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SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

December 22, 2015

A cold front, this past weekend, bought the coolest weather of the season with lows dropping into the low 50's across most of South Florida and some 40's in normally colder areas.

Heavy rains impacted the lower East Coast in early December with some areas in Miami Dade County reporting 13 or more inches of rain causing widespread flooding and crop damage and loss.

Mostly warm weather prevailed for the month affecting yields and quality in many crops. Heat and humidity continues to contribute to some disease issues. High temperatures also impacted stand establishment in some crops and is causing problems in leafy crops including premature bolting, tip burn, and loose heads.

FAWN Weather Summary

Date	Air Temp °F		Rainfall	Ave Relative Humidity	ET (Inches/Day)
	Min	Max	(Inches)	(Percent)	(Average)
Balm					
11/23 – 12/21/15	43.96	84.33	0.71	85	0.07
Belle Glade					
11/23 – 12/21/15	55.63	88.07	1.65	90	0.07
Clewiston					
11/23 – 12/21/15	52.11	86.81	2.17	87	0.07
Ft Lauderdale					
11/23 – 12/21/15	58.57	85.41	6.35	83	0.07
Homestead					
11/23 – 12/21/15	58.51	85.78	9.81	88	0.07
Immokalee					
11/23 – 12/21/15	50.23	90.09	1.61	86	0.07
Okeechobee					
11/23 – 12/21/15	49.98	87.57	3.46	75	0.06

Wishing you all the Very Best for a Blessed and Merry Christmas and a Happy and Prosperous New Year!

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Crops coming to market include light volumes of cantaloupe, collards, cucumber, eggplant, green beans, herbs, lettuce, kale, pepper, squash, sweet corn, Swiss chard, tomato, watermelon and various specialty items. Lack of sunshine and abundance of moisture and high temperatures has really hurt some crops with many plantings only making a 50% pack out. High winds have battered plants and scarred some fruit. In some places, soft rot has been an issue on pepper and tomato.

The National Weather Service forecast indicates that over the next couple of days, a few quick showers may move onshore along the east coast with gusty winds. By Wednesday, drier air arriving from the Bahamas, combined with fewer clouds, and a weaker onshore flow, should churn out some mid-80s across inland sections. In the long run, it appears that Christmas will be very warm for this time of year and models keep the warm and mostly dry regime in place into next week. **For additional information, visit the National Weather Service in Miami website at** http://www.srh.noaa.gov/mfl/newpage/index.html

Insects

Worms

Respondents indicate that worms have slowed but pressure remains heavy in places. Depending on the crop and location, growers and scouts are finding beet, fall and southern armyworms, loopers, melonworms, and fruit worms.

Dr Phil Stansly, reports that in early December, he visited a pepper field outside Felda which was heavily infested with lepidopteran larvae that rendered a large proportion of the fruit unmarketable. He brought specimens to our laboratory and identified the larvae as fall armyworm (*Spodoptera frugiperda).* In this case, worms bored into the fruit rendering it unmarketable

Phil reports that the fall armyworm is a polyphagous pest indigenous to Florida that primarily feeds on grasses but is also a known pest of pepper. Phil reports that this has been an especially bad year for fall armyworm in our fall vegetable crops, due probably to the well distributed rainfall pattern during most of the year which has provided abundant sources of vegetation to sustain the population.

The fall armyworm, (*Spodoptera frugiperda*), is probably the most damaging Florida armyworm. It may be light tan to shades of gray or green. The head capsule is usually shiny black or brown, with a prominent yellow or white inverted Y marking on the front. The body has many black tubercles, or round, mole like structures. When fully grown, the caterpillar reaches 1 1/2".

This species, prefers grasses but has a very wide host range, with over 80 plants attacked. The most frequently consumed plants are field corn and sweet corn, sorghum, Bermudagrass, and grass weeds such as crabgrass, Digitaria spp. When the larvae are very numerous they defoliate the preferred plants, acquire an "armyworm" habit and disperse in large numbers, consuming nearly all vegetation in their path

Among vegetable crops, only sweet corn is regularly damaged, but others are attacked occasionally. Larvae cause damage by consuming foliage. Feeding in the whorl of corn often produces a characteristic row of perforations in the leaves. Older larvae cause extensive defoliation, often leaving only the ribs and stalks of corn plants, or a ragged, torn appearance. Studies in Florida have shown that mean densities of 0.2 to 0.8 larvae per plant during the late whorl stage could reduce yield by 5 to 20 percent.

In the EAA, worm pressure continues to be high in leafy crops, corn and crucifers. Worm pressure has remained high in corn in a number of locations and scouts report in some cases, they are finding first and fourth instar larvae on the same corn plant.

In the Manatee/Ruskin area, worm pressure is mostly low with the exception of some sweet corn where fall armyworm pressure remains high.

Around Homestead, reports indicate that melonworm is active in squash and cucumber and numbers are high. Some beet armyworm are present in a variety of vegetable crops in low numbers. Diamondback moth is causing some problems in cole crops.

Dr Dak Seal, Entomologist at UF/IFAS TREC advises growers that Verimark applied at planting followed by Novaluron/Radiant (28 DAP), and Avaunt (42 DAP) will provide excellent control of DBM, FAW, BAW and melon worms. Bacillus thuringiensis based insecticides can be used in between application of the above treatments for a worm free crop.

