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SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

January 14, 2014

Despite forecast near freezing temperatures on January 7-8, South Florida growers escaped unscathed as forecast low temperatures did not materialize with temps in most locations remaining in the low 40's. In Hillsborough County, the mercury did fall into the 30's but heavy winds prevented frost formation. Heavy winds associated with this front battered vegetables and will most likely result in scarring and increased culls over the next few weeks.

In general, however, temperatures remained unseasonably mild for December across South Florida. Each NWS climate site ranked in the top 5 warmest and West Palm Beach tied 1931 for warmest on record!

FAWN Weather Summary

Date	Air Temp °F		Rainfall	Ave Relative Humidity	ET (Inches/Day)
	Min	Max	(Inches)	(Percent)	(Average)
Balm					
12/4/13 – 1/13/14	33.63	84.76	3.33	8o	0.06
Belle Glade					
12/4/13 – 1/13/14	45.16	87.31	3.05	86	0.06
Clewiston					
12/4/13 – 1/13/14	43.38	88.36	0.59	86	0.06
Ft Lauderdale					
12/4/13 – 1/13/14	47.68	83.88	2.68	82	0.07
Fort Pierce					
12/4/13 – 1/13/14	NA	NA	NA	NA – station inactive	NA
Homestead					
12/4/13 – 1/13/14	48.96	85.82	2.91	88	0.06
Immokalee					
12/4/13 – 1/13/14	43.53	89.46	1.26	84	0.06

"Remember, when in doubt - scout."

On January 9-10, nearly 2 feet of rain fell in portions of St. Lucie, Martin, and Palm Beach counties in less than a 24-hour period resulting in flash flooding. Fortunately the heaviest rains remained east of the main production areas. Unsettled rainy weather over the past few weeks has increased disease issues in a number of areas. Most areas received one to three inches of rain and in in some cases much more for the period in addition to a number of foggy mornings.

Crops are looking good but post-holiday market slump and extreme cold weather up north has curtailed demand and hurt markets for a number of commodities. Growers in the Manatee Ruskin area are preparing to plant spring crops over the next few weeks.

Crops coming to market include boniato sweet potatoes, celery, collards, cucumbers, eggplant, escarole, herbs, lettuce, kale, peppers, radishes, snap beans, squash, strawberries, tomatoes, watermelons and a variety of specialty items.

The National Weather Service indicates the extended forecast (Wednesday - Sunday) will begin cooler as the cold front continues to move off to the southeast Wednesday morning. Another reinforcing front will move into south Florida Wednesday evening. Model guidance has been trending cooler for late this week with the coolest temperatures for Thursday and Friday mornings. However, there is still some uncertainty as to just how cool with models showing a 10 to 15 degree difference with the coolest calling for possible near freezing temps west of the lake while the warmest showing only mid-40s. Calms winds will increase the risk of frost in normally colder areas. Another trough will deepen late in the week with another reinforcing cold front early in the weekend. So it looks like an extended period beginning on Wednesday with below average temperatures for mid-January.

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

Insects

Whiteflies

Around Palm Beach County, whitefly pressure is mostly moderate. Some growers report difficulty in controlling whiteflies on some older eggplant. There are a few reports hotspots where growers have not cleaned up resulting in huge numbers of whitefly blowing onto neighboring farms.

Respondents in the Manatee Ruskin area indicate that whitefly numbers were extremely high in some fields late in the season but note that most growers are between crops and have cleaned up fall crops and are beginning to plant the spring crop. The question is whether or not the whiteflies will still be around as new crops go in the ground.

Around Homestead, respondents indicate that that silver leaf whitefly numbers remain high almost everywhere on a variety of crops; particularly near older plantings being taken out of production and nurseries. Dr. Dak Seal reports that in his trials Admire at plant followed by drip application of Verimark (28 DAP) and foliar application of Venom (49 DAP) provided significant control of SLWF and its transmitted TYLCV. He adds this program also significantly reduced Groundnut Ring Spot Virus by reducing the thrips vector.

Respondents around Immokalee report that whiteflies are increasing in a number of locations and are particularly active on newly planted tomatoes. Although the rainfall last week seems to have helped slow them down in some places, growers and scouts report some hotspots around Collier country where they are finding quite a few whitefly pupae on plants and some irregular ripening on tomato due to high numbers of whitefly feeding.

As fall crops come to an end, growers are reminded it is important to remember that prompt destruction of tomato fields once harvest is complete is the best way to reduce inoculum of tomato yellow leaf curl virus for the coming season.

