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SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

October 12, 2015

A weak cold front the first week of October dropped night time low temps into the upper 60's for the first time in several months. Unfortunately, despite the arrival of the fall equinox, we still have a few weeks to go before fall weather arrives. According to the National Weather Service the average date on which nighttime lows fall below 60 degrees is Oct 20 in LaBelle, Oct 24 in Belle Glade, Oct 30 in Homestead and Nov 2 in West Palm Beach. Daytime temperatures have been running in the low to mid 90's with most nights in the 70's.

The first week of October brought drier conditions to most locations but last week saw a return to summer rainy season pattern in many places. Heavy rains in September resulted in poor stands and crop damage in some of the worse affected fields. Many growers just want a couple of sunny days!

FAWN Weather Summary

Date	Air Temp °F		Rainfall (Inches)	Ave Relative Humidity (Percent)	ET (Inches/Day) (Average)
	Min	Max			
Balm					
9/20 – 10/11/15	61.30	91.31	2.45	87	0.13
Belle Glade					
9/20 – 10/11/15	65.01	92.03	5.96	90	0.13
Clewiston					
9/20 – 10/11/15	66.38	91.78	3.09	85	0.12
Ft Lauderdale					
9/20 – 10/11/15	67.62	91.72	1.93	82	0.14
Homestead					
9/20 – 10/11/15	66.00	93.83	3.43	86	0.13
Immokalee					
9/20 – 10/11/15	67.44	96.75	4.97	88	0.12
Okeechobee					
9/20 – 10/11/15	66.31	93.85	1.03	72	0.12
Wellington					
9/20 – 10/11/15	66.22	93.34	1.07	86	0.13

“Remember, when in doubt - scout.”

The National Weather Service reports that a pseudo-cold front over South Florida is weakening but will bring some drier air which will remain across South Florida through Tuesday with minimal chances for showers. Models forecasts dew points into the lower 60s near the lake region providing another little taste of fall South Florida style to start the week.

The long term forecast (Wednesday - Saturday) is trending towards a drier pattern with some increased moisture returning by the end of the week.

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

Insects

Worms

Growers and scouts around Southwest Florida report worm pressure is starting to increase in a number of crops. Scouts report finding lots of worm eggs and newly hatched worms in nearly everything. Species include Southern armyworms, loopers, beet armyworms, melonworms, fall armyworms and some other miscellaneous Spodoptera species such as yellowstriped armyworms (*S. ornithogalii*) and velvet armyworms (*S. dolichos*).

Growers report that melonworm numbers have been impressive in some SW Florida locations on cucumbers and squash.

Respondents in the EAA, report that they had fairly low army worm numbers up until this past week on sweet corn, but since then have seen egg deposition on about 15% on pre-tassel corn.

On the East Coast, respondents report seeing quite a few moths and note that looper pressure is pretty high and beet armyworm pressure moderate. Melonworm pressure has been very high in cucumber.

Around the Manatee, Ruskin area, worm pressure has been steady with a mixed bag of beet armyworm, southern armyworm, loopers, and hornworms. Reports from the field indicate it seems to be harder to kill loopers.

Fall is worm time in south Florida

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

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

- **Beet armyworm:** (*Spodoptera exigua*) is generally less numerous than southern armyworm but is more difficult to control. The larva are generally green, mottled with white spots with black spot over the middle pair of true legs. 1 – 1.25 in. long at maturity. The adults have light brownish gray front wings with indistinct lines and are active at night. The eggs are laid in masses of 50 to 75 eggs covered with a felt like mass of scales from female's body. Eggs are generally found on underside of leaves and hatch in 3 days.
- **Southern armyworm:** (*Spodoptera eridania*) the larva are dark caterpillars with a yellowish brown head and a yellowish line along the side of body that is interrupted by a large dark spot on first abdominal segment.

