

Powdery mildew

Around Immokalee, powdery mildew is common in squash and there is little showing in some watermelons as well.

On the East Coast, powdery mildew is present in low levels on some squash beginning to fruit.

Fusarium wilt

Fusarium wilt race 3 is increasing in a number of fields around Manatee County.

With phase-out of methyl bromide, the occurrence and severity of soilborne pathogens like fusarium wilt are becoming a more frequent sight across the state.

While there are resistant tomato varieties for fusarium wilt many are resistant to races 1 and 2 but only a few are resistant to all 3 races and often times these are more susceptible to bacterial spot and may produce fruit which are smaller than the standards growers are used to.

Southern Blight

Southern blight is causing some issues around South Florida. Incidence and occurrence is mostly spotty.

Southern blight is caused by a soil-born fungus, *Sclerotium rolfsii* and can be a widespread problem in Florida's fall season. Typical symptoms include a whitish fungal growth develops around the base of plants at the ground line followed by wilting and sudden plant death as the fungus girdles the stem. Small seed-like structures (sclerotia) may be found within fungal mass. They are white at first and later turn dark brown to black.

The disease usually appears in "hot spots" in fields in early fall and continues until cooler, dryer weather prevails.

Soil fumigation fumigant combinations containing chloropicrin and or metam can help reduce the incidence of southern blight. As growers transition to other less efficacious fumigants some scientists fear the disease may become more prevalent over time.

Recent trials show that Fontelis - DuPont (penthiopyrad) applied at plant, pre-plant incorporated, as a transplant drench or through the drip has provided good control of southern blight.

Gummy stem blight

Around Southwest and South Central Florida, growers and scouts report that gummy stem blight has slowed greatly with drier conditions. Infection and symptoms may occur on all plant parts and at any stage of development from seedlings to maturity.

Symptoms appear as light to dark brown circular spots on leaves or as brown to black, lesions on stems. Wilting, followed by death of young plants may occur. Stem lesions enlarge and slowly girdle the main stem resulting in a red-brown-black canker that cracks and may exude a red to amber gummy substance. Vine wilting is usually a late symptom.

Gummy stem blight typically progresses from the central stem of the plant to growing tips. Leaf spots are variable in shape, red-brown in color and initial infections are generally seen on leaf margins and veinal areas.

In recent years, strains resistant to the strobilurin fungicides have been detected throughout the Southeast. Materials such as Folicur, Fontelis, Inspire Super, Luna Experience, Switch and Topsin (thiophanate methyl) have shown good efficacy against resistant strains of the disease. Consult UF/IFAS recommendations for currently labeled fungicides for gummy stem blight control in Florida watermelons.

Phytophthora

Phytophthora has been reported in some young peppers in a few East Coast location where the disease commonly occurs. There is some speculation that fumigation issues may play a role in some of these finds as well as in some of the southern blight being seen around South Florida.

Basil Downy Mildew

Downy mildew pressure in basil has been relentless and growers have to work hard to keep it in check.

In basil, symptoms of downy mildew initially appear as yellowing and cupping of the leaves and are typically concentrated around the mid-vein. Growers may not realize their basil is infected with downy mildew since the yellowing of the foliage is similar to a nutritional deficiency. The discolored area may cover most of the leaf surface.

On the underside of leaves, a gray, fuzzy growth may be apparent by visual inspection. Under high humidity, the chlorotic areas on the leaf turn to dark brown quickly. Sporangia, the reproductive structures of the pathogen, are easily detected under magnification and are diagnostic for this disease.

The dark sporulation of the lower leaf surface renders the product unacceptable for market and may result in severe losses. The disease symptoms can intensify in transit on harvested product and again result in unsalable product on arrival.

Disease development is favored by high humidity and leaf wetness. In field spread is through spores. This disease can become very severe if crops are not protected with a rigid fungicide program.

Although few fungicides are specifically labeled for this disease, some broadly labeled fungicides which are labeled under the herb crop grouping on current labels, such as Ranman, Quadris and Amistar (Azoxytrobilin) and the phosphonic acids have shown efficacy in managing the disease.

Recently Revus received a label for use in basil and provides excellent control of downy mildew when used early as a soil drench. These fungicides are most effective when applications are started before or just after initial symptoms are found.

Cucurbit crumple virus

Low levels of cucurbit crumple virus is being reported in some fall watermelons. This is a whitefly vectored virus so whitefly control is essential in management of this disease.