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.

2. Disrupt the virus-whitefly cycle in winter by creating a break in time and/or space between fall and spring crops, especially tomato.

B. Cultural Control Practices.

Reduce overall whitefly populations, regardless of biotype, and avoid introducing whiteflies and TYLCV into crops by strictly adhering to correct 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. Use determinant varieties of grape tomatoes to avoid extended crop season.

d. Use TYLCV resistant tomato cultivars where possible and appropriate, especially during historically critical periods of virus pressure. Whitefly control must continue even with use of TYLCV resistant cultivars because these cultivars can carry the virus.

f. Use TYLCV resistant pepper cultivars when growing pepper and tomato in close proximity.

g. Use ultraviolet light reflective (aluminum) mulch on plantings that growers find are historically most commonly infested with whiteflies and infected with TYLCV.

2. Post-planting practices.

a. Apply an effective insecticide to kill whitefly adults 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 and to eliminate alternative whitefly and virus host plants.

Insecticidal Control Practices for Whiteflies.

1. Delay resistance to neonicotinoid and other insecticides by using a proper whitefly insecticide program. Follow the label!

a. Use neonicotinoids in the field only during the first six weeks of the crop, thus leaving a neonicotinoid-free period at the end of the crop.

b. As control of whitefly nymphs diminishes following soil drenches of the neonicotinoid insecticide or after more than six weeks following transplanting, use rotations of insecticides of other chemical classes.

c. Use selective rather than broad-spectrum control products where possible to conserve natural enemies and enhance biological control.
2. Soil applications of neonicotinoid insecticides for whitefly control.

a. For best control, use a neonicotinoid as a soil drench at transplanting, preferably in the transplant water.

b. Soil applications of neonicotinoids through the drip irrigation system are inefficient and not recommended.

c. Do not use split applications of soil drenches of neonicotinoid insecticides (i.e. do not apply at transplanting and then again later).

3. Foliar applications of neonicotinoid insecticides for whitefly control.

a. Foliar applications, if used instead of or in addition to soil drenches at transplanting, should be restricted to the first 6 weeks after transplanting. Do not exceed the maximum active ingredient per season according to the label.

b. Follow scouting recommendations when using a foliar neonicotinoid insecticide program. Rotate to non-neonicotinoid insecticide classes after the first 6 weeks and do not use any neonicotinoid class insecticides for the remaining cropping period.

For more information on control see Management of Whiteflies, Whitefly-Vectored Plant Virus, and Insecticide Resistance for Vegetable Production in Southern Florida at http://edis.ifas.ufl.edu/in695

Leafminers

Around Immokalee, growers and scouts report that leafminers are horrible in a number of places and are the major pest concern at this time for many growers. Some growers indicate that pressure is about as high as they have ever seen with younger tomatoes being targeted along with young watermelons.

On the East Coast, leafminer pressure is high in many fields, mostly on tomato and eggplant.

Reports indicate leafminer pressure which was high in the Manatee/Ruskin area is beginning to decline but note that leafminers are still active.

Respondents in Homestead report that leafminer pressure is high and that they are showing up early on a variety of newly germinated/transplanted young crops.

Around Belle Glade, lettuce growers are running into high leafminer activity. Scouts report that adults numbers are lower due to recent cold but note that the larvae remain and hatch out is expected after they pupate.

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.

Leafminers have a relatively short life cycle. The time required for a complete life cycle in warm environments such as Florida is often 21 to 28 days, so numerous generations can occur annually.

Both leafminers 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.

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.

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 (Coragen, Verimark, Exirel and others) which have given excellent results and has virtually eliminated leaf miner pressure on many farms.

Dr. Dak Seal Entomologist at TREC notes that in his trials, Coragen, Verimark and Exirel provided good control of leafminers on bean. Soil application of Coragen and Verimark provided longer suppression on leafminers than their foliar application. One application at plant as a soil drench or drip provided suppression of leafminers for 5 weeks. For management of leafminers, Verimark can be applied at plant followed by Radiant at 35-45 DAP and other insecticides.

Worms

Around SW Florida, worms are still around and have remained active unusually late due to mostly mild weather but have slowed down in recent weeks. Growers report finding mostly southern and beet armyworms but also some fruitworms, fall armyworms, loopers and a few melonworms.

Around the Glades, worms remain very active in all crops and particularly so in corn but the recent cold snap seems to have slowed them down a bit.