Approximately 2 in. long at maturity. Large larvae have 2 rows of dark triangles on dorsal surface. The young larvae feed on under surface of leaflets leaving upper epidermis intact to give a "window pane" appearance. The adult has the front wing streaked with cream, gray, light brown and black and hind wing white with some dark on margins. Large masses of 100 - 200 eggs covered with moth body scales are found on underside of leaves

- **The yellowstriped armyworm:** (*Spodoptera ornithogalli*), has a brownish head with a pale yellow inverted V on the upper front. It has distinct bright yellow lines on the top of the sides of the body. The yellowstriped armyworm occurs with both overall pale and dark colored bodies. It has two rows of black triangle shaped markings running the length of the body. Each row is offset from the center of the back. A thin white line runs lengthwise through each series of dark triangles. The yellowstriped armyworm is more common in north Florida.

- **Tomato fruitworm:** (*Helicoverpa zea*) larval color is variable, ranging from very dark to light green or pink with alternating longitudinal dark and light stripes. The skin is covered with short sharp micro spines. Adults are active at night, with a 1½ in. wing span. Males display a cream colored forewing with orange or olive cast, while females have a light yellow brown forewing with indistinct vertical lines. Eggs are waxy white and ribbed, with a flat base, and are deposited singly usually on lower surfaces of leaves adjacent to or near flowers. Eggs hatch in 2-3 days.

- **Cabbage or soybean looper:** (*Trichoplusia ni* or *Pseudoplusia includens*) Larva are pale green with white line alongside of the body and only 3 pair of prolegs. Mature size 1 – 1 ¼ in. Adult is a grayish brown moth that is active at night. Front wings marked near center with a figure 8 shaped, silver white spot. Eggs are greenish white, ridged but flattened laterally and are found singly on upper or lower leaf surfaces of upper canopy leaves. Hatches in 2 3 days.

Fortunately growers have a wide array of excellent worm control materials at their disposal these days.

Whiteflies

Growers and scouts in the Manatee/Hillsborough area report that whitefly adults have been present at mostly low levels in tomatoes except in some isolated Manatee County farms. TYLCV remains low in most cases except where whitefly numbers are higher. Growers report getting excellent control of whitefly with Verimark as tray drench or in transplant water and are also seeing good results with Venom in transplant water.

Around Immokalee, whitefly pressure varies between locations from low to high and scouts report some older crops around have a few whitefly nymphs developing. Over all, whitefly numbers in tomatoes and peppers have been trending lower this past few weeks mostly due to heavy rain showers and accurate applications of insecticides as population numbers show any increase over two scouting periods.

On the East Coast, whitefly pressure remains low but some growers report treating older tomato with growth regulator materials.

Around Homestead, silverleaf whitefly is present on okra, sweetpotato and other hosts and growers are beginning to find a few whiteflies on newly planted tomato. Dr. Dak Seal, Entomologist at UF/IFAS TREC reports that Admire at planting followed by drip application of Verimark (28 DAP) and foliar application of Venom, Knack, Requiem and fungus based insecticides (PFR) applied in a program provides significant control of SLW and its transmitted TYLCV. This program also reduces Groundnut Ring Spot Virus by reducing the thrips vector.

Recommendations

- **Crop Hygiene**

Field hygiene 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.

- Establish a minimum 2-month crop free period during the summer, preferably from mid-June to mid-August in south and south central Florida.

- **Pre-plant Cultural Control Practices**

Reduce overall whitefly populations and avoid introducing whiteflies and TYLCV into crops by strict adherence to good cultural practices.

- Plant whitefly and virus-free transplants.
- Use transplants grown in isolation from production fields.
- Inspect transplants for whiteflies and other pests and diseases
- Delay planting new fall crops as long as possible.
- Do not plant new crops near or adjacent to old, infested crops, especially of tomato but also of other whitefly sources such as cucurbits or possible sources of TYLCV like pepper or beans.
- Use determinant varieties of grape tomatoes to avoid extended cropping season.
- Use TYLCV resistant tomato cultivars (see additional information below for list) where possible and appropriate, especially during historically critical periods of high virus pressure.
- TYLCV tolerant tomato cultivars that are available include Charger, Rally, Tribute (Sakata), RidgeRunner, SevenTY III (Syngenta), Security 28 and 8845 (Harris Moran). Check the Vegetable Production Handbook for Florida for new TYLCV-tolerant varieties.
- Continue whitefly control even on TYLCV resistant cultivars which can still host the virus and are subject to tomato irregular ripening.
- Use UV reflective (metalized) mulch on plantings that are historically most commonly infested with whiteflies and infected with TYLCV.