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.

Whiteflies

In the Immokalee area, whiteflies have been heavy in places. Scouts report that in places the spring crop is barely in the ground and growers are seeing huge whitefly numbers jump on plants only a few hours in the ground.

Reports indicate that whitefly populations are increasing in Miami-Dade County and growers are finding adults and other development stages on a variety of vegetable crops.

Dr Dak Seal reports finding a high incidence of TYLCV infected plants in several tomato fields this fall which is different from the previous years. He advises that Admire at plant 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.

Respondents in the Manatee/Hillsborough area reports whiteflies pressure remains steady with some pupae present but only a little TYLCV. Tomatoes in the area are mostly done with some growers taking a 3rd pick, with spring planting only a few short weeks away, one of the best things growers could do would be to clean up the fall crop and allow a crop free period between spring and fall plantings.

The recommended crop destruction technique, includes the destruction of existing whitefly populations in addition to the physical destruction of the crop. Growers should:

a. Promptly and efficiently destroy crops within 5 days of final harvest to decrease whitefly numbers and sources of plant begomoviruses like TYLCV.

b. 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 quickly kill whiteflies present.

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

d. Destroy crops block by block as harvest is completed rather than waiting and destroying the entire field at one time.

Respondents on the East Coast report that whiteflies are active in cole crops but remain mostly low in tomato.

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

Leafminer

Reports from Hillsborough County indicates that leafminers in tomato have really taken off the last month as the weather has cooled somewhat.

Around Southwest Florida, leafminer number are slowly but most growers are still not spraying specifically for them.

On the East Coast, leaf miner numbers are increasing in some fields and pressure is low – moderate depending on the location.

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

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

Dr Dak Seal Entomologist at UF/IFAS TREC advises that there are 10 genera of parasitoid wasp populations that attack leafminers and they can be very effective in providing control especially at the beginning of the cropping season if growers avoid harsh pesticides and use bio-rational products.

Growers can use Spintor, Radiant, Coragen, Durivo, Agrimek, Trigard and some neonicotinoids such as Venom for leafminers when populations are high.

Broad Mites

Around Southwest Florida, broad mite pressure is high in pepper and eggplant and also in a few cucurbits and potatoes.

On the East Coast, broad mites are around in pepper and eggplant but respondents report that populations do not seem to be quite as persistent as last year perhaps because the warmer weather has helped the controls. Reports indicate that soap and oil-based products have been effective in managing broad mites if applied promptly when they are detected.

Broad mites remain spotty in the Homestead and the Ruskin area.

Pepper Weevil

Pepper weevil are low in most East Coast locations but are more widely present than last season at this time and are increasing in most places.

Around Southwest Florida, pepper weevils are pretty well established in a number of fields but pressure is variable ranging from low to very high in some locations.

In the Manatee Ruskin area, weevils remain mostly low.

Respondents in Homestead, report that weevils are increasing but numbers remain mostly low.

Chemical control is difficult because all stages but the adult are protected within the fruit, so that only the adult weevil is vulnerable to insecticides. Frequent sprays may be necessary starting in the initial stages of infestation in order to avoid unacceptable levels of damage.

Spraying needs to commence at the first sign of weevils or with flowering in fields with a history of problems. Vydate has been the standard control and has given pretty good results when applied weekly in trials at the Southwest Florida Research and Education Center. A total of 24 pts can be applied for the season. Other products that have performed well in trials include Capture (bifenithrin), Kryocide (cryolite), Venom (dinotofuran) and Actara (thiomethoxam). The diamides such as Coragen may provide some suppression.

Unfortunately applications are limited and growers are still trying to work out the timing of applications to achieve the best results.

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

Aphids

Around South Florida, aphids are around and remain mostly low but some colony formation has been reported and several fields are now being treated. Green peach aphids are active in kale, mustard and other leafy brassicas.

Grower and scouts in the EAA are reporting some problems with in leafy vegetables.

Onn the East Coast, aphid numbers are mostly low but they do pose a threat and can occasionally cause serious damage if undetected. Most of the neonicotinoids also control aphids.

Aphids remain low around Homestead.

Corn Silk Fly

Around Belle Glade, silk fly adults are present in corn but populations remain mostly low or declining.

In Miami Dade County corn silk fly adults are showing up in most corn fields but populations remain low.

Stink Bugs

A few stinkbugs are showing up here and there and causing some problems mostly in organic systems.

Thrips

Thrips including some western flower thrips are starting to show up in pepper in fields around Palm Beach County. Numbers remain mostly low perhaps as one scout noted because they can't swim very well.

In Southwest Florida, there are a few thrips around, but numbers are low and in most locations populations are lower than they were last season.

In Miami Dade County, thrips are numerous and include common blossom thrips, melon thrips, and Florida flower thrips. Growers indicate they are have problems controlling thrips with insecticides and are trying other measures including using metalized plastic mulch and adjusting timing of planting.

Around Homestead, Dak Seal reports that melon thrips numbers are surprisingly high this early in the season and are present in almost all crops at variable densities. Recent surveys recorded 3 – 5 melon thrips per sq. cm. of leaf on bean, squash, cucumber and eggplant. On tomato and pepper, average number of thrips per sq. cm. was

To avoid problems, Dak Seal 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.