On the East Coast, worm pressure is generally low but growers continue to find some late fall armyworms in bell peppers.

Reports indicate that worms are also active in all Homestead crops. Respondents note that fall and beet armyworm population are increasing and melonworms are common on cucurbits. Diamondback moth pressure is high.

Pepper Weevils

Pepper weevils are starting to move around as some older peppers are being terminated. Numbers remain mostly low but are increasing.

In Palm Beach County, reports indicate that pepper weevils are increasing in pepper everywhere and they are being found where they were previously absent but growers and scouts note they are "hit or miss", high in some areas and low in others. Some activity has also been noted in eggplant.

Pepper weevils remain a major problem in Homestead. Dr. Dak Seal reminds growers that Actara, Vydate, the diamide insecticides (Coragen, Verimark, Exirel and others) and pyrethroids can be used in rotation to control weevils**.** He advises growers to use yellow sticky cards around pepper fields to monitor their movement and notes that proper spray nozzles selection is important in delivering insecticides in fine mist to cover canopy of pepper foliage.

Aphids

Respondents in the EAA report that aphids remain active. Scouts are finding high numbers of green peach aphids and turnip aphids in radishes. *Uroleucon pseudambrosiae* (common name - potato or wild lettuce aphid) are common on parthinium ragweed but only a few are being seen in lettuce

The potato aphid is larger and more elongate than green peach aphid, 1/16 - 1/8 in., and may be green, pink, or yellowish, with red eyes.

In eastern Palm Beach County, aphid pressure remains low.

Around SW Florida aphids are moving around in a variety of crops and colonies have been detected in a number of fields. Growers report some problems with sooty mold in older crops.

Thrips

Dr Dak Seal, Entomologist at the UF/IFAS TREC in Homestead reports that the melon thrips situation in Miami-Dade County is getting worse. He writes that eggplants are getting hammered by melon thrips and other crops are also showing economic damage.

Thrips are also very high in beans (being commonly seen on foliage) but causing very low damage to pods. Heavy thrips activity has resulted in TSWV/GRSV/TCSV being common around Miami-Dade growing areas.

He writes that growers are complaining about melon thrips and are having trouble managing them on host vegetable crops. He advises that to avoid worsening this problem, growers should:

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 someone who can help identify them (extension agents, scouts, researchers, etc.). Some thrips can be harmless or even beneficial.
b. Once the species is confirmed to be a harmful one, plan your IPM program.
c. Scout fields to confirm the level of infestation - if populations are low, use environmentally compatible products, such as Trilogy, Neemix, Requiem, Grandevo. These products can be used alone or in combination (Trilogy + Requiem or Neemix + Grandevo).
d. If thrips populations are high or increasing in numbers, use Radiant in combination with Movento followed by Closer/Exirel. Dak advises that these insecticides will provide suppression of thrips populations but none of them is a silver bullet.

Dak adds that Florida flower thrips population abundance is low around Miami Dade County but notes that growers are finding flower thrips transmitted virus on tomatoes in various plantings around the county. Recommendations for melon thrips are applicable for managing flower thrips.

Around Palm Beach, thrips range from low to high and scout report that western flower thrips are the predominate species in the worst areas. The main crop being affected is pepper at present. Some chili thrips are being found on farms near ornamental nurseries.

Dr Hugh Smith, Entomologist at the UF/IFAS GCREC writes that strawberry growers in Hillsborough County have observed high numbers of thrips in some fields. He notes thrips are not normally a problem in strawberries in the area till February, or January if the winter is mild. The predominant thrips species in strawberry in Hillsborough County is Florida flower thrips, which usually does not cause damage at low levels and which is often suppressed by naturally occurring predators.

Other thrips species, including chilli thrips and Western flower thrips can cause problems in strawberry.

Group 5 insecticides (Radiant and Entrust) have been effective on thrips, but overuse can lead to the development of resistance. Dow AgroSciences has requested that strawberry growers not use Radiant or Entrust on strawberry this year in Hillsborough County out of concern that resistant populations might be developing. Growers should contact their extension agent if they have questions regarding thrips or other pests in strawberry, and make arrangements for the species to be identified.

Thrips remain low around SW Florida.

Silkflies

Around Belle Glade, silkfly remain active.

Reports indicate that silkfly numbers are increasing around Homestead and sampling indicates that they will continue to increase on silking corn.