Green beans are an alternate host of this virus so growers may want consider placement of cucurbits in proximity to green beans.

Management of this virus is not much different than management of other begomoviruses in vegetable crops such as Tomato yellow leaf curl virus in tomato. Virus- and whitefly-free transplants should be used.

Where whiteflies are a problem, a soil-applied neonicotinoid insecticide such as imidacloprid (Admire®), thiamethoxam (Platinum®), or dinotefuran (Venom®) should be used at planting for longer season cucurbits.

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. In addition to protecting bees, it also will help limit the exposure of the whitefly population to neonicotinoids during the latter part of the crop cycle.

Spiromesifen (Oberon®) is effective against immature stages of the whitefly as is buprofezin (Courier®), and pyriproxyfen (Knack®), both insect growth regulators. Although spiromesifen, pyriproxyfen, and buprofezin affect mostly reproduction and survival of immatures, they can help reduce secondary spread within and between fields by slowing the increase of the whitefly population.

Because of concerns about insecticide resistance in whiteflies, it is critically important to observe the restrictions on the number of applications, to rotate insecticide applications among chemicals in different classes, and never follow a soil application of any neonicotinoid with a foliar application of another neonicotinoid.

For more information, see Whitefly-Transmitted Cucurbit Leaf Crumple Virus in Florida - <http://edis.ifas.ufl.edu/in716>

Tomato Chlorotic Spot Virus

Around Southwest Florida, scouts are reporting no significant tospovirus recently, with only a few scattered single plant here and there in a few tomato fields.

The situation is similar in Palm Beach County with only a few scattered plants being reported.

Homestead remains the hotspot for Tomato chlorotic spot virus and continues to cause widespread problems for growers there.

The tospovirus, Tomato chlorotic spot virus (TCSV) was first identified in Florida in field grown tomato plants in Miami-Dade and Hendry Counties in 2012 emerged as a major problem in Miami Dade this past season where it is caused significant problems for tomato growers.

Finding TCSV infections in transplant houses is an alarming new development as it could aid the spread of this virus around South Florida and beyond.

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.' =

It is known from studies conducted in Brazil, that TCSV can be transmitted by a number of species of thrips and that some thrips are more efficient vectors than others. Like other tospoviruses, tomato chlorotic spot virus replicates in its vector as well as in the plant. While the vector status of many thrips species is known with regard to transmission of tomato spotted wilt virus, only five thrips species have been tested for their ability to transmit TCSV. Currently western flower thrips and common blossom thrips are known to be vectors.

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

Resistance to TSWV seems to confer resistance to TCSV in trials conducted in Miami Dade County and elsewhere.

Tomato Yellow Leaf Curl

Incidence and occurrence of TYLCV remains mostly low and spotty on tomatoes around South Florida, although a few hotspots have been reported in a couple of fields where incidence is higher.

News You Can Use

Rainy Season 2015 Summary - Dry East and Wet West

October 27, 2015: The National Weather Service has determined that the 2015 south Florida rainy season, which started on May 10th, concluded on October 17th as the second in a series of weak cold fronts moved through the area, bringing slightly drier air and an end to the daily pattern of sea-breeze-driven showers and thunderstorms.

The duration of the 2015 rainy season was 161 days, slightly longer than the average of 155 days. The average measured rainfall from 33 observation sites across southern Florida was 33.29 inches, which is about 6 inches less than last year's average of 39.4 inches.

It was significantly drier than normal over southeast Florida, especially during the first half of the rainy season. Fort Lauderdale recorded its 3rd driest summer on record (June-August) with only 9.87 inches of rain.

Hollywood Waste Water Plant only recorded 6.81 inches of summer rainfall and other southeast Florida locations failed to reach 10 inches during that time period. This lack of rainfall led to extreme drought conditions across southeast Florida in what is normally a drought-free time of year.

A persistent east to southeast wind flow kept the east coast areas dry while focusing most of the daily showers and thunderstorms over the interior and Gulf coast regions. While drought was affecting the east coast, some interior and western locales were having one of the wettest summers in recent memory. LaBelle, Ortona and

Golden Gate each recorded over 30 inches of rain from June through August, with LaBelle and Ortona's rainfall ranking in the top 10 summer rainfall on record.