Dr. Hugh Smith Entomologist at UF/IFAS GCREC reminds growers that it is important that growers experiencing thrips problems in strawberry and other crops identify the thrips species through their scouting service or by contacting their county extension agent. There is increasing evidence that Florida flower thrips continue to be susceptible to most insecticides labeled for thrips. Florida flower thrips are the most common flower thrips associated with horticultural crops in Hillsborough and adjacent counties. Western flower thrips and common blossom thrips are less common, but seem to be more difficult to control with insecticides. Chilli thrips are also of concern in strawberry and other crops.

Spider Mites

Unseasonably warm weather in Hillsborough County has favored the establishment of twospotted spider mites and thrips in strawberry. Twospotted spider mites will develop resistance if treated repeatedly with the same mode of action; fortunately several materials are registered for twospotted spider mite control in strawberry. These include Acramite 50 WS (bifenazate, mode of action unknown), Agri-Mek SC (abamectin, MOA # 6), Savey (hexythiazox, MOA #10A, Zeal (etoxazole, MOA # 10B), Kanemite 15 SC (acequinocyl, MOA # 20B), Portal (fenpyroximate, MOA # 21A), Oberon 2SC (spiromesifen, MOA 23), and Nealta (cyflumetofen, MOA # 25). Since each of these miticides kills by contact; they have no systemic or translaminar properties, thorough coverage is essential.

Elsewhere in South Florida, spidermites remain very low.

Diseases

Bacterial Spot

On the East Coast, bacterial spot has increased in severity and incidence in a lot of pepper and tomato. Bacteria is widely present in most hot varieties. Scouts report some bacteria showing up in race 1-5 resistant bell peppers. Growers report that race 1-10 resistant pepper varieties are holding up like a champ.

Around Southwest Florida, bacterial spot continues to cause problems in tomatoes. Bacterial spot remains sporadic in peppers with some fields dropping leaves while others are still clean.

Respondents in the Manatee Ruskin area report bacterial spot has jumped up in some fields recently but note that overall it remains relatively low.

Bacterial spot is increasing in severity and occurrence in pepper and tomato in the Homestead area.

Target Spot

Growers and scouts report that target spot remains rampant in remaining tomato the Manatee/Ruskin area and has taken out the bottom half of the bush in many places.

Around Immokalee, target spot has been horrible the past few weeks and is affecting fruit and pack outs.

On the East Coast, target Spot is increasing in some older tomatoes and is also present at low levels in cucumber.

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.

Botrytis

Respondents have reported some problems with Grey mold or botrytis on tomato in the Manatee Ruskin area and around Southwest Florida

Botrytis can affect all aboveground plant parts of tomato in the field. This fungus occurs as both a pathogen and a saprophyte causing diseases such as damping off, blossom drop, stem girdling, foliar blighting, and postharvest rots.

Tomato leaf and stem lesions are tan to brown in color. Stem infections occur during periods of high humidity through leaf scars, cracks, and pruning wounds. Spores can remain dormant for up to 12 weeks within pruning leaf scars and are triggered to germinate during plant stress.

Stem lesions may expand in concentric rings to girdle the entire stem causing wilting above the infection site. Flower petals are very susceptible and can initiate infection of pedicels and developing fruit. Fruit lesions are typically a whitish soft rot and often the skin ruptures near the center of the decayed area allowing spores to form on exposed tissue. Small 3-8 mm whitish rings on the fruit surface are aborted botrytis infections known as ghost spots which reduce market quality.

High humidity and cool to moderate temperatures favor disease development.

Growers should avoid working in wet plants and apply fungicides preventatively prior to dense canopy growth. Endure, Priaxor, and Inspire Super have shown good efficacy against this disease.

Anthracnose

Anthracnose has been troublesome on some pepper around South Florida, particularly on suntan fruit.

Fruit symptoms initially begin as water-soaked lesions that become soft, slightly sunken, and become tan. Circular or angular sunken lesions may develop on immature fruit of any size and multiple lesions may form on individual fruit.

In many cases, pink to orange masses of fungal spores in concentric rings may be observed on the surface of the lesions. In older lesions, black structures called acervuli may be seen. With a hand lens, these look like small black dots; under microscopy, the spores bear tufts of tiny black hairs (setae). The pathogen forms spores quickly and profusely and can spread rapidly throughout a pepper crop

Infection typically occurs during warm, wet weather. Temperatures around 80° F are optimum for disease development, although infection occurs at both higher and lower temperatures. Severe losses occur during rainy weather because the spores are washed or splashed to other fruit resulting in more infections. The disease is more likely to develop on mature fruit that is present for a long period on the plant, although it can occur on both immature and mature fruit.

When disease is present, labeled fungicides such as chlorothalinil (Bravo), various strobilurin fungicides (Amistar, Cabrio, Flint, Heritage, or Quadris) and Tanos will help control the disease

<u>Early Blight</u>

Low levels of early blight continues to show up on tomatoes around South Florida

Foliar symptoms generally occur on the oldest leaves and start as small, pencil-point-size, brownish to black lesions. These leaf spots enlarge up to ½ inch (1.3 cm) in and usually have readily visible, concentric rings that look somewhat like a bull's-eye. These concentric leaf spots are distinctive enough to make early blight one of the easier tomato diseases to diagnose.

