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SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

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Although a total of five cold fronts affected South Florida in November resulting in cooler than normal average temperatures for the month and setting record low daily maximum temp records in a number of locations. Overall, temperatures were all over the place with several South Florida locations also setting records for daily maximum temperatures between the passage of these fronts. Highs in some locations made into the low 90s while a number of evenings dipped into the low 40's and upper 30's.

The fronts also brought unsettled conditions and some rain to the area with most areas recording over an inch of rain for the period. Some areas including Manatee and Hillsborough Counties were especially hard hit with over 6 inches for the month, much of this coming in a single event just before Thanksgiving.

FAWN Weather Summary

Date	Air Temp °F		Rainfall (Inches)	Ave Relative Humidity (Percent)	ET (Inches/Day) (Average)
	Min	Max			
Balm					
11/9 – 12/4/14	38.08	84.63	6.98	82	0.07
Belle Glade					
11/9 – 12/4/14	42.12	90.16	1.26	87	0.07
Clewiston					
11/9 – 12/4/14	42.65	89.33	2.12	84	0.07
Ft Lauderdale					
11/9 – 12/4/14	51.30	86.47	3.71	80	0.07
Homestead					
11/9 – 12/4/14	51.98	88.27	1.59	85	0.08
Immokalee					
11/9 – 12/4/14	39.97	89.64	1.64	84	0.07
Okeechobee					
11/9 – 12/4/14	43.89	87.71	2.64	86	0.07

“Remember, when in doubt - scout.”

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Vegetable harvesting increased seasonally across south Florida in advance of the Thanksgiving Holiday with growers reporting generally good prices. South Florida farmers are harvesting green beans, beets, cucumbers, eggplant, herbs, kale, peppers, squash, strawberries, sweet corn, tomatoes, watermelon and a range of specialty items. Heavy rains in some areas of west central Florida affected crop quality with some disease issues, rain checking and cracking reported. In some places, heavy weather may result in an early end to the worse affected plantings.

The National Weather Service weather models are forecasting a weak cold front to push through the area into early Monday. The front should be rather diffuse as it makes its way through South Florida increasing rain chances only slightly for the east coast Sunday into Monday.

Behind the cold front, South Florida will be mainly influenced by an expansive Canadian surface ridge. For South Florida, this will translate into a persistent NNW flow with deep-layer dry air becoming entrenched over the region and for a 7-day rainfall prediction for South Florida near 0.

Despite sunny skies, temperatures will be below normal with highs mainly in the low 70s, although Wednesday maximum temps are expected to only be in 60s with lows over the interior in the 40s. Models continue to exhibit a run-to-run cooling trend, so forecast temperatures may need to be adjusted lower as time nears. For additional information, visit the National Weather Service in Miami website at <http://www.srh.noaa.gov/mfl/newpage/index.html>

Insects

Whiteflies

Around Immokalee, whitefly pressure dropped for a day or two following recent rains but is back up now and building in some older fields. Scouts report that nymphs are now developing in many early planted crops which could provide a good supply of adults migrating into younger crops over the next few weeks.

Reports from Homestead indicate that silver leaf whitefly numbers are increasing and TYLCV is present in many tomato fields.

Dr Dak Seal reports that in trials at TREC, Admire at plant followed by drip application of Verimark (28 DAP) and foliar application of Venom (49 DAP) plus Knack alternated with Movento and Requiem provided significant control of silverleaf whitefly and TYLCV. This program also significantly reduced Groundnut Ring Spot Virus by reducing the thrips vector.

Around Palm Beach County, whiteflies remain mostly low.

In the Manatee/Ruskin area growers and scouts report whiteflies are getting “crazy” with abundant number of adults and virus present in older plantings.

Management of Whiteflies, Whitefly-Vectored Plant Virus, and Insecticide Resistance for Vegetable Production in Southern Florida

Recommendations

A. Crop Hygiene.

Field hygiene should be a high priority and should be included as 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.

1. Establish a minimum 2 month crop free period during the summer, preferably from mid-June to mid-August in south and south central Florida.
2. Disrupt the virus-whitefly cycle in winter by creating a break in time and/or space between fall and spring crops, especially tomato.
3. Destroy crops quickly and thoroughly after harvest, killing whiteflies and preventing re-growth.
 - a. Promptly and efficiently destroy all vegetable 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 kill whiteflies quickly.
 - 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.

B. Other Cultural Control Practices.

Reduce overall whitefly populations, regardless of biotype, and avoid introducing whiteflies and TYLCV into crops by strictly adhering adherence to correct good cultural practices.