Dr Gregg Nuessly, Entomologist at UF/IFAS EREC notes silkworms are becoming even more resistant to pyrethroids and he encourages growers and scouts to consider non-pyrethroid options for fall armyworm control pre-tassel-push to preserve the pyrethroids for silking period and reduce selection pressure against flies that enter the field to feed on fall armyworm frass in whorls before ears are even present to infest.

Broad Mites

Around Palm Beach County, broad mites are still common in older pepper and eggplant.

Respondents report that broad mite activity is persistent around Homestead.

Growers in SW Florida report that broad mites continue to cause problems in pepper.

Spider mites

Around Immokalee, respondents indicate that spider mites are mostly low but are on the increase in some locations

Red and two-spotted spider mites are being found on eggplant and beans in Palm Beach County.

Around Homestead, spider mites are active on corn.

Reports from Plant City indicate that mites increasing quickly on strawberries with last month's mild weather.

Stinkbugs

Low levels of stinkbugs and leaf-footed bugs are showing up in pepper and tomato fields around South Florida and are causing some fruit damage in places..

Diseases

Cool foggy mornings and light rains over the past few weeks have increased disease potential, growers are advised to tighten up scouting and review their disease control program. Remember most fungicides are protectants and must be applied preventatively before infections occur for maximum benefit. In addition with many crops approaching maturity, coverage is important especially in those crops where dense canopies exist.

Late Blight

Late blight is present at mostly low levels around SW Florida. Incidence and occurrence is spotty. Late blight was initially reported on potato in two locations from in Hendry and Lee counties. Since that time there are now confirmed reports of late blight on tomato from locations around SW Florida.

Growers would be well advised to scout susceptible crops carefully as the NWS is calling for cool wet rainy conditions over the next several days which is conducive to disease development. In addition, heavy winds associated with the recent cold front battered plants undoubtedly creating wounds which can provide an opening for invasion by disease.

Late blight is caused by the fungus Phytophthora infestans, which is a pathogen of potato and tomato. This disease can spread quickly and devastate a tomato or potato field within a few weeks if not properly controlled.

The disease thrives under cool and wet conditions. Temperatures between 50 and 80 F combined with moist conditions such as rain, fog, heavy dews, or relative humidity above 90 percent are conducive for disease development. Night temperatures in the mid-fifties with daytime temperatures from the mid-fifties to mid-seventies are ideal for this disease.

Since the disease can spread so rapidly, growers should scout their fields thoroughly each day, especially when cool and wet conditions conducive to disease development prevails.

Late blight symptoms on leaves appear as irregularly shaped brown to purplish lesions with indefinite border lesions that can span veins. The lesions may be seen any time of day, on any stage of plant growth and on leaves of any age. Velvety, white fungal growth may appear on the lower surface of affected leaflets early in the morning before leaves dry and/or in the lower canopy.

On stems, purplish lesions may be found anywhere on the stem. Cottony, white growth of fungus on stems with lesions can often be seen early in the morning and/or in the lower canopy. Stems with lesions are brittle and break easily. Lesions are confined to epidermis and cortex. Leaf rolling and wilting is often associated with stem lesions and purpling of leaflets may occur in some varieties.

Begin a spray program with fungicides if late blight is in your area or weather conditions are suitable for late blight development. After potato harvest, kill infected foliage to minimize tuber infection.

Tomato growers should purchase disease-free transplants. Observe your fields thoroughly each day, especially when cool and wet weather prevails.

Currently, fungicides are the most effective means of controlling late blight and will remain the primary tool until cultivars with resistance to this disease become available. Fungicides slow the rate at which the disease develops in the field by creating a protective barrier on the foliage.

Just applying a chemical, however, does not necessarily equate with effective disease control. Relative effectiveness of a product, coverage, and timing must be factored into the equation for maximum benefit.

Numerous fungicide products are registered for late blight control.

Protectants, as the name implies, protect foliage from infection by spores. Protectant chemicals must be well distributed over the leaf surface and must be applied before spores land on leaves. They are ineffective against established infections.

PROTECTIVE applications of chlorothalonil are your first line of defense for managing late blight. Timing is critical - applications must be made when conditions are conducive for disease development and before infection occurs!!!

Systemic products become distributed locally within plant tissues and protect foliage from infection by spores. They may kill some established infections and may suppress production of new spores. Even a short break in spray schedules, despite what is said regarding some of the newer fungicides, can result in a dramatic increase in blight under the conditions we have had during the past two weeks.

Consult current UF/IFAS recommendations for labeled fungicides for the control of late blight.