The area around the spot may become yellow, as may entire severely affected leaves. Early blight symptoms are most pronounced in the lower canopy. Under favorable conditions, significant defoliation of lower leaves may occur, leading to sunscald of fruit.

Green or red fruit may be infected by the fungus which invades at the point of attachment between the stem and fruit, and through growth cracks and wounds made by insects. Dark lesions enlarge in a concentric fashion and may affect large areas of the fruit. Mature lesions in fruit are typically covered by a black velvety mass of fungal spores.

Stem lesions are dark, slightly sunken and enlarge concentrically. Basal girdling and death of seedlings may occur.

<u>Alternaria</u>

In the EAA, respondents report significant issues with Alternaria particularly on older beans which saw a lot of rain.

Report from Homestead indicate that Alternaria leaf spot is increasing on some cucurbits such as bitter melon.

<u>Erwinia soft rot</u>

A number of pepper and some tomato growers around South Florida are reporting problems with Erwinia soft rot causing usually high fruit losses in the field as fruit literally melt down just before

harvest. This problem has been favored by this season's high humidity, frequent rain fall and unseasonably warm temperatures.

On pepper, the fleshy fruit peduncle is highly susceptible and is frequently the initial point of infection. Both ripe and green fruit may be affected. Initially, the lesions on the fruit are light to dark-colored, water-soaked, and somewhat sunken. The affected areas expand very rapidly, particularly under high temperatures, and tissues lose their texture.

The problem with bell pepper is the presence of openings around the calyx that can allow rain water to actually enter the fruit. Any pathogens, such as Erwinia, would be carried inside to that warm, moist, protected environment. Once this occurs, no amount of postharvest sanitizing will remove it.

In later stages, bacterial ooze may develop from affected areas, and secondary organisms follow, often invading the rotted tissue. The affected fruit hang from the plant like a water-filled bag.

Growers should avoid cultural operation and harvesting while plants are wet. Tanos tank mixed with copper may provide suppression if applied preventatively in the field. Good irrigation management may reduce cracking and may also reduce problems with soft rot.

Bottom rot

Dr Richard Raid, Pathologist at the UF/IFAS EREC, reports that bottom rot on lettuce caused by *Rhizoctonia solani* is causing major problems in the EAA. Warm, very moist soil conditions are very conducive right now. The disease starts at the basal stem and infects leaves in contact with the ground, and the mycelial web moves right up into the head. Although you can cut above it in some cases, trimming is sometimes so severe that you can't make head weight. Rick notes that this is the worst season for bottom rot he has ever seen. Fungicide programs pretty much have to be preventative, getting soil coverage at or even before thinning.

Downy mildew

Respondents in Palm Beach County report that downy mildew continues to affect squash and cucumber and has reached high levels in some plantings.

Around Southwest Florida, downy mildew remains a problem on cucumbers and squash and incidence is high in older squash and cukes.

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 cucumbers.

On the East Coast, powdery mildew continues to affect squash.

Powdery mildew is also causing problems on squash around Homestead.

Fusarium wilt

Fusarium wilt race 3 continues to cause problems in a number of fields around Manatee County.

Low levels of fusarium are also showing up around Southwest Florida.

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.

Gummy stem blight

Around Southwest and South Central Florida, growers and scouts report that gummy stem blight has slowed greatly in recent weeks but is still present in some watermelon.

Phytophthora

Growers and scouts report that *Phytophthora capcisi* is causing a number of problems in areas affected by recent heavy rains.

Around Homestead, severe losses are being reported in squash affected by recent flooding.

Around Palm Beach County, Phytophthora has greatly increased in peppers including both bell pepper and hot peppers.

***Phytophthora capsici* may survive in and on seed and host plant debris in the soil by means of thick-walled, sexually-produced spores (oospores).** Both mating types of the pathogen necessary for oospore production are present in Florida. The pathogen produces spores of another type called zoospores that are contained within sac-like structures called sporangia.

Zoospores are motile and swim to invade host tissue. Plentiful surface moisture is required for this activity. The sporangia are spread by wind and water through the air and are carried with water movement in soil. Phytophthora is also moved as hyphae (microscopic fungal strands) in infected transplants and through contaminated soil and equipment.

Since water is integral to the dispersal and infection of P. capsici, maximum disease occurs during wet weather and in low or waterlogged parts of fields. Excessive rainfall, coupled with standing water creates ideal conditions for epidemics caused by P. capsici. Growth of this pathogen can occur between 46 -99°F, but temperatures between 80-90°F are optimal for producing zoospores and infection. P. capsici can rapidly affect entire fields. Under ideal conditions, the disease can progress very rapidly and symptoms can occur 3-4 days after infection.

Planting sites should be well drained and free of low-lying areas. Optimal water management is essential to prevent the occurrence of flooded field conditions that favor Phytophthora blight.

Preplant fumigation may help reduce the incidence of disease but is not particularly effective.

Effective, labeled fungicides should be used preventively according to label instructions. It is essential that fungicides with different modes of action be rotated to prevent the buildup of fungicide resistance in P. capsici. Consult UF/IFAS recommendations for currently labeled fungicides for Phytophthora control in Florida vegetables.