1. Use proper pre-planting practices.
 - a. Plant whitefly and virus-free transplants.
 - b. Delay planting new fall crops as long as possible.
 - c. Do not plant new crops near or adjacent to old, infested crops.
 - d. Use determinant varieties of grape tomatoes to avoid extended cropping season.
 - e. Use TYLCV resistant tomato cultivars (see additional information below for list) where possible and appropriate, especially during historically critical periods of high virus pressure. Whitefly control must continue even with use of TYLCV resistant cultivars because these cultivars can still carry host the virus.
 - f. Use TYLCV resistant pepper cultivars (see additional information below for a source of a list) when growing pepper and tomato in close proximity.
 - g. Use UV reflective (aluminized) mulch on plantings that growers find are historically most commonly infested with whiteflies and infected with TYLCV.
2. Use proper post-planting practices.
 - a. Scout for whitefly adults and apply a short reentry interval insecticide if necessary prior to cultural manipulations such as pruning, tying, etc.
 - b. 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, and disposed of as far from production fields as possible.
 - c. Manage weeds within crops to minimize interference with spraying.
 - d. Dispose of cull tomatoes as far from production fields as possible. If deposited in pastures, fruit should be spread instead of dumped in a large pile to encourage consumption by cattle. The fields should then be monitored for germination of tomato seedlings, which should be controlled by mowing or with herbicides if present.
 - e. Avoid u-pick or pin-hooking operations unless effective whitefly control measures are continued.
 - f. Destroy old crops within 5 days after harvest, destroy whitefly infested abandoned crops, and control volunteer plants with a desiccant herbicide and oil.
 - g. Plant non-host cover crops such as Sudex during summer fallows or rye grass during winter to discourage weeds and volunteer crop plants from growing and being infested by whiteflies.

C. Insecticidal Control Practices.

1. Delay resistance to neonicotinoid and other insecticides by using a proper whitefly insecticide program. Follow the label!
 - a. On transplants in the production facility, apply a neonicotinoid one time 7-10 days before shipping. Use products in other chemical classes, including Fulfill, soap, etc. before this time.
 - b. Use a soil application containing a neonicotinoid (group 4A) or cyantraniliprole (group 28) only once during each 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.
 - c. 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.
 - d. Use selective rather than broad-spectrum control products where possible to conserve natural enemies and enhance biological control.
 - e. 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.

After the residual effects of soil-applied nicontinoids abate, growers may turn to a variety of materials to suppress whitefly populations. These include insecticidal soaps and oils, IGR's such as Knack. In recent trials, pymetrozine – (Fulfill- Syngenta) has been demonstrated to be effective in preventing viral transmission by whiteflies. Movento (spirotetramat – Bayer) and Oberon (spiromesifen – Bayer) have given excellent control of whiteflies in University trials.

It's important to note that Belt (flubendiamide) and Coragen (chlorantraniliprole) are diamide insecticides used to manage caterpillar pests on tomato and other horticultural crops, and Coragen is also used for leafminer control. Durivo® (Syngenta) contains chlorantraniliprole and thiamethoxam, the same active ingredients as Coragen and Platinum. With the registration of Verimark, diamide insecticides are now available to target pests of tomato at each stage of its development: nursery, at-planting, through vegetative and fruiting stages. The risk is high that sweetpotato whitefly and other pests of tomato will develop resistance to diamide insecticides if they are overused. Growers using Verimark for early season protection against sweetpotato whitefly and TYLCV should not use Group 28 insecticides for management of leafminer and caterpillars in the same crop or at a minimum should avoid the use of this mode of action for at least five weeks after the application of Verimark.

Organic growers can use biocontrols like Mycotrol- *Beauveria bassiana* , insecticidal soaps, oils and Neem based materials (note: use of Neem products is provisionally allowed but regulated – check OMRI for status) for whitefly management.

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

Leafminer

Growers and scouts in SW Florida, leafminer pressure is increasing each week with a few tomato fields being treated for control.

On the East Coast, leafminer pressure is building and growers report moderate pressure in tomato and eggplant.

In the Manatee/Ruskin area, respondents note that leafminer pressure remains steady but growers are not spraying as crops near termination.

Respondents in the EAA note that leafminer pressure is increasing on a variety of crops.

Reports from Homestead indicate leafminers are high in most host crops. Dr. Dak Seal, Entomologist at TREC reports Verimark or Coragen at planting is providing significant control of leafminers. Spintor and Agrimek are also similarly effective in controlling leafminers on vegetable crops.

The two major species of leafminer that cause problems in vegetables in Florida are the vegetable leafminer (*Liriomyza sativae*) and the American serpentine leafminer (*L. trifolii*).

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

The adults are small yellow and black flies about the size of a gnat. The female punctures or "stipples" the leaves with her ovipositor to lay eggs in the leaf tissue or to feed on sap.

Leafminer damage is easily recognized by the irregular serpentine mines in leaves. The tunnel is clear with a trail of black fecal material left behind as the maggot feeds.

Both leafminers have a wide host range including bean, beet, carrot, celery, cucumber, eggplant, lettuce, melon, onion, pea, pepper, potato, squash, and tomato. There are many other hosts and numerous broad-leaved weed species can harbor leafminers in Florida.

An integrated pest management program that stresses conservation of natural enemies is important for the successful control of leafminer. Chemical control can be difficult due to the feeding habits inside the leaf of the host plant. Insecticides that specifically target the leafminer are recommended as use of broad-spectrum materials may decimate beneficial insects including those that attack leafminer. This often results in a larger leafminer problem if the pesticide reduces numbers of leafminer parasites.