Fungicides for Late Blight

Product	Brand Name	FRAC Number
chlorothalonil	**many brands**	**M5**
maneb/mancozeb	**many brands**	**M3**
cyazofamid	**Ranman**	**21**
cymoxanil	**Curzate**	**27**
strobilurins	**Quadris, Cabrio, Flint**	**11**
fluopicolide	**Presidio**	**43**
famoxadone + cymoxanil	**Tanos**	**11 + 27**
mandipropamid	**Revus**	**40**
Dimethomorph	**Acrobat, Forum**	**40**
mefenoxam**	**Ridomil**	**4**
propamocarb	**Previcur Flex**	**28**
zoaxamide + mancozeb	**Gavel**	**22 + M3**
dimethamorph +ametoctradin	**Zampro**	**40 + 45**

**** resistance documented in many races**

In Florida, it has been observed that seldom does a widespread late blight epidemic occur on tomatoes in the Manatee-Ruskin area unless the disease was present in the Immokalee area and/or Dade County. Since late blight has been confirmed on both potato and tomato in Immokalee growers in other areas are advised to adhere to a preventative spray program.

Dr Bill Fry's lab at Cornell University confirmed the first late blight sample of the season, which was *Phytophthora infestans* on potato, in Hendry County as the US-23 genotype. The US-23 genotype has been present in Florida in previous seasons and was the predominant genotype last season. The US-23 genotype is characterized as being able to infect both hosts, tomato and potato, and is sensitive to the active ingredient in fungicides containing mefenoxam. This genotype was also the predominant genotype throughout the northeast last year. Additional samples from other counties within Florida are being processed.

For more info, check out USABlight for more info and photos - http://usablight.org/lateblight

USAblight.org is a national website that was constructed to provide information on late blight. Users can find useful information on upcoming webinars, scouting videos, genotyping of the pathogen, and other information including locations of disease occurrence.

Organic farmers and other may be interested a Webinar on Jan 14 for organic producers will be held by the USABlight extension team.

You can join eOrganic for the webinar "Late Blight of Tomato and Potato: Recent Occurrences and Management Experiences" on Jan. 14 at 2 p.m. EST. The webinar is free and open to the public; however, advanced registration is required. A live chat session will follow.

The webinar organizer and a presenter is Meg McGrath, with the Department of Plant Pathology and Plant-Microbe Biology at Cornell University in Riverhead, NY. McGrath conducts research, gives talks, and prepares Extension materials on managing diseases of vegetable crops organically with biopesticides, resistant varieties, and other cultural practices. She also works with growers to diagnose problems developing on their farm and to identify suitable management programs.

McGrath will co-present with other Extension vegetable pathologists also working on late blight: Kate Everts (University of Maryland and University of Delaware), Amanda Gevens (University of Wisconsin), Beth Gugino (The Pennsylvania State University), Pam Roberts (University of Florida), and Chris Smart (Cornell University).

To register for the webinar, go to https://www1.gotomeeting.com/register/601056184

<u>Target Spot</u>

Conditions over the past month have made target spot a happy pathogen in many tomato fields around SW Florida. Some mature fields are starting to get defoliated from the inside out and scouts report that in some fields target spot is horrible on foliage and fruit.

Around Palm Beach County, target spot has reached high levels in some tomato fields. Respondents indicate that it is also very common in cucumbers where it is the main issue in some older cukes. Reports indicate that these have mostly been destroyed at this point.

Reports from Manatee Ruskin indicate that target spot is the main issue on older fall crop tomatoes still in production.

Target spot is common on tomatoes around Homestead.

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.

In addition to tomato, this fungus has a wide host range and may attack such diverse crops as papaya, passion-vine, pepper, cowpea, cantaloupe, squash, and snap beans as well as a number of common ornamentals.

Optimum conditions for disease development include temperatures from 68° - 82°F and long periods of free moisture.

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. Eliminate any volunteers and weed species that can act as a host.

Start with clean, healthy transplants and maintain proper fertility.

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/Speck

On the east coast, bacteria spot is active in a limited number of locations on pepper and tomato. In general, pressure is low.

Around Immokalee, dome new bacterial spot has been reported on tomato and pepper this week.

Some bacterial speck has been reported on tomatoes in the Homestead area along with the more common bacterial spot.

Bacterial Blight

Wet weather has increased the incidence of bacterial blight on beans around the Homestead area.

Downy Mildew

Around Immokalee, respondents report that downy mildew is on the move in squash.

In Palm Beach County and other east coast locations, downy mildew is prevalent on squash.