Pythium

Respondents in the EAA report that, aerial Pythium is present on snap beans in a number of locations. Like white mold caused by Sclerotinia, this can cause additional losses in during transport and storage.

Pythium is also causing problem in a number of areas in Homestead and the East Coast affected by recent heavy rains.

Southern Corn Leaf Blight

Respondents in the EAA note that southern corn leaf blight remains active in sweet corn in the Glades and has increased in severity following recent rains undoubtedly aided by unseasonably warm weather.

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

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

Lesions caused by southern corn leaf blight are much smaller (up to ½ inch wide and 1 inch long) than those caused by northern corn leaf blight. 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*.

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

Fungicides should be applied early, particularly if the forecast is for warm, humid weather. As with northern corn leaf blight, the sterol inhibitors and strobilurin fungicides are most efficacious. These products should be used together with a broad spectrum protectant to minimize development of fungal resistance.

Southern Corn Rust

Low levels of southern corn rust are also present on sweet corn in the Glades.

Both common rust and southern corn rust produce similar symptoms with the formation of spore-bearing, reddish-orange to brown pustules (uredia) on leaves or husks.

Common rust typically produces pustules without a peridium or covering over the pustule. The pustule of southern corn rust is normally persistent. The color of the spore mass of common rust tends to be chocolate brown while that of southern corn rust tends to be orange.

The shape of the pustule also varies between the two diseases. Common rust tends to have elongated pustules and southern corn rust has somewhat rounded pustules.

Another distinguishing characteristic is the fact that the formation of pustules on the lower surface of the leaf is delayed and often absent with southern corn rust.

Identification of which rust is present can be done quickly with a microscope. The rounded urediospores of common rust tend to be uniform in diameter whereas those of southern corn rust are oblong in shape.

Spray programs should begin at the first sign of rust. Foliar blights and rust may be successfully controlled using fungicides, if host-plant resistance is insufficient. Strobilurin and triazole fungicides work well should be used in a program with the broad-spectrum protectant mancozeb. Several sprays may be required.

Cercospora leaf spot

Lettuce growers in the Glades are reporting some problems with Cercospora leaf spot. Leaf spot is caused by the fungus (*Cercospora longissima*). Leaf spot is generally a fall disease due to the warm weather and has been particularly active this fall due to unseasonable hot weather.

The disease is generally controlled incidentally with a prophylactic program of various strobulurin fungicides. Fontelis has also proven effective in providing control.

Inoculum comes in from weeds, so keeping clean ditch banks and disking down harvested fields are the cultural practices used to reduce this disease.

Cercospora has also been rampant in celery and beets.

Cladosporium

Reports from the EAA note that Cladosporium and Stemphylium leaf spots deserve serious attention on spinach, requiring fungicide applications. Both diseases may be seed-borne.

Basil Downy Mildew

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

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.

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 growers report that they are beginning to see symptoms of the disease in tomato. Incidence is mostly low at 1% or less in most fields.

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.

<u>Tomato Yellow Leaf Curl</u>

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

November 2015 Weather Summary - Unseasonably Warm

December 2, 2015: Temperature and humidity more typical of the middle of May predominated across south Florida in November. Average temperatures reflected in the image below are anywhere between 3 and 6 degrees above normal for November.

The main influence in last month's warm weather was a persistent and strong area of high pressure in the mid to upper levels over the eastern half of the United States. This pattern helped to keep cold fronts from making southward progress across south Florida. The end result was a total of three fronts stalling near or just south of Lake Okeechobee and only one clean frontal passage. The coolest temperatures of the month (and the only time in which temperatures were below normal) occurred in the wake of the cold front which passed on November 22nd. Low temperatures were in the 50s and 60s across the area on the mornings of the 23rd through 25th.

Below is additional temperature data for the four main climate sites.

- Miami International Airport had an average November high temperature of 84 degrees and an average low temperature of 73 degrees. The average temperature of 78.4 degrees was 3.5 degrees above the 30-year normal

for November. The warmest temperature was 89 degrees on the 10th and the coolest was 63 degrees on the 24th. A total of six daily warm minimum temperature records were either tied or broken.

For the fall season (September – November), it was the 2nd warmest on record with an average temperature of 80.7 degrees, falling just short of the record of 81.0 degrees set in 1986.

- Palm Beach International Airport had an average November high temperature of 84 degrees and an average low temperature of 73 degrees. The average temperature of 78.1 degrees was 5.3 degrees above the 30-year normal for November. The warmest temperature was 90 degrees on the 10th and the coolest was 60 degrees on the 23rd and 24th. A total of four daily warm minimum temperature records were either tied or broken.

For the fall season (September – November), it was the 2nd warmest on record with an average temperature of 79.8 degrees, falling just short of the record of 80.1 degrees set in 1986.

- Fort Lauderdale/Hollywood International Airport had an average November high temperature of 84 degrees and an average low temperature of 74 degrees. The average temperature of 78.9 degrees was 3.4 degrees above the 30-year normal for November. The warmest temperature was 88 degrees on the 10th and the coolest was 62 degrees on the 24th. A total of 12 daily warm minimum temperature records were either tied or broken and one high temperature record was tied.

For the fall season (September – November), it was the warmest on record with an average temperature of 80.8 degrees, beating the old record of 80.6 set in 2007.