Winds became more southwesterly in August and September, which led to daily showers and thunderstorms becoming more numerous and frequent along the east coast. This eventually ended the drought conditions across southeast Florida, but not until late September. Even here, rainfall amounts were mostly normal to slightly below normal for the latter part of the rainy season.

Miami International Airport recorded a total of 33.45 inches of rain between May 1 and October 17, which is 10.28 inches below the normal for that time period.

Fort Lauderdale/Hollywood International Airport recorded a total of 22.23 inches of rain between May 1 and October 17, which is 18.34 inches below the normal for that time period.

Palm Beach International Airport recorded a total of 27.90 inches of rain between May 1 and October 17, which is 9.79 inches below the normal for that time period.

Naples Municipal Airport recorded a total of 29.69 inches of rain between May 1 and October 17, which is 8.13 inches below the normal for that time period.

Highest rainfall amounts for the duration of the rainy season were mostly in interior and western locations and the lowest amounts were across metro and coastal southeast Florida. For comparison purposes, average wet season rainfall ranges anywhere from 30-35 inches over the far interior and coastal locations to 40-45 inches across the interior suburbs of both the east and west coasts.

As is usually the case in the south Florida rainy season, high variability in local rainfall was noted. For instance, in the Naples area rainfall ranged from just under 30 inches at Naples Municipal Airport to over 50 inches in Golden Gate only a few miles inland. Similarly, North Miami Beach recorded over 44 inches of rain while a few miles to the north at North Perry Airport only 22 inches of rain fell.

Revisions to the Worker Protection Standard.

On September 28, 2015 EPA finalized revisions to the worker protection standard. This final rule enhances the protections provided to agricultural workers, pesticide handlers, and other persons under the Worker Protection Standard (WPS) by strengthening elements of the existing regulation, such as training, notification, pesticide safety and hazard communication information, use of personal protective equipment, and the providing of supplies for routine washing and emergency decontamination.

The majority of the rule revisions will be effective approximately 14 months after the rule publishes in the Federal Register. This will give farmers and states time to adjust to the new requirements, as well as time for EPA and states to develop updated materials for training and other purposes.

What are the Major Changes for Farmers and Farmworkers?

The revisions to the Worker Protection Standard cover many different areas. The major revisions include:

- Annual mandatory training to inform farmworkers on the required protections afforded to them. Currently, training is only once every 5 years.
- Expanded training includes instructions to reduce take-home exposure from pesticides on work clothing and other safety topics.
- First-time ever minimum age requirement: Children under 18 are prohibited from handling pesticides.
- Expanded mandatory posting of no-entry signs for the most hazardous pesticides. The signs prohibit entry into pesticide-treated fields until residues decline to a safe level.

- New no-entry application-exclusion zones up to 100 feet surrounding pesticide application equipment will protect workers and others from exposure to pesticide overspray.
- Requirement to provide more than one way for farmworkers and their representatives to gain access to pesticide application information and safety data sheets – centrally-posted, or by requesting records.
- Mandatory record-keeping to improve states' ability to follow up on pesticide violations and enforce compliance. Records of application-specific pesticide information, as well as farmworker training, must be kept for two years.
- Anti-retaliation provisions are comparable to Department of Labor's (DOL).
- Changes in personal protective equipment will be consistent with DOL's standards for ensuring respirators are effective, including fit test, medical evaluation and training.
- Specific amounts of water to be used for routine washing, emergency eye flushing and other decontamination, including eye wash systems for handlers at pesticide mixing/loading sites.
- Continue the exemption for farm owners and their immediate families with an expanded definition of immediate family.

You can read the revised WPS here: http://www2.epa.gov/sites/production/files/2015-09/documents/agricultural_worker_protection_standard_revisions.pdf

Here is a chart which compares the old WPS with the Revised WPS

<http://www2.epa.gov/sites/production/files/2015-09/documents/comparison-chart-wps.pdf>

2015 Oriental Fruit Fly Eradication Program - Miami-Dade County

The last oriental fruit fly was caught on Oct 10, 2015 and it is now 22 days since a fly was caught. Based on temperature projections that affect OFF life cycles and provided there are no additional finds, the estimated End Date of Quarantine will be February 23, 2016. For more info, go to

<http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Pests-Diseases/Exotic-Fruit-Flies/Oriental-Fruit-Fly-Information/Industry-Program-Information>

Combined Treatment, Quarantine and Survey Zone - Maps subject to update, please check for current map and fly find locations. <http://offmap.freshfromflorida.com/>

Oriental Fruit Fly Host List

<http://freshfromflorida.s3.amazonaws.com/Media%2FFiles%2FPlant-Industry-Files%2FPest-Alerts%2FOriental-Fruit-Fly%2FOFF+Host+List+Comparison+edited+common+name.pdf>

As of October 23, 2016, an estimated 2,000 growers have been impacted by this agricultural state of emergency. Ninety-eight square miles of land have been impacted by the quarantine and the quarantine is currently in effect until the end of February.