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

To determine whether leafminer larvae are dead or alive, leaflets can be held up to the sun and examined with a hand lens. Living larvae are a pale yellow and flush with the end of the mine. The back and forth feeding movements are readily visible, although movement may cease when larvae are disturbed or molting. Dead larvae do not show movement and are usually discolored and removed from the ends of mines. Therefore, it is important that the scouting program include not only an assessment of the number of leafminers present but also the natural enemies.

Cyromazine (Trigard) alternated with abamectin (Agrimek) are effective against leafminer in tomato. Both of these products have limited crop registrations and must not be used on unregistered crops. Dow products Spintor (Spinosad) and Reliant (Spintoram) have also given good results and are labeled on a wide range of crops. Some other materials that may be used to conserve beneficials include azadirachtin (Neemix) and insecticidal oils. Both products are approved for use by organic growers as is Conserve (spinosad).

The newest addition to the grower's arsenal of control are the diamide insecticides – Verimark, Exeril (cyazypr) and Coragen (rynaxpyr) DuPont, which have given good results and have virtually eliminated leaf miner pressure on many farms. Since these materials are often used to target other pests growers should be careful to rotate modes of action and avoid back to back applications.

Field sanitation is another important control tactic. Weeds and abandoned crops can serve as reservoirs for this pest. After harvest crops should be destroyed as soon as possible to avoid having them serve as reservoir for new infestations.

Worms

Respondents in Southwest Florida report that worms are still around but note that pressure has declined from a few weeks ago,

In Palm Beach county and east coast locations, worms remain mostly low across a range of crops and locations with a few beet and southern armyworms showing up in places.

Around Homestead, worms including fall armyworm, beet armyworm, leafrollers, melonworm and diamondback moth are present in moderate numbers with some hotspots noted where pressure is severe.

Around the Manatee/ Hillsborough area, growers and scouts report low to worm moderate pressure and that controls are mostly effective as they are finding lots of dead armyworms but note that loopers have been harder to kill.

Pepper Weevil

Around Southwest Florida, pepper weevils are active and several pepper fields have some larvae developing inside fruit.

On the East Coast, pepper weevils remain mostly low but are showing up in some mature to old pepper plantings.

Growers and scouts in Hillsborough County report mostly light weevil activity in peppers.

In the Homestead area pepper weevil remains a major threat.

Dr. Dak Seal, Entomologist at TREC advises growers to scout fields routinely to determine the beginnings of infestations. This can be done by visually inspecting the field and also by using yellow sticky traps. Once infestation is detected, growers should start applying chemical insecticides such as Actara, Vydate, the diamides and pyrethroids in a program to control pepper weevil.

Thrips

Reports from Palm Beach County indicate that thrips numbers are beginning to build in pepper with scouts find thrips in 10-30 % blooms in some areas. Scouts are also find thrips larvae as well.

Thrips numbers are lower around Naples with scouts finding 1-2 adults per bloom in pepper.

Thrips have also been causing some problems in pepper in the Manatee Ruskin area.

Around Homestead, melon thrips populations are at damaging levels on bean, squash, cucumber, and eggplants. Dr. Dak Seal, Entomologist at TREC cautions that in the absence of a proper management program, the melon thrips situation could get worse in the rest of the fall and in the spring season. He advises growers to carefully check every planting for population abundance before using any insecticide spray.

Dak notes that use of Radiant, Belay, Venom, Movento, Torac, Beleaf, Agrimek and Lannate in rotation or in combination will provide significant reduction of melon thrips. In his research, a significant

reduction in thrips population was observed when various insecticides were used weekly in a program: Radiant in combination with Requiem followed by Closure + Movento, followed by Tolfenpyrad + Lannate, followed by Belay + Beleaf.

Growers should also avoid planting new crops by an old host crop. Newly planted crops are attractive to melon thrips adults. Destroy old crops to discontinue migration of thrips to the nearby crop field. Soil preparation should be thorough to destroy pupae of melon thrips.

Flower thrips are also abundant around Homestead and symptoms of the Tospoviruses including Groundnut Ring Spot Virus (GRSV) and Tomato Chlorotic Spot Virus (TCSV) are increasing in tomato fields.

Thrips vectored Groundnut Ring Spot Virus (GRSV) and Tomato Chlorotic Spot Virus (TCSV) is also affecting a few tomato plants here and there around the Boynton area.

Dr Dak Seal notes that newly planted tomatoes are vulnerable and rapidly attacked by this group of virus if thrips are present. Tray treatment of Verimark followed by Venom, Radiant and Movento significantly reduced Tospovirus incidence when compared with other treatments applied on foliage or as a soil drench at planting. This method of applying Verimark was also effective in reducing silverleaf whitefly transmitted TYLCV.

Dak reports that in Miami-Dade County, spring 2014 was a bad flower thrips season and most tomato plantings were infected with flower thrips transmitted GRSV. In his research studies, GRSV like symptoms on tomato were significantly reduced by using an insecticide program consisting of Radiant, Exirel, Lannate, Agrimek, Movento and Requiem. This program was initiated two weeks after planting and continued weekly until first harvest.

Silk fly

In the Glades, silk fly numbers remain very low and primarily restricted to areas that tend to harbor them.