- Naples Municipal Airport had an average November high temperature of 86 degrees and an average low temperature of 71 degrees. The average temperature of 78.4 degrees was 6.3 degrees above the 30-year normal for November. The warmest temperature was 92 degrees on the 4th and the coolest was 57 degrees on the 24th. A total of 13 daily warm minimum temperature records were either tied or broken and six (6) high temperature records tied or broken, including the record for the month of 92 degrees on the 4th which was tied. Naples had five days of temperatures of 90 degrees or higher, the most of any November on record.

For the fall season (September – November), it was the warmest on record with an average temperature of 80.5 degrees, beating the old record of 80.2 set in 1946.

Precipitation

After a dry first part of November with little rainfall across south Florida, the first in a series of stalled fronts on the 12th led to a wetter period which lasted for most of the remainder of the month. Most areas recorded above normal precipitation for the month with anywhere from 4 to 8 inches across metro Broward and Miami-Dade counties. This wetter area extended west into the Everglades and Big Cypress areas all the way to portions of the Collier County coast.

A few drier spots were noted, primarily in the southern Everglades, Palm Beach County and west of Lake Okeechobee where rain totals were below normal, in the 2 to 3 inch range. Miami Beach recorded its second wettest November on record with 8.75 inches of rain, while Miami International Airport had its 6th wettest November with 7.55 inches.

According to data from the South Florida Water Management District, it was the wettest November since 1998 for the district.

A stalled front on November 14th and 15th led to periods of heavy rain with as much as 3 to 4 inches of rain in less than 12 hours across parts of southeast Florida. This resulted in street flooding across parts of the area.

Outlook for December to February

Latest outlooks by the NOAA Climate Prediction Center are for the current El Niño pattern to remain firmly in place through the winter. This means a rather high likelihood of above normal precipitation which is a typical winter sign of El Niño in the southern United States and Florida. The temperature outlook is a bit less certain, with the likelihood of continued warmer than normal temperatures in December possibly giving way to cooler than normal conditions in early 2016.

The main concern for the winter season is an increase in the number and frequency of low pressure systems affecting the Gulf of Mexico and Florida peninsula resulting from a stronger subtropical jet stream across the southern United States, a hallmark of winter El Niño. This sets the stage for an increase in storminess across Florida, including a higher risk of tornadoes, severe thunderstorms and flooding. There is also a tendency for more rainy winter days with possibly as many as 5 to 10 additional days with rain.

All persons are urged to remain aware of weather conditions, especially those with the potential of producing severe weather across Florida. Below are some good tips to stay safe from severe weather this winter.

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.

See full report with graphics at http://www.srh.noaa.gov/images/mfl/news/November2015Summary.pdf

Tomato grower loses case against FDA

By Coral Beach
The Packer
December 21, 2015

The owners of Seaside Farms Inc. have lost their $15 million case against the federal government related to erroneous reports in 2008 that tomatoes from the U.S. caused a salmonella outbreak.

The Food and Drug Administration ultimately reported the outbreak was caused by hot peppers from Mexico, but not until after issuing warnings to U.S. consumers about tomatoes.

On Dec. 15, U.S. District Court Judge C. Weston Houck granted the FDA's request for summary judgment and dismissed the 2011 lawsuit filed by Gray Sanders and other owners of Seaside Farms Inc., based on St. Helena Island, S.C. The operation grows, picks and packs more than 15 million pounds of tomatoes annually, according to court documents.

Owners of the family-owned tomato operation had sought about $15 million in damages and reimbursement for 400 acres of tomatoes they harvested just as FDA officials announced their warnings in 2008, according to court documents.

Seaside Farm's original complaint contended that FDA was guilty of negligence, defamation, violating the South Carolina Unfair Trade Practices Act and violating the U.S. Constitution. The grower-shipper claimed the government violated the Constitution's "takings clause" — sometimes called eminent domain.

Judge Houck dismissed the defamation and "takings" allegations previously.

The tomato growers had argued that FDA should have been more specific in its "recall" of tomatoes. The agency argued it never issued an official recall, only warnings about tomatoes.

“Because the announcement was unclear, the market value of South Carolina raw tomatoes plummeted from the mid-20s per box of tomatoes to approximately $10 per box of tomatoes. The resulting loss in value to Seaside’s property was over $15 million,” according to an affidavit from Seaside’s Sanders.

A similar lawsuit, brought by about 30 tomato other growers, ended with a similar ruling from Senior Judge Lynn Bush of the U.S. Court of Federal Court in Washington D.C.

“These FDA advisories fall within the rule of government actions that have no legal effect on property interests and that do not constitute regulatory takings,” the judge wrote in the opinion dismissing the case Sept. 18, 2014. http://www.thepacker.com/news/tomato-grower-loses-case-against-fda

NIMITZ Label Update - ADAMA announces newly approved revisions to NIMITZ 480 EC nematicide.

The new label reinstates tomatoes back onto the NIMITZ approved fruiting vegetables list (peppers, okra and eggplants), with use on cucurbits (cucumbers, watermelons, cantaloupe and squash).

Additionally, the new label no longer bears the direct-seeding restriction for all labeled crops. NIMITZ use in direct-seeding for approved labeled crops is applicable in all states excluding California.

California acceptance is expected within the standard seven-month process period for all agrochemical label expansions.