- **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.

- **Do Unto Your Neighbor, as You Would Have Them Do unto You**

- Look out for your neighbor's welfare. This may be a strange or unwelcome concept in the highly competitive vegetable industry but it is in the grower's best interest to do just that. Remember that everybody will feel the pain should the whiteflies develop full-blown resistance to insecticides, especially the neonicotinoids!
- Know what is going on in the neighbor's fields.
- Growers should try to keep abreast of operations in upwind fields, especially harvesting and crop destruction, which both disturb the foliage and cause whitefly adults to fly

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

A few broad mites are starting to show up on older pepper in scattered locations around South Florida.

Leafminer

A few leafminers are showing up around South Florida with some stippling and few mines reported in cucurbits and tomatoes. In most cases, they 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.

Reports from Hillsborough County indicates that leafminer populations have increased above threshold levels in a few fields and are now being treated.

Respondents in the EAA report a slight uptick in leafminer activity in the leaf crop especially in fields that have not had rain in several days.

Stinkbug

Scouts report finding a few stinkbugs around.

Aphids

Growers and scouts around South Florida report seeing a few winged aphids blowing around at low numbers over the past few days.

Action Thresholds from the Florida Tomato Scouting Guide

Pest	Crop Stage	Threshold
Armyworms, fruitworm	Pre-bloom	1 larva/ 6 plants
	Post-bloom	1 egg or larva/field
	0-7 true leaves	0.7 larva/plant
Tomato Pinworm	> 7 true leaves	0.7 larva/leaf
	Season long	5 adults/trap/night*
Leafminers	0-2 true leaves	0.7 larva/plant
	> 2 true leaves	0.7 larva/ 3 terminal leaflets
Silverleaf whitefly	Season long	5 pupae and/or nymphs/10 leaflets**
	0-3 true leaves	10 adults/plant**
	3-7 true leaves	1 adult/leaflet
Thrips	Post-bloom	>5/flower
Stinkbugs	Post-bloom	1/6 plants
Aphids	Season long	>3-4/plant
Loopers	Season long	1 larva/6 plants

*When threshold is reached apply pheromone for mating disruption

**Tentative threshold; will require more validation. If the source of whiteflies is believed to be tomato, especially if infected with TYLCV, the threshold will be lower

Corn Silk Fly

Reports from the Glades indicate that a few silk fly adults were seen around the EAA in the last week.

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.

Oriental Fruit Fly

Oriental fruit flies continue to be detected around Miami Dade County with the last find on Oct 10. A single male of the Oriental fruit fly, *Bactrocera dorsalis* was captured in a methyl eugenol-baited fruit fly detection trap in Miami (Miami-Dade Co.) on 17 August 2015. This is the first appearance of Oriental fruit fly in Florida since 2014. Since then 165 flies have been captured in traps leading Commissioner of Agriculture Adam Putnam to declare a state of agricultural emergency.

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, including: avocado, mango, mamey, loquat, lychee, longan, dragon fruit, guava, papaya, sapodilla, banana and annona. The fruit flies lay their eggs in host fruits and vegetables.

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

Growers and scouts report that disease has been relatively low given recent heavy rains.

Bacterial Spot

Wet weather has been conducive to bacterial spot problems from north to South Florida.

Around Immokalee, bacterial spot is showing up in quite a few pepper fields and is common in a number of tomato fields. Some tomatoes have moderate to high infections levels.

Respondents in the Manatee Ruskin area indicate that bacterial spot incidence has flared in several places but remains relatively low over all.

Bacterial spot remains low in most East Coast locations with some low level bacteria in a few tomato planting 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. Dr Gary Vallad, Plant Pathologist at the UF/IFAS GREC reports that many forms of copper, which historically has been used to fight bacterial spot in tomatoes, appear to have become ineffective and at times may actually be detrimental.