In the Homestead area, corn silk fly numbers have been high over the past few weeks. Growers should anticipate a rapid increase in silk fly populations after the first harvest of tomato and other vegetable crops. Papaya, guava, banana, sorghum and other alternate host crop also increase silk fly populations. Attention should be given to cleaning up fallow fruit crops near sweet corn fields if possible.

Dr. Dak Seal, Entomologist at TREC reports that pyrethroids, Lannate, Lorsban and Malathion may be used weekly to suppress silk fly populations.

Sweetpotato Weevil

Dr Dak Seal reports that sweetpotato weevils are abundant on boniato sweetpotato around Homestead. Lannate, pyrethroids and Sulfoxaflor (Closer) provided significant reduction of sweetpotato weevil in his laboratory and field studies.

Aphids

Respondents indicate that aphids are beginning to move around Southwest Florida and some colony formation has been noted in a few places.

Growers and scouts report that aphid numbers remain mostly low around Palm Beach County.

Around Homestead, aphid numbers are high

Dr. Dak Seal, Entomologist at TREC reports that Sulfoxflor (Closer – Dow Agrosciences) is the best insecticide to control green peach aphid. Most of the neonicotinoids will also provide aphid control.

Broad Mites

Broad mites remain active on pepper and eggplant around South Florida but respondents indicate while that pressure has been declining, there have been a few flair ups reported.

Spider mites

A few spider mites have been reported on older tomatoes and eggplants around South Florida.

Diseases

Target spot

Around Immokalee, target spot becoming more widespread in tomato in a number of locations.

Target spot is also widely present around Manatee County.

In East Coast production areas, target spot is common on some older tomato.

Target spot is frequently misdiagnosed as in its early stages as symptoms are difficult to recognize and can be confused with bacterial spot and early blight.

The name derives from the bull's eye appearance that is often displayed in lesions caused by the disease. Since concentric rings are not always visible and not all lesions with concentric rings are target spot, it is recommended that a laboratory diagnosis be obtained to ensure that a correct diagnosis is made.

On tomato leaves and stems, foliar symptoms of target spot consist of brown-black lesions with subtle concentric rings giving them a target-like appearance. These can sometimes be confused with early blight. With early blight, the lesions are often associated with a general chlorosis of the leaf.

On tomato fruit, lesions are more distinct. Small, brown, slightly sunken flecks are seen initially and may resemble abiotic injury such as sandblasting. As fruits mature the lesions become larger and coalesce resulting in large pitted areas. Advanced symptoms include large deeply sunken lesions, often with visible dark gray to black fungal growth in the center. A zone of wrinkled looking tissue may surround the margins of lesions on mature fruit. Placing suspect fruit in a moist environment for 24 hours will often induce the growth of dark gray mycelia providing telltale diagnostic evidence of target spot infection.

Growers often focus on bacterial spot management early in the season and fail to target spot as canopies develop and conditions become more conducive to target spot. Typically as we transition from the wet to the dry season, bacterial spot declines only to be replaced by target spot as the major foliar tomato pathogen. Tank-mix sprays of copper fungicides and maneb targeted against bacteria do not provide acceptable levels of target spot control (and are not much use on bacteria either) and growers should consider rotating in protectant sprays of Bravo and then moving to more efficacious materials once target spot is found in the field – see below.

Strategies for the management of this disease require an integrated approach for best results. Growers should rotate fields to avoid carryover on crop residue and avoid rotations among solanaceous crops.

Currently, target spot is controlled primarily by applications of protectant fungicides. It should be noted that tank-mix sprays of copper fungicides and maneb do not provide acceptable levels of target spot control.

In recent trials, at the University of Florida fungicides were rated for efficacy as follows:

- 1) Switch, Inspire Super**
- 2) Revus Top, Scala**
- 3) Tanos, Endura, Quadris (and other strobilurins), Reason**
- 4) Bravo (chlorothalonil)**
- 5) Mancozeb, Copper**

Bacterial Spot

Around SW Florida, scouts report that some new bacterial spot is being found in tomato and pepper.

In the Manatee/Hillsborough area, bacterial spot is widely present in older tomatoes especially in the wake of recent heavy rains.

On the East Coast, bacterial spot incidence is increasing in tomato and pepper.

Bacterial spot is present on pepper and tomato around Homestead.

Dr Gary Vallad, Plant Pathologist at the Gulf Coast Research and Education 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 more at: <http://www.thegrower.com/news/274752851.html?view=all#sthash.qq66ecsy.dpuf>

Bacterial Speck

Bacterial speck is widely present on tomato in west central Florida. Incidence and severity is moderate to severe in some places and fruit infections have been reported.

Bacterial speck of tomato, caused by *Pseudomonas syringae* pv. *tomato*, is a disease of increasing importance to Florida fresh-market tomato production.

Tentative field diagnosis of bacterial speck is best accomplished by inspection of fruit symptoms. Speck lesions on green fruit are small, sunken, black spots surrounded by darker green haloes. On ripe fruit, spots are dark brown to black, superficial flecks.