NIMITZ is a highly efficacious nematicide providing revolutionary control of plant-parasitic nematodes, simple application features and improved handling characteristics. It is the first new chemical nematicide to be developed in more than 20 years.

“Grower satisfaction with NIMITZ in its first year of commercial sales has exceeded the company’s expectations,” says Dave Rummel, Strategic Business Leader for ADAMA. “As a non-restricted use pesticide, NIMITZ fills an industry-wide demand for highly-effective nematode control as companies phase out older, more toxic and environmentally-hazardous nematicides.”

For more information, growers can contact their local distributor, call 866-406-6262, or go to adama.com.

Disaster Relief in Wake of Severe Flooding

Posted By: Paul Rusnak
Florida Grower
December 15, 2015

South Florida farmers are hoping for a life line following the deluge of precipitation that has recently swamped the region. (Note: heavy rains at the beginning of December dropped up to 10 or more inches of rain in some places in SW Miami Dade. – GM)

Florida Commissioner of Agriculture Adam Putnam, Congressman Carlos Curbelo, and Miami-Dade Mayor Carlos Gimenez met with several Miami-Dade County farmers to discuss the adverse effects of recent flooding on agriculture in the area.

The three officials also urged USDA Secretary Tom Vilsack to issue a Secretarial Disaster Determination for all counties in South Florida affected by recent flooding.

“Farmers in Miami-Dade County have suffered considerable losses due to recent flooding in the area, and Congressman Curbelo, Mayor Gimenez and I ask that USDA Secretary Vilsack issue a Secretarial Disaster Determination in order to assist these farmers,” Putnam said.

According to the National Weather Service, this year’s extra strength El Niño climate pattern will contribute to a wetter and stormier dry season across much of Florida. So far, this seems to be the case.

Miami-Dade County’s overall agriculture production generates more than $1.6 billion in annual economic impact and supports more than 11,000 jobs. Initial damage assessments include that producers have experienced 60% to 70% losses.

Up Coming Meetings

January 5, 2016 **UF/IFAS Southwest Florida Research and Education Center Dedication Ceremony** **10 AM**

Join UF President Kent Fuchs and Senior Vice President Jack Payne for the dedication ceremony to celebrate SWFREC’s new office and laboratory space.

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

RSVP to Becky Decker at 239-658-3420 or rdecker54@ufl.edu

January 7 -10, 2016 **2016 SE Regional Fruit and Vegetable Conference**

Savannah, Georgia

For registration and more info, go to http://www.seregionalconference.com/registration/

January 19, 2016 **Thrips Workshop** **11:30 AM – 3 PM**

UF/IIFAS Palm Beach Co Extension Office
559 N. Military Trail
West Palm Beach, FL 33415-1311

To register of for more info, contact Chris Miller at 561-233-1718 or CMiller@pbcgov.org

January 20, 2016 **Thrips Workshop**

Immokalee – time and location TBA

February 3, 2016 **Vegetable BMP Manual Kickoff**

UF/IFAS Southwest Florida Research and Education Center
2685 SR 29N
Immokalee, FL 34142

Websites

On Farm Food Safety Project - This website offers a free, easy-to-use online tool that allows small to mid-scale farmers to develop a customized food safety plan. Create a Food Safety Manual will prepare you for an actual food safety audit by helping you assess risk areas specific to your farm operation. In addition to generating a customized on-farm food safety plan, the tool will provide your farm with recordkeeping templates to help document your food safety program and employee training. http://onfarmfoodsafety.org/how-to-get-food-safety-certified/

Florida Memories - Featuring over 192,000 digitized photographs from the State Library and Archives of Florida, the Florida Photographic Collection is the most complete online portrait of Florida available--one that draws its strength from family pictures, the homes of Floridians, their work, and their pastimes. Check it out at: https://www.floridamemory.com/photographiccollection/

FDACs Office of Ag Water Policy - BMP Manuals – In addition to the newly revised Ag Row Crop BMP manual 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

Quotable Quotes

Christmas waves a magic wand over this world, and behold, everything is softer and more beautiful. - Norman Vincent Peale

Christmas is a time when you get homesick — even when you're home. - Carol Nelson

He who has not Christmas in his heart will never find it under a tree. - Roy L. Smith

The best of all gifts around any Christmas tree: the presence of a happy family all wrapped up in each other. - Burton Hillis

Happy, happy Christmas, that can win us back to the delusions of our childish days; that can recall to the old man the pleasures of his youth; that can transport the sailor and the traveler, thousands of miles away, back to his own fire-side and his quiet home! - Charles Dickens

'Twas Christmas broach'd the mightiest ale;
'Twas Christmas told the merriest tale;
A Christmas gambol oft could cheer
The poor man's heart through half the year.
- Walter Scott

Christmas is a necessity. There has to be at least one day of the year to remind us that we're here for something else besides ourselves. - Eric Sevareid

Our hearts grow tender with childhood memories and love of kindred, and we are better throughout the year for having, in spirit, become a child again at Christmas-time. - Laura Ingalls Wilder

Never worry about the size of your Christmas tree. In the eyes of children, they are all 30 feet tall. - Larry Wilde

I will honor Christmas in my heart, and try to keep it all the year. - Charles Dickens

May Peace be your gift at Christmas and your blessing all year through! - Author Unknown

On the Lighter Side

Gratitude

There was a man who worked for the Post Office whose job was to process all the mail that had illegible addresses. One day, a letter came addressed in a shaky handwriting to God with no actual address. He thought he should open it to see what it was about.