After conducting four trials over two seasons at CGREC, he says would not recommend using most forms of copper to control the disease in tomatoes.

“My advice would be no (copper) for bacterial spot,” he says. “For other diseases, particularly with speck, we haven’t sorted that out yet because they have resistance issues with speck as well.

He says he based his recommendation against using copper for bacterial spot control on two factors. Copper really only suppressed the disease years ago and never really did provide what could be considered effective control. That was before the numerous strains found in the state became resistant to copper.

During 2011-12, Vallad and colleagues collected 175 samples of bacterial spot in Florida and South Georgia and assayed them for resistance. Of those, 133 came from fields and 43 from greenhouses.

All but one was resistant to copper, and populations had also shifted during the past several seasons to the more aggressive T4 strain from the milder T3 strain.

The concern is the T4 strain may cause aggressive spotting on the fruit, depending on weather conditions.

The results also mirror those obtained in 2006-07, when 377 samples were collected by a group led by Diana Horvath. All of those samples showed resistance to copper.

Vallad's trials were conducted in 2012-13 at GCREC and involved 20 different treatments and four replicates apiece. One of the treatments was an untreated check.

What the trial revealed was when Actigard, an SAR—or systemic activated response—material was used alone or in combination with non-copper products, it produced the best results.

And when copper was added to any of the treatments, more fruit ended up with lesions than even the untreated check.

“Anything that had copper did worse than anything that had Actigard,” he said. “Whenever you had copper, you had significantly reduced yields compared to when you left copper out.”

Two antibiotics, both of which are not registered for use on field-grown tomatoes, provided good control of the bacterial disease. But Vallad says they may never be approved because of concerns about antibiotic resistance in humans.

Streptomycin is labeled for use in greenhouse production. But resistance already is a concern as 86 percent of bacterial spot samples collected from transplant houses were tolerant to the antibiotic compared with only 14 percent of samples collected from the field.

As part of the trial, Vallad calculated costs for each treatment. The cost of a program that used eight sprays of copper-mancozeb was comparable with one using weekly Actigard treatments, \$113 per acre versus \$114 per acre, respectively. See: <http://www.thegrower.com/news/274752851.html?view=all#sthash.qq66ecsy.dpuf>

Bacterial blight

Growers and scouts report finding some bacterial blight in some older pre tassel sweet corn in the EAA due to wet conditions, incidence and severity appears to depend on the variety.

Bacterial blight caused by *Pseudomonas avenae* occurs sporadically on sweet corn in Florida. Its presence appears to depend on the sweet corn variety, the occurrence of rainy weather during the appropriate crop stage, and the density of armyworm infestation.

Corn that is just pushing the tassel through the whorl appears most susceptible, but any corn in the whorl stage may exhibit new infections. Once the corn stalk has fully expanded and leaves have had time to harden off, bacterial blight is rarely observed.

The bacterium responsible for leaf spot can also cause a stalk rot and a basal ear rot. The disease produces dark spots on leaves emerging from the whorl that later turn white or straw-colored and elongate to several inches. Under severe disease conditions, leaves may shred easily. Among other plants attacked by the disease, vaseygrass has been found to be the primary source of inoculum in Florida.

Target Spot

Growers and scouts in both the Hillsborough County area and around Southwest Florida are beginning to report finding some target spot in older tomato plantings.

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

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

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

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

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.

Gummy stem blight

Gummy stem blight has fired up in some fall watermelons around Southwest and South Central Florida. 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.

Downy mildew

Downy mildew is starting to appear in a few squash and cucumber fields around South Florida.

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 combating the disease.

Powdery mildew

Powdery mildew is also around in a few squash and watermelons.

Pythium

Excess moisture and heat have contributed to some pythium problems and stand loss in several locations around South Florida.

The combination of abundant soil moisture and elevated temperatures conspire to make the fall planting season a prime time for vegetable growers in Florida to encounter problems with Pythium spp. on a variety of vegetables. Pythium typically attacks roots causing damping off, seedling blights, root rots and wilting of affected crops. In some instances, Pythium may affect the above ground portions of crops.