Also in PBC, downy mildew of crucifers has been identified on the lower leaves of cabbage and broccoli.

Reports indicate that downy mildew is more severe than powdery mildew on cucurbits around Homestead.

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

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

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

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

D**isease development is favored by high humidity and leaf wetness.** In field spread is through spores.

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 against pythium but it also 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.

<u>Powdery Mildew</u>

On the East Coast, powdery mildew is causing problems in squash. Incidence ranges from none to high depending on location and age of the field. Powdery Mildew is also more common than usual in pepper for this time of year. Cubanelle varieties seem to be most susceptible

Powdery mildew is present on cukes and squash around SW Florida. Powdery mildew has also been reported in some tomatoes around Immokalee and is more common in pepper fields than it has been in recent years.

Growers in Homestead are reporting some problems with powdery mildew on beans and cucurbits.

<u>Sclerotinia</u>

Around Belle Glade, growers and scouts report that sclerotinia activity is increasing on leafy greens and beans.

Growers and scouts report that sclerotinia is jumping on a variety of crops across South Florida in recent weeks.

Recent rainfall, foggy morning and heavy dews have all been conducive to development.

The fungus, Sclerotinia sclerotiorum, is responsible for a number of vegetable diseases attacking a wide range of crops. Common names for Sclerotinia diseases in Florida are white mold (beans), drop (lettuce), stem rot (pepper, potato and tomato), and nesting (post-harvest disease of bean).

A good indicator of Sclerotinia disease is the presence of small, black sclerotia (resting structures) of the fungus. Sclerotia can form on the surface of plant parts as well as inside the stems of pepper and tomato. The sclerotia enable the fungus to survive from season to season and are the source of inoculum to infect crops.

Another common indicator of Sclerotinia diseases is the presence of white, cottony-like mycelium of the fungus when weather conditions are cool and moist.

Symptoms vary between crops. White mold in beans usually appears after flowering. The disease often appears in leaf axils and advances into the stem, producing water-soaked spots that increase in size, girdling the stem, and killing it above the point of infection. The disease can also enter the plant through leaves or pods that touch the soil where sclerotia or infected plant parts act as inoculum.

In tomato, potato and pepper, infection typically starts at flowering. Water-soaked spots are usually the first symptom, which is followed by invasion of the stem, girdling, and death of the upper part of the stem that turns a light gray. The disease can also begin where the plant contacts the soil or infected plant debris. Large portions of the field may become diseased, producing large, circular, areas of dead plants. The black sclerotia formed by the fungus are often found inside infected stems.

Almost all Sclerotinia diseases are field diseases, but when they occur in post-harvest situations they can be very damaging. In beans, the fungus may create a mass of diseased pods that is stuck together by fungal growth, resembling a nest (hence, the name "nesting").

Under cool moist conditions, the fungus is capable of invading a host plant, colonizing nearly all of the plant's tissues with mycelium. Optimal temperatures for growth range from 15 to 21 degrees Celsius. Under wet conditions, S. sclerotiorum will produce an abundance of mycelium and sclerotia. The fungus can survive in the soil mainly on the previous year's plant debris.

High humidity and dewy conditions supports the spread and increases the severity of infections.

The use of plastic mulch may suppress Sclerotinia diseases, while high plant populations may increase the incidence.

In beans, fungicides including DCNA/dicloran (Botran 5F), PCNB (Blocker 4F), boscalid (Endura), Iprodione (Rovral 4F, Nevado 4F, Enclosure 4), fluazinam (Omega 500 F) cyprodinil/fludioxinil (Switch) and thiophanate methyl (Topsin) applied at bloom stage have been effective in controlling white mold.

Boscalid (Endura), DCNA/dicloran (Botran 5F), Iprodione (Rovral 4F, Nevado 4F, Enclosure 4), and cyprodinil/fludioxinil (Switch) have been used with good results in lettuce.

For potato, Boscalid (Endura), DCNA/dicloran (Botran 5F), PCNB (Terraclor F), Iprodione (Rovral 4F, Nevado 4F, Enclosure 4), fluazinam (Omega 500 F), and thiophanate methyl (Topsin M WSB) are recommended for Sclerotinia control.

In tomato, choices are limited to azoxystrobin (Heritage, Quadris) and pyraclostrobin (Cabrio) and Priaxor (a premix of Cabrio and fluxapryoxad) on tomato and pepper.