Within the Fruit Fly Quarantine zone, many farmworkers are out of work or experiencing severe reductions to their hours. Recognizing the need in the farmworker communities, Farm Share is partnering with the Homestead Housing Authority to bring food to families in need during this challenging time.

Up Coming Meetings

November 4, 2015 **Florida Ag Expo** **7:30 AM – 4 PM**

UF/IFAS Gulf Coast Research & Education Center
14625 CR 672
Balm, Florida 33598

Learn more and register at <http://www.cvent.com/events/2015-florida-ag-expo/event-summary-de3a92a460bc451fa9a897b10c8fc02e.aspx>

November 9, 2015 **Tomato Scouting Workshop and In-service Training** **9 am to 12 pm**

UF/IFAS SWFREC
2685 State Rd 29 North
Immokalee Florida

Registration is required with Gilma Castillo, gilma.castillo@ufl.edu

This course will be available in Palm Beach County via video conference. Anyone interested in **attending the workshop in Palm Beach County** may register in advance by contacting Ethel Scott at eescott@pbcgov.org to ensure their seat and associated publications.

AGENDA

9:00am Welcome and Introduction, Dr. Monica Ozores-Hampton, Horticultural Science Department, UF/IFAS-SWFREC

9:05 Dr. Pamela Roberts, Plant Pathology, UF/IFAS-SWFREC. Scouting and common diseases on tomatoes.

9:45 Dr. Phil Stansly, Entomology, UF/IFAS-SWFREC. Scouting and insect pests on tomatoes.

10:25 Dr. Monica Ozores-Hampton, Horticultural Science Department, UF/IFAS-SWFREC. Nutritional disorders of tomatoes.

11:05 Gene McAvoy, Regional Vegetable Extension Agent, UF/IFAS/Hendry County Extension Office. Tomato weed management - identification and strategies for problem weeds.

11:35 to noon Trip to fields to observe disease, insect and weeds.

CCA CEUs will be provided, sorry no RUP license CEUs will be available.

Registration is required contact Gilma Castillo, gilma.castillo@ufl.edu

November 17, 2015 **Localecopia Meet and Greet** **1pm-3pm**

The Breakers Palm Beach
1 S County Rd
Palm Beach, FL 33480

Attendance is free of charge. Please RSVP to info@localecopia.org. This free event is open to any members of the community interested in local, sustainable business. This event is also open to any cooks, chefs, buyers, students, managers or others in the hospitality community that truly want to become involved in the local movement.

December 3, 2015

Fall Vegetable Field Day

9 am to 1 pm

UF/IFAS SWFREC
2685 State Rd 29 North
Immokalee FL (239)-658-3400

Websites

Create an On-Farm Food Safety Plan! - The On-Farm Food Safety Project helps you learn about food safety, create a personalized on-farm food safety plan, and become food safety certified. Go to <http://onfarmfoodsafety.org/>

Primus Labs – online tool that will help you develop a food safety manual, free registration at <http://intranet.primuslabs.com/igap/register/default.asp>

FDACs Office of Ag Water Policy - BMP Manuals – you will also find link to enroll in a BMP program. Go to <http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Water-Policy/Enroll-in-BMPs/BMP-Rules-Manuals-and-Other-Documents>

Florida Tomato Scouting Guide on the web at <http://erec.ifas.ufl.edu/tomato-scouting-guide/>

Note: State and local budgets cuts are threatening to further reduce our funding – if you are receiving currently receiving the hotline by mail and would like to switch over to electronic delivery – just drop me an email. It is much quicker and you will get the hotline within minutes of my completing it and help conserve dwindling resources at the same time. Thanks to those that have already made the switch.

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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.

Special Thanks to the **generous support** of our **sponsors**; who make this publication possible.

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