A number of chemical treatments are available for the control of damping off. Fungicidal drenches such as Previcur Flex (Propamocarb) and Ridomil Gold (mefenoxam) are effective for the suppression of seedling blights and root rots if applied before infection occurs. Resistance to Ridomil has been reported in several crops/places in the US so growers should rotate chemistries as a good resistance management practice.

Several biological control agents, including actinomycetes and other bacteria and fungi, are available to organic and conventional growers for suppression of Pythium and other soil borne pathogens.

Some soils are naturally suppressive to diseases caused by Pythium or may become suppressive by increasing organic matter or manipulating soil pH. Incorporation of cover crops prior to planting may support competing organisms in the field, but in some cases may result in increased populations of the pathogen. Sunn hemp has been implicated in this regard.

Choanephora wet rot

Some Choanephora wet rot has been reported affecting some pepper and green beans during last month's wet weather. Respondents indicate it is declining now with drier conditions.

Extended periods of rain, high humidity and high temperature favor fungal sporulation and disease development. The fungus is spread via wind and splashing water, and on clothing, tools and cultivation equipment.

There are few management techniques available, but fungicidal sprays applied for the control of other diseases will provide some control of this disease. Good spray coverage where dense foliage occurs is important.

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.

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 (Azoxystrobin) 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 are being reported in some fall watermelons. This is a whitefly vectored virus so whitefly control is essential in management of this disease.

Tomato Chlorotic Spot Virus

Around Southwest Florida, scouts report finding confirmed TCSV infected plants from several transplant houses with approximately 100 plants being found this fall.

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 trial conducted in Miami Dade County and elsewhere.

News You Can Use

Florida's agriculture-related employment up 8.7 percent

UF/IFAS
September 10, 2015

GAINESVILLE, Fla. — About 1.52 million people worked full- or part-time in Florida's agriculture, natural resources and food industries in 2013, an 8.7 percent increase in jobs over 2012, according to a new UF/IFAS economic report.

That figure accounts for 14.3 percent of the state's workforce, and reflects a 19.7 percent employment increase since 2001, or just under 1 percent annually, according to the report, led by UF/IFAS Extension Scientist Alan Hodges.

"That's pretty good economic growth in anybody's book," said Hodges, a faculty member in food and resource economics.

Agriculture, natural resources and their related industries in the state account for \$148.5 billion in sales revenue, the report said. Regional multiplier effects add 633,942 jobs and \$83.64 billion to agriculture's impact on Florida's economy.

“It’s new money from outside sources that’s circulating in Florida’s economy,” Hodges said. The value-added impacts represent 15.4 percent of the state’s Gross Domestic Product.

Many other industries count on agricultural and food products and services, according to the annual report that can be found at <http://edis.ifas.ufl.edu/fe969>. The report reflects data from 2013, the latest year for which figures are available.

“We argue that there’s a relationship between what happens on the farm and what happens in the food distribution system. So it makes sense to talk about those things together,” Hodges said. “Agriculture, natural resources and related food industries remain a significant force in the economy of Florida, and it is important to recognize the economic contributions of these industries to ensure informed public policy.”

At nearly \$9 billion in industry output impacts, forestry and forest product manufacturing make up the biggest commodity sector of Florida’s agricultural economy. Next is environmental horticulture – the nursery, greenhouse and landscaping industries – and third is fruits and vegetables, including citrus.

“The forest products industry is pretty strongly tied to the construction sector through demand for lumber and other building products” Hodges said. “Housing starts is a leading indicator. Most homes are still framed with wood.”

Forest products also lead Florida’s agricultural exports, with \$6.14 billion, according to the annual report, while fruits and vegetables (\$3.72 billion) came in second and environmental horticulture (\$3.54 billion) was third.

Many people do not realize the impact of agriculture and food industries on Florida’s economy, Hodges said.

“It’s a heck of a lot bigger than most people think,” he said. “In terms of employment, it is actually the biggest employer in the state.”