Biologicals like Contans WG, Regalia, Rhapsody, Serenade Max and Sonata have also provided various degrees of control alone and in combination with other fungicides. Contans WG must be applied to the soil prior to transplanting.

<u>Fusarium Crown Rot</u>

Fusarium crown rot is showing up in a number of tomato fields around Immokalee where growers report they are seeing wilting plants about a week before first harvest. Incidence is mostly low and occurrence sporadic but incidence and occurrence is moderate to high in a few fields which were not fumigated.

<u>Phythophthora</u>

Respondents in Palm Beach County report that phytophthora is common in pepper and in some eggplant as well. This will undoubtedly get worse following last week's torrential rains.

Alternaria

Respondents in SW Florida report an increase in alternaria on tomato.

Celery producers report early blight is active and pressure is high.

Gummy Stem Blight

Gummy stem blight is present at low levels on watermelon around Southwest Florida.

Botrytis

Strawberry growers report they are seeing more problems with botrytis lately from the rain and fog.

Northern/Southern Corn Leaf Blight

Reports from the EAA indicate that growers are seeing corn low levels of northern and southern corn leaf blight. This is unusual for this time of year but likely due to December's relatively warm weather.

Tomato Yellow Leaf Curl

Reports from Homestead indicate that TYLCV is rather common in tomato.

Around Southwest Florida, TYLCV remains mostly low with a few hotspots around but some reports indicate that incoming whiteflies appear to be highly viruliferous in some locations which may cause this situation to change rapidly.

Groundnut ringspot virus

A few GRSV infected plants have been reported in Palm Beach and Miami Dade Counties. Growers should monitor thrips populations and rouge infected plants as they are detected.

Bean Golden Mosaic

Growers and scout report that heavy whitefly pressure is resulting a high incidence of Bean Golden Mosaic Virus around Homestead.

News You Can Use

Deluge Swamps Parts of South Florida

According to the National Weather Service, nearly 2 feet of rain fell in portions of St. Lucie, Martin, and Palm Beach counties in less than a 24-hour period late last week resulting in flash flooding and two related deaths.

A slow-moving swath of precipitation churned over the Treasure Coast area late Thursday into early Friday. Fort Pierce, Vero Beach, and Stuart all set daily rainfall records for the day. Ft. Pierce recorded 10.64 inches, compared to an all-time high of 12.11 inches that fell there on Aug. 20, 2008.

A little further south, the Palm Beach County town of Hypoluxo set the high-water mark of 22.21 inches.

NATIONAL WEATHER SERVICE STORM TOTAL RAINFALL – Palm Beach Co. – January 9 -10, 2014			
Location	Rainfall (inches)	Time/Date	Weather Station
HYPOLUXO	22.21	800 AM 1/10	MESONET
SW PALM BEACH	16.03	800 AM 1/10	MESONET
LANTANA	15.04	800 AM 1/10	MESONET
ESE LANTANA	14.79	700 AM 1/10	COCORAHS
BOYNTON BEACH	13.13	800 AM 1/10	MESONET
E LANTANA	12.46	800 AM 1/10	MESONET
NW BOYNTON BEACH	11.00	800 AM 1/10	COCORAHS
PALM BEACH	10.75	800 AM 1/10	MESONET
SW PALM BEACH SHOR	9.35	800 AM 1/10	MESONET
NNW LAKE WORTH	8.72	800 AM 1/10	COCORAHS
N LAKE WORTH	8.58	800 AM 1/10	COCORAHS
LAKE WORTH	7.98	800 AM 1/10	MESONET
JUNO BEACH	7.94	800 AM 1/10	CO-OP OBSERVER
JUPITER FARMS	6.29	800 AM 1/10	MESONET
WNW P BEACH GAR	6.15	800 AM 1/10	MESONET
NORTH PALM BEACH	5.86	800 AM 1/10	MESONET

Court says USDA is sole enforcer for organics

The California Court of Appeals ruled consumers do not have the right to sue food producers for alleged violations of the Organic Foods Protection Act because such actions would undermine federal enforcement.

Consumers and others can, however, pursue complaints and concerns about organic produce and other organic foods via the U.S. Department of Agriculture's National Organic Program.

Miles McEvoy, deputy administrator of the program said he could not comment specifically on the California court ruling.

"Through enforcement, USDA's National Organic Program creates a level playing field by taking action against farmers and businesses that violate the law and jeopardize consumer confidence in organic products," McEvoy said.

"Anyone can submit complaints of alleged regulatory violations. Each complaint is investigated. We value organic community and consumer input to ensure that organic products maintain their integrity."