Foliage symptoms of bacterial speck are much more difficult to distinguish from other diseases. The leaf spots are small, black lesions surrounded by prominent chlorotic (yellow) haloes. These haloes are quite large, averaging twice the size of the necrotic tissue they surround. Bacterial speck lesions are very superficial and do not crack or become scaly like spot.

Lesions in the stems are dark brown to black and shaped like elongated ovals in severe cases extensive stem lesions may result from a wash of many bacterial cells over stem sections producing large blighted areas.

Early Blight

Early blight has been reported on some tomatoes in Charlotte County and the Manatee Ruskin area. Some fruit infections have been noted.

Downy Mildew

Around Southwest Florida, downy mildew remains widespread on cucurbits and is being reported on watermelon, squash and cucumbers.

Downy mildew is also present on cucumbers in Palm Beach County.

In the Homestead area, respondents indicate downy mildew is moderate to severe on some squash and other cucurbits.

On cucurbits, downy mildew lesions start out as yellow angular leaf spots typically located away from leaf margins that will later turn brown to black in color. Often leaf curling and water soaking are associated with downy mildew. A white to grayish fungal growth will appear in the undersides of these lesions when the leaves are wet from heavy dews, rainfall and high humidity (> 90%).

Protectant fungicides (chlorothalonil and mancozeb) provide excellent control early in the season, but their effectiveness is limited once the disease becomes established.

Downy mildew has been reported to have resistance to Ridomil Gold and FRAC group 11 (e.g., Cabrio, Quadris) fungicides.

Revus, Ranman, Presidio and Previcur Flex are the recommended fungicides for downy mildew control once it is present. These fungicides should be mixed with a protectant fungicide to provide optimal control of downy mildew.

Basil Downy Mildew

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

Dr Rick Raid, pathologist at UF/IFAS EREC notes that recent weather with cool nights has been extremely favorable for development and will continue to ideal for disease development over the next few months.

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 Revus, Ranman, Quadris and Amistar (Azoxystrobin) and the phosphonic acids have shown efficacy in managing the disease.

These fungicides are most effective when applications are started before or just after initial symptoms are found.

Powdery Mildew

Around Hillsborough County, powdery mildew is showing in melons and strawberries.

Growers and scouts around Southwest Florida report that powdery mildew has increased in most cucurbits over the past few weeks, especially in squash and watermelons.

On the East Coast and in Homestead, powdery mildew is widely present on squash.

Powdery mildew is also present at low level in some strawberries.

Gummy stem blight

Growers and scouts around Southwest and West Central Florida report that gummy stem blight continues to move in watermelon fields and is also causing some problems in other cucurbits.

In recent years, strains resistant to the strobilurin fungicides have been detected throughout the Southeast, so it is important that growers practice resistance management and avoid repeated applications of these and all fungicides. Materials such as Folicur (Tebuconazole), Pristine (BASF) a mixture of boscalid and pyraclostrobin, and Topsin (thiophanate methyl) have shown good efficacy against resistant strains of the disease.

Newer materials such as Fontelis (penthiopyrad), Inspire Super (cyprodinil and difenoconazole) and Luna Experience (fluopyram) have all shown excellent control in trials.

Southern Blight

Southern blight continues to cause some issues around South Florida. Incidence and occurrence is mostly low. Some increase was noted in areas of Hillsborough and Manatee pounded by recent heavy rains.

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.

Alternaria Leaf Spot in Cilantro

Dr Richard Raid, Pathologist in EREC reports that growers are having widespread problems with Alternaria leaf spot on cilantro. Symptoms include small to medium size spots that develop on leaves. They are usually yellowish when young and later cause dark spots on leaves that may lead to leaf and petiole death. In severe cases, complete defoliation occurs.

Root and crown infections can cause damping-off of seedlings and chlorosis and collapse of older plants.

The disease is favored by warm, wet weather and typically occurs during or following wet winter weather in South Florida. Spores can be dispersed by wind, rain splash or through handling. The disease can be seed-borne.

Management and control:

- Plant in fields where cilantro or other hosts like parsley have not been planted for several years.
- Rotate crops regularly to discourage re-infection.
- Purchase high quality, pathogen-tested seed. seed from a reputable source.
- Hot water treated seed can reduce seed borne infections.
- Old plantings should be destroyed and disked in to avoid spread of the fungus to younger plantings.

Dr Raid advises that applications of fungicides are necessary for control. He reports that the strobilurins such as azoxystrobin (Quadris) are most efficacious, and should be rotated with a triazole such as propiconazole (Tilt) to prevent fungicide resistance.

Fusarium

Fusarium crown rot and Race 3 Fusarium is starting to show up in tomato fields around Immokalee and also in the Manatee Ruskin area especially in older planting heavily impacted by recent rains.

Southern Corn Leaf Blight

Around Belle Glade, southern corn leaf blight remains light in sweet corn.

Bacterial Blight

Respondents in Homestead continue to report some problems with bacterial blight (both common and halo blight) on beans.

Symptoms on leaves first appear as small, water-soaked spots which are usually more evident on the underside of the leaves. These lesions become larger and develop into dry, brown spots with distinct, rather narrow, yellow halos. As infection proceeds, the spots may coalesce, and the yellowing of leaves becomes more general.