Row Middle Weed Management in Tomato and Pepper - Nathan S. Boyd, Associate Professor, GCREC Weed Science, excerpted from the Berry Vegetable Times, Volume 15 Number 3, Fall 2015

Weeds are a constant problem for most growers in the state of Florida. They reduce crop yields, lower crop quality, hinder harvest operations, host pests and diseases, lower profits due to increased management costs, and they just make a field look messy. Fortunately, there are a lot of tools available for weed control and putting those tools together to form a season-long management plan is the best way to reduce your weed pressure over time.

There are multiple options for management of weeds that grow between the raised beds (row middles) of the plasticulture systems typical of Florida vegetable production, but most growers rely on herbicide applications to achieve satisfactory levels of control. In some cases hand weeding is required to control difficult to manage weeds. It is also important to remember that a good fallow program can reduce weed pressure in the row middle and reduce the number of trips across the field required to achieve adequate control.

Here are some important issues to keep in mind when applying herbicides:

1. Post emergence herbicides can be used to control weeds that have already emerged from the soil. Caution should be used to reduce drift as droplets or even blowing sand with herbicide residue can cause crop damage.
2. Preemergence herbicides are active in the soil and control weeds as they germinate. They frequently have very little activity on plants that have already emerged (Prowl) but in some cases preemergence

herbicides can also burn emerged seedlings (Chateau). Be careful during hot periods as some herbicides such as Dual can volatilize from the soil surface and cause crop damage. How long a preemergence herbicide remains active in the soil varies with the herbicide, weather, and soil type.

3. Herbicides that come in contact with the plastic can cause crop damage as the crop grows and comes in contact with the residue on the plastic mulch.
4. No herbicide will control all weed species. Identify the weeds present and implement a spray program to address those needs.
5. Some row middle herbicides can only be applied prior to transplant. The use of an effective preemergence herbicide just prior to transplant is often the safest way to manage weeds while minimizing the risk of crop damage.

Research conducted at GCREC found that prior to transplant a tank mix of Gramoxone plus Chateau, Dual + Chateau, or Dual + Goal were the most effective. Chateau cannot be applied following transplant. Potential post-transplant herbicides for tomato with soil residual activity include Dual Magnum, Sencor and Prowl. Potential post-transplant herbicides for pepper with soil residual activity include Dual Magnum and Prowl. Sencor is not registered for use in peppers. Sandea can be applied to row middles where nutsedge is a problem and Select can be applied for grass control.

2015 Oriental Fruit Fly Eradication Program - Miami-Dade County

Fruit fly finds in Miami-Dade County have triggered an eradication program. This program is a state and federal cooperative effort. Trapping, treatment and regulatory teams are working in areas around the positive finds to limit the impact of the flies. Flies continue to show up in traps and one fly was caught on Oct 10, 2015. 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>

Up Coming Meetings

Food safety: What's your risk?

Workshop to provide tools to assess, reduce risk.

With the rollout of sweeping new federal food safety rules under the Food Safety Modernization Act, it's more important than ever to understand risk of microbial contamination and to take steps to reduce that risk. The Florida Fruit & Vegetable Association presents "Food Safety: What is My Risk?" – A one-day workshop designed to equip specialty crop producers and handlers with practical information, strategies and tools to assess and mitigate risk in their operations.

October 20, 2015 **UF/IFAS Southwest Research and Education Center, Immokalee**
<https://www.eventbrite.com/e/food-safety-what-is-my-risk-tickets-18559541087>

October 21, 2015 **UF/IFAS Everglades Research and Education Center, Belle Glade**
<http://www.eventbrite.com/e/food-safety-what-is-my-risk-tickets-18629860414>

October 28, 2015 **UF/IFAS Gulf Coast Research and Education Center, Wimauma**
<https://www.eventbrite.com/e/food-safety-what-is-my-risk-tickets-18630296719>

Topics will include:

- Overview of microbes
- How to assess risk for farming and packing
- Environmental monitoring
- Creating a food safety culture
- Risk assessment exercise

The workshop will be held in three convenient locations. Registration is \$30 for FFVA producer and trade associate members and \$55 for non-members. Advanced registration is required, and lunch will be provided. Attendees will receive informative materials and checklists upon completion.