The letter read

Dear God,
I am an 83 year old widow, living on a very small pension.
Yesterday someone stole my purse. It had "$100" in it, which was all the money I had until my next pension payment.
Next Sunday is Christmas, and I had invited two of my friends over for dinner. Without that money, I have nothing to buy food with, have no family to turn to, and you are my only hope. Can you please help me?
Sincerely, Edna

The postal worker was touched. He showed the letter to all the other workers. Each one dug into his or her wallet and came up with a few dollars.

By the time he made the rounds, he had collected $96, which they put into an envelope and sent to the woman.

The rest of the day, all the workers felt a warm glow thinking of Edna and the dinner she would be able to share with her friends.

Christmas came and went. A few days later, another letter came from the same old lady to God. All the workers gathered around while the letter was opened.

It read:

Dear God,
How can I ever thank you enough for what you did for me?
Because of your gift of love, I was able to fix a glorious dinner for my friends. We had a very nice day and I told my friends of your wonderful gift.
By the way, there was $4 missing. I think it might have been those bastards at the post office.
Sincerely, Edna

The Spirit of Christmas

Bobby was getting cold sitting out in his back yard in the snow. Bobby didn't wear boots; he didn't like them and anyway he didn't own any. The thin sneakers he wore had a few holes in them and they did a poor job of keeping out the cold. Bobby had been in the backyard for about an hour already. And, try as he might, he could not come up with an idea for his mother's Christmas gift. He shook his head as he thought, "This is useless, even if I do come up with an idea. I don't have any money to spend."

Ever since his father had passed away three years ago, the family of five had struggled. It wasn't because his mother didn't care, or try, there just never seemed to be enough. She worked nights at the hospital, but the small wage that she was earning could only be stretched so far.

What the family lacked in money and material things, they more than made up for in love and family unity. Bobby had two older and one younger sister, who ran the household in their mother's absence. All three of his sisters had already made beautiful gifts for their mother.

Somehow, it just wasn't fair. Here it was Christmas Eve already, and he had nothing.

Wiping a tear from his eye, Bobby kicked the snow and started to walk down to the street where the shops and stores were. It wasn't easy being six without a father, especially when he needed a man to talk to.

Bobby walked from shop to shop, looking into each decorated window. Everything seemed so beautiful and out of reach.

It was starting to get dark and Bobby reluctantly turned to walk home when suddenly his eyes caught the glimmer of the setting sun's rays reflecting off of something along the curb. He reached down and discovered a shiny dime.

Never before has anyone felt as wealthy as Bobby felt at that moment.

As he held his new found treasure, a warmth spread throughout his entire body and he walked into the first store he saw.

His excitement quickly turned cold when the salesperson told him that he couldn't buy anything with only a dime. He saw a flower shop and went inside to wait in line. When the shop owner asked if he could help him, Bobby presented the dime and asked if he could buy one flower for his Mother's Christmas gift. The shop owner looked at Bobby and his ten cent offering.

Then he put his hand on Bobby's shoulder and said to him, "You just wait here and I'll see what I can do for you."

As Bobby waited he looked at the beautiful flowers and even though he was a boy, he could see why mothers and girls like flowers.

The sound of the door closing as the last customer left, jolted Bobby back to reality. All alone in the shop, Bobby began to feel alone and afraid.

Suddenly the shop owner came out and moved to the counter. There, before Bobby's eyes, lay twelve long stem, red roses, with leaves of green and tiny white flowers all tied together with a big silver bow.

Bobby's heart sank as the owner picked them up and placed them gently into a long white box.

"That will be ten cents young man," the shop owner said reaching out his hand for the dime.

Slowly, Bobby moved his hand to give the man his dime. Could this be true? No one else would give him a thing for his dime!

Sensing the boy's reluctance, the shop owner added, "I just happened to have some roses on sale for ten cents a dozen. Would you like them?"

This time Bobby did not hesitate, and when the man placed the long box into his hands, he knew it was true. Walking out the door that the owner was holding for Bobby, he heard the shop keeper say, "Merry Christmas, son."

As he returned inside, the shop keeper's wife walked out. "Who were you talking to back there and where are the roses you were fixing?"

Staring out the window, and blinking the tears from his own eyes, he replied, "A strange thing happened to me this morning. While I was setting up things to open the shop, I thought I heard a voice telling me to set aside a dozen of my best roses for a special gift. I wasn't sure at the time whether I had lost my mind or what, but I set them aside anyway.

Then just a few minutes ago, a little boy came into the shop and wanted to buy a flower for his mother with one small dime. "When I looked at him, I saw myself, many years ago. I too, was a poor boy with nothing to buy my mother a Christmas gift. A bearded man, whom I never knew, stopped me on the street and told me that he wanted to give me ten dollars.

"When I saw that little boy tonight, I knew who that voice was, and I put together a dozen of my very best roses." The shop owner and his wife hugged each other tightly, and as they stepped out into the bitter cold air, they somehow didn't feel cold at all.

May the spirit of CHRISTMAS be with you and all the best for a Joyous and Peace-filled Season.

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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