Growers should avoid movement through and work in fields when plants are wet. This simple cultural practice can greatly reduce disease development and spread.

Applications of copper may provide some control once disease appears.

Tomato Yellow Leaf Curl Virus

Around the Manatee/Ruskin area, TYLCV is starting to increase in a number of areas and has become common in some fields.

Growers and scouts indicate that TYLCV incidence is beginning to increase slowly in a number of locations including SW Florida as well as Indian River, Martin and Palm Beach Counties with a few hot spots being noted.

Around Homestead, TYLCV can be found in most tomato fields.

Groundnut Ring Spot Virus and Tomato Chlorotic Spot Virus

Around Homestead, symptoms of the Tospoviruses, Groundnut Ring Spot Virus (GRSV) and Tomato Chlorotic Spot Virus (TCSV) are increasing in a number of tomato fields. Incidence and occurrence is low to moderate depending on the location.

Grower in the Boynton Beach area also report finding some plants showing symptoms of Groundnut Ring Spot Virus and Tomato Chlorotic Spot Virus.

News You Can Use

November 2014 Weather Summary - Cooler and Drier than Normal

December 1, 2014: Cooler than normal temperatures was the highlight of this past month's weather across south Florida, as a total of five cold fronts moved through the area. A strong and persistent mid-tropospheric trough over the eastern United States was the primary cause for the relatively high frequency of frontal passages and associated cool temperatures.

The coldest temperatures of the month occurred, interestingly enough, at the beginning of the month behind an unusually-strong cold front which moved through south Florida on the last day of October. Low temperatures in the 40s were recorded across most of the area on the morning of the 2nd, with upper 30s in a few spots west of Lake Okeechobee and lower 50s near the immediate southeast coast. Record low minimum and maximum

temperatures were set at Miami and West Palm Beach on this date, with record low maximums also set at Naples.

The first actual frontal passage of the month occurred on the 9th. Clouds and rain lingered behind this front and prevented high temperatures from reaching 70 degrees at both Naples and West Palm Beach (both sites established record low maximums of 69 degrees on the 9th). A weak front followed on the 14th with little noticeable temperature change. Temperatures soared into the mid to upper 80s on the 17th ahead of a strong cold front, setting daily high temperature records at Miami (87), Fort Lauderdale (87) and West Palm Beach (89). This front moved through on the 18th and was accompanied by cloudiness which lingered for several days after. The combination of the cooler air, clouds and precipitation prevented temperatures from reaching 70 degrees in most areas on the 18th and 19th. Miami (65) and Fort Lauderdale (66) both established record low maximum temperatures on the 19th, a far cry from just two days before.

Temperatures once again swung upwards at the beginning of Thanksgiving week ahead of yet another strong cold front. Low temperatures only dropped into the 60s and 70s for three consecutive days from the 23rd to the 25th. Record high minimum temperatures were either tied or broken at each of the four primary climate sites during this period, with both Fort Lauderdale and West Palm Beach setting records on three consecutive days (23rd through 25th).

The last two fronts of the month came in consecutive fashion on the 26th and 27th (Thanksgiving Day). The Thanksgiving Day front was a reinforcing shot of cool air which dropped temperatures into the 40s and lower 50s on the morning of the 28th; almost as cold as the temperatures experienced at the beginning of the month.

- Miami International Airport had an average November temperature of 72.6 degrees Fahrenheit. This is 2.3 degrees below the 30-year normal. The average high temperature was 80F and the average low was 65F. The warmest temperature was 88 degrees on the 24th and the coolest was 52 degrees on the 2nd.

- Palm Beach International Airport had an average November temperature of 71.0 degrees Fahrenheit. This is 1.8 degrees below the 30-year normal. The average high temperature was 79F and the average low was 63F. The warmest temperature was 89 degrees on the 17th and the coolest was 49 degrees on the 2nd.

- Fort Lauderdale/Hollywood International Airport had an average November temperature of 72.9 degrees Fahrenheit. This is 2.6 degrees below the 30-year normal. The average high temperature was 80F and the average low was 66F. The warmest temperature was 87 degrees on the 17th and 24th and the coolest was 52 degrees on the 2nd and 28th.

- Naples Municipal Airport had an average November temperature of 68.5 degrees Fahrenheit. This is 3.6 degrees below the 30-year normal and is the 10th coldest November on record. The average high temperature was 78F and the average low was 59F. The warmest temperature was 85 degrees on the 24th and 25th and the coolest was 48 degrees on the 27th and 28th.

Precipitation

Even though November had its share of cloudy days, there was a lack of measured high rainfall amounts. West Palm Beach (12), Fort Lauderdale (11) and Naples (7) exceeded their average number of November days with measureable precipitation. Rainfall amounts for the month ranged mostly from 2 to 4 inches, with the only areas to have above-normal precipitation confined to western Hendry and Glades counties and a small area in the southern Everglades.