REGISTER TODAY: Click on a link below to reserve a seat at the location of your choice. Please forward this to anyone who you think would be interested; the event is not limited to FFVA membership.

Contact FFVA at 321-214-5240 for more details or if you have questions.

October 22 & 23, 2015 **HACCP for Florida Fresh Fruit and Vegetable Packinghouses**

UF/IFAS Hendry County Extension Office
1085 Pratt Boulevard
LaBelle, Florida 33935

Sponsored by UF/IFAS Food Science and Human Nutrition Department and the UF/IFAS Citrus Research and Education Center

ABOUT THE PROGRAM

Food Safety is critical to the fresh produce industry. In addition to being a major public health issue, food safety issues have had an adverse economic impact on growers, packers, processors and shippers of fresh produce.

In addition to a discussion of current and proposed legislation, the latest research on produce safety and Good Manufacturing Practice (GMPs), the workshop will cover the elements of putting together a comprehensive food safety program.

The hands on course will teach participants how to develop and document a food safety management program based on the principles of Hazard Analysis and Critical Control Point (HACCP) for their specific operations.

Breakout sessions will teach participants how to identify and prevent food safety hazards, monitor hazard reduction procedures, develop control measures and methods to document and verify the results of their efforts.

The workshop, accredited by the International HACCP Alliance, is targeted to produce packers, to assist in the development and customization of food safety programs for their facilities, using a HACCP-based approach.

PACKINGHOUSE HACCP PROGRAM AGENDA

Thursday, October 22nd

8:00 Registration

8:30 Welcome

Introduction to Food Safety and the HACCP System

Hazards

Prerequisites to HACCP – GAPs, GMPs, SOPs, SSOPs

Hazard Analysis (Principle 1)

Identification of Critical Control Points (Principle 2)

Establishment of Critical Limits

(Principle 3)

Critical Control Point Monitoring (Principle 4)

5:00 Adjourn

Friday, October 23rd

8:00 Coffee

8:30 Review

Corrective Actions (Principle 5)

Verification (Principle 6)

Recordkeeping (Principle 7)

Regulations – Food Safety Modernization Act

HACCP Review

HACCP Exam

5:00 Adjourn

INSTRUCTORS:

Michelle Danyluk Associate Professor, UF/IFAS CREC

Renée Goodrich Schneider Professor, UF/IFAS FSHN

Keith Schneider Professor, UF/IFAS FSHN

Angela Valadez Produce Food Safety Coordinator, Corporate Quality Assurance, Publix Super Markets, Inc.

Kiley Harper-Larsen Owner and Lead Consultant, the Ag Safety Lady

REGISTRATION

The fee for the course is \$400 for industry participants; additional participants from one facility/farm may register for a fee of \$100.

A reduced fee of \$250 is available for government/academic employees who make prior arrangements.

Registration will be limited to the first 36 registrants.

Registration includes the course materials, two lunches, coffee breaks and certificate of completion.

Participation for the entire 2 days is required for the certificate.

Registration is also available online at: <https://packinghousehaccp1015.eventbrite.com>

October 27, 2015

Fundamentals of Disease Diagnostics Workshop 10 AM - Noon

UF/IFAS Southwest Florida Research and Education Center
2685 State Road 29 North

Immokalee, FL 34142

Fundamentals of Disease Diagnostics Workshop

- Introduction- Biotic vs abiotic disorders
- Types of Plant pathogens
- Spatial distribution and other field indicators of disease
- Methods for diagnosis
- Molecular tools for confirming unknown pathogens
- Interpreting a disease diagnosis
- Basics of disease management

Visit to the Plant Diagnostic Clinic to observe the processing a plant sample

More details and registration information soon.

October 28, 2015 **Fall Lettuce Advisory Committee Meeting** **12 PM**

UF/IFAS Everglades Research and Education Center
3200 East Palm Beach Road
Belle Glade, FL 33430.

Lunch will start at 12pm and is sponsored by DuPont and Syngenta.

The meeting will start approximately 12:15pm. An agenda will follow shortly and CEUs will be offered.

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>

Websites

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.

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

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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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