Outlook for December to February

December is expected to start out on the mild and seasonably dry side with no strong cold fronts expected during the first 7-10 days of the month. A pattern change is possible during the second half of the month which could lead to below-normal temperatures and above-normal precipitation across south Florida. This pattern of below-normal temperatures and above-normal precipitation is favored by the NOAA Climate Prediction Center to persist during the winter of 2014-2015, with a greater confidence in above-normal precipitation.

This outlook is somewhat dependent on the possible development of an El Niño event this winter. There is nearly a 60 percent chance of El Niño developing this winter.

Freezes occur almost every winter over the typically colder areas around and west of Lake Okeechobee, with some years experiencing severe freezes and other years only mild ones. Although it is very difficult to predict the severity of any freezes this winter, we should be ready for the possibility of at least one freeze event. Freezing temperatures can occur all the way to the metro areas of south Florida during particularly strong cold snaps, with lower frequency than over interior areas.

With the prospect of above-normal precipitation across south Florida, there will likely be a few “storm days” as cold fronts move down the Florida peninsula and produce thunderstorms with heavy rain and gusty winds. Some of the stronger fronts can even produce tornadoes.

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 entire article with graphics at <http://www.srh.noaa.gov/images/mfl/news/Nov2014Summary.pdf>

Check your Irrigation Schedule

The dry season is entering its cold phase, this means evapotranspiration (ET) will be seasonally shutting down for the next three months.

From an irrigation perspective, even without any rain the water table only drops very slowly as a result and drip irrigation schedules that were adequate over the past few months may result in overwatering now.

It isn't until March, April and May that ET starts to crank back up. When that happens we will desperately depend on frontal rain showers to keep the water table from precipitously dropping down into deep drought.

Florida's minimum wage will rise to \$8.05 on Jan. 1

Florida workers who earn the minimum wage will get a 12-cent bump in their pay on Jan. 1.

The state's minimum wage will increase to \$8.05, up 12 cents from \$7.93 in 2014. For tipped employees, the minimum wage required is at least \$5.03 an hour.

With the increase, Florida's required minimum wage is nearly one dollar more than the federal minimum wage, which is \$7.25.

While raising the minimum wage has been controversial in other states, Florida's minimum is tied to inflation through a constitutional amendment passed in 2004. On Sept. 30 of each year, Florida's Department of Economic Opportunity recalculates the state's minimum wage as required by Florida's minimum wage law.

Florida law requires employers to post a minimum wage notice in a conspicuous and accessible place in the workplace.

Florida Minimum Wage poster available

The state has issued a new “Notice to Employees” poster that Florida employers will be required to post as of Jan. 1, 2015, announcing the new Florida minimum wage of \$8.05 per hour. Posters must be placed in a conspicuous and accessible location within each establishment where employees are employed. The poster is available for downloading in English and Spanish from the state Department of Economic Opportunity’s website. <http://www.floridajobs.org/business-growth-and-partnerships/for-employers/display-posters-and-required-notices>

Employers are also required to post the federal minimum wage poster, which is available at the U.S. Department of Labor website. <http://www.dol.gov/whd/regs/compliance/posters/flsa.htm>

Diseases don’t take Holidays!

Although many of us will be looking forward to the Christmas and New Year’s holidays and spending a few days off with family and friends - remember that plant diseases do not celebrate holidays.

This time of year we often experience unsettled weather and showers in advance of cold fronts in addition to heavy fogs and dews that keep plants wet for extended periods.

It is important to remember that most of our fungicides are protectants and must be present to prevent infection.

Looking back over the years, we often see an outbreak of various diseases 4-5 days after an extended holiday, which suggests growers may inadvertently let spray schedules lapse during the holiday period.

Late blight, which can be one of our most devastating diseases on tomatoes and potatoes, often makes its initial appearance in South Florida around Christmas.

Do you self a favor and make sure your crops are covered before kicking back and taking off for the holidays!

OPERATION CLEANSWEEP 2014

Statewide Pesticide Pick-up

Operation Cleansweep is a mobile pesticide collection program that provides a safe way to dispose of cancelled, suspended, and unusable pesticides at NO COST for the first 500 lbs. for: Farms/Groves, Nurseries, Pest Control Services, Greenhouses, Forestry, Golf Courses

Pesticide manufacturers/distributors can participate at the contracted rate.

For more information Contact:

Shannon Turner
Florida Department of Agriculture and Consumer Services
Toll-Free Number: (877) 851-5285
Email: Cleansweep@freshfromflorida.com

CLEANSWEEP WEBSITE: <http://www.dep.state.fl.us/waste/categories/cleansweep-pesticides/>

Up Coming Meetings

December 8, 2014 **Fall Vegetable Field Day** 9 AM - 1 PM

UF/ IFAS SWFREC
2685 SR 29 North
Immokalee, FL 34142

RSVP: call: (239) 658-3400 or email: ozores@ufl.edu

December 10, 2014 **Seminis 2014 Southeastern Field Day**

Seminis Research Farm
9567 State Road 29 South
LaBelle, FL 33935

The event will feature field and variety tours and a presentation on "Crisis Management and Recall Planning in the Produce Industry," with Amy Philpott, a senior director at Watson Green LLC, who specializes in crisis communication and reputation management for food and agriculture companies.

Should you have any questions about the registration, please contact Allison Lynn in Monsanto Meeting Services at allison.k.lynn@monsanto.com or by phone at (314) 694-4642.

December 18, 2014 **Bacterial Spot Resistant Pepper Variety Field Day** 9 AM – 11AM

Bedner Farms
Near the corner of US 441 and near 80th behind Pontano's – enter on rock road.
Delray Beach, Florida

December 19, 2014 **WPS Train the Trainer Class** **8:30 AM - Noon**

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

Classes are \$10 each. For more information or to register, contact Debra at 863-674-4092 or dcabrera@ufl.edu

December 30, 2014 **CORE/PRIVATE Pesticide License Exam Prep Classes**

CORE Class – 7:30 – Noon
Private Class – 1 – 4:00 PM

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

Classes are \$10 each. For more information or to register, contact Debra at 863-674-4092 or dcabrera@ufl.edu

Websites

Evaluate Your Irrigation System - The Florida Department of Agriculture and Consumer Services, Office of Agricultural and Water Policy offers a free service to evaluate water use. For more than sixteen years, partnership-based Mobile Irrigation Labs (MILs) have been operating throughout the state of Florida. Presently, there are seventeen MILs providing service in 66 counties. Of the seventeen MILs, 12 are agricultural, four are urban, and one is agricultural and urban. The MIL services are free-of-charge and provide site-specific expertise in analyzing irrigation systems and educating property owners on how to improve water conservation and use. Find the MIL that serves your county at <http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Water-Policy/Evaluate-Your-Irrigation-System>

Manage Insects on Your Farm highlights ecological strategies that improve your farm's natural defenses and encourage beneficial insects to attack your worst pests. This newly revised resource includes a new chapter on pollinators and is available free as a PDF document. <http://www.southernsare.org/Educational-Resources/Books/Manage-Insects-on-Your-Farm>

Farm Commons is an organization that creates educational resources to help farmers identify legal issues, break them down into manageable steps, and give them the confidence to move forward. This winter season, they are hosting a series of webinars focused on legal issues in farming, featuring a wide variety of topics, including: food safety liability, legal considerations for beginning farmers and CSA operators, farmland leasing, farm labor, contracts, and more! See the full list of webinars and register for them at the Farm Commons website. <http://tinyurl.com/n3kre3c>

Quotable Quotes

"Don't cry because it's over, smile because it happened." - Dr. Seuss

"Be yourself; everyone else is already taken." - Oscar Wilde

"You only live once, but if you do it right, once is enough." - Mae West

"I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel." - Maya Angelou

"Live as if you were to die tomorrow. Learn as if you were to live forever." - Mahatma Gandhi

On the Lighter Side

Billy Bob and Bubba

Bubba and Billy Bob are walking down the street in Atlanta and they see a sign on a store which reads, "Suits \$5.00 each! Shirts \$2.00 each, Trousers \$2.50 each.

"Bubba says to his pal: "Billy Bob, look here! We could buy a whole gob of these, take 'em back to Sand Mountain, sell 'em to our friends, and make a fortune. Just let me do the talkin 'cause if they hear your accent, they might think we're ignorant, and won't wanna sell that stuff to us.

Now, I'll talk in a slow Georgia drawl so's they don't know we is from Alabama."

They go in and Bubba says with his best fake Georgia drawl, "I'll take 50 of them suits at \$5.00 each, 100 of them there shirts at \$2.00 each, 50 pairs of them there trousers at \$2.50 each. I'll back up my pickup and..."

The owner of the shop interrupts, "Ya'll from Alabama, ain't ya?"

Well, yeah," says a surprised Bubba. "How come you knowed that?"

"Because this is a dry cleaners."

Bubba

Bubba went to Texas A & M University on a football scholarship. He was a good quarter back, but a poor student.

At graduation day, Bubba didn't have enough credits. But he was a great football star and the students held a rally and demanded the dean give him a diploma anyway. They were so insistent that the dean agreed if Bubba could answer one question correctly he would give him a diploma.

The one question test was held in the auditorium and the students packed the place. It was standing room only.

The dean was on the stage and told Bubba to come up. The dean had the diploma in his hand and said, "Bubba, if you can answer this question correctly I'll give you your diploma." Bubba said he was ready and the dean asked him the question.

"Bubba," he said, "How much is three times seven?"

Bubba looked up at the ceiling and then down at his shoes, just pondering the question. The students began chanting, "Graduate him anyway! Graduate him anyway!"

Then Bubba held up his hand and the auditorium became silent. Bubba said: "I think I know the answer. Three times seven is twenty-one."

A hush fell over the auditorium...and then the A&M students began another chant. "Give him another chance! Give him another chance!"



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 and many thanks to all our sponsors who support the hotline and make it possible..

Check out Southwest Florida Vegetable Grower on Facebook

<https://www.facebook.com/pages/South-Florida-Vegetable-Grower/149291468443385> or follow me on Twitter @SWFLVegMan

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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.

Wishing all of you all the very best for a Blessed and Merry Christmas and a Happy Healthy and Prosperous New Year!

Gene McAvoy

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