California resident Michelle Quesada sought the appeals court decision after a Los Angeles County Superior Court judge dismissed her class action case against Herb Thyme Farms Inc., Pico Rivera, Calif.

Quesada contends the company marketed a mix of conventional and organic herbs in packaging labeled as certified organic by the U.S. Department of Agriculture, according to court documents.

"Congress made clear its intention to preclude private enforcement through state consumer lawsuits in order to achieve its objective of establishing a national standard for the use of 'organic' and 'USDA organic' in labeling agricultural products," the three-judge panel said in the appeal ruling.

The judges' decision states the USDA has primary jurisdiction to enforce provisions of the National Organic Program, including certification and compliance.

Although the California decision is not binding on other states, it can be cited and used as case law in such disputes.

The appeals court judges said Quesada "changed position" in the course of her appeal, switching to the argument that Herb Thyme Farms violated the California Organic Products Act. The judges' decision states the USDA is the only entity with jurisdiction in cases of alleged violations of organic regulations, regardless of the specific statute cited by Quesada.

Even in states like California, which have their own organic laws on the books, consumers do not have the right to sue organic producers, the decision states, because the federal Organic Foods Protection Act of 1990 gives the USDA the power of certification and compliance enforcement.

The Packer, 1/7/2014

Up Coming Meetings

January 14 2014 **Late Blight of Tomato and Potato: Recent Occurrences and Management Experiences – webinar - 2 pm EST.**

To register for the webinar, go to https://www1.gotomeeting.com/register/601056184

January 17, 2014 **Irrigation Smart Phone Apps** **10:45 am.**

Dr Katie Migliaccio, Associate Professor in Agricultural Engineering at the UF/IFAS TREC will be speaking about Irrigation Smart Phone Apps at the Friday Seminar at the UF/IFAS EREC this Friday.

Open to the public.

January 29 -31, 2014 **Pesticide Applicator Training and Exams**

Core – January 29 – 7:45 am – 12 pm
Private – January 29 – 1 pm – 5 pm
Aquatic - January 30 - 8:30 am – 12 pm
Ag Row Crop - January 30 - 1:00 pm – 5 pm
Natural Areas - January 31 - 8:30 am – 5 pm
Right of Ways - January 31 - 1:00 PM – 5 PM

Hendry County Extension Office
1085 Pratt Boulevard
LaBelle, Florida

Exam prep classes will be held to help you prepare for the RUP license exams. Exams will be offered immediately following the classes. However, you do not have to take the exams the same day. You may schedule a time to take the exams at your convenience or take the tests on line on our secure server. You may take one class without the other, if needed.

If you are already a license holder, CEUs will be offered for both classes. For details and registration contact Debra at 863-674-4092. Each class is $10.

February 21 - 22, 2014 Georgia Organics 17th Annual Conference and Expo

Jekyll Island, Georgia

Farm Land for Lease

Farm Land for lease in LaBelle area – contact Clyde Lavender at 863-673-2338

Farm Land for lease on Babcock Ranch, Hwy 31, Charlotte County. Rotational fields or permanent locations, phone 941-639-3958

Opportunities

Florida Ag Research located near Tampa, Florida is seeking a field biologist with an emphasis on Entomology Research.

The successful candidate will be skilled in or be able to learn how to:

1. Accurately and safely apply pesticides to research plots.
2. Identify and enumerate common insect pests of Florida crops.
3. Accurately and efficiently keep records of their daily work and progress of individual projects.
4. Collaborate with other staff scientists, other biologists, and company customers.
5. Work outdoors in sometimes difficult conditions, and be available for overtime hours during peak season.

A college degree in agricultural or biological science (or equivalent) is required. Good quantitative and communication skills are desirable. A good driving record and work background are also required.

Send resume to: brad@pacificaggroup.com

Compensation will depend on experience ($14-$18/hour). We offer medical and dental insurance, 401k and profit sharing, paid travel for professional training and meetings, and other benefits.

Websites

2014 Florida Agricultural Outlook Conference. This is a series of presentations made by Food and Resource Economics faculty and students on various agricultural commodities, resources, and issues. The webcasts are available at http://www.fred.ifas.ufl.edu/outlook-webcasts/. Here are a few that may be of interest.

- Outlook for the U.S. and Florida Economy - By Dr. Rodney Clouser, Professor and Interim Chairman, Food & Resource Economics Department, Gainesville, FL
- Outlook for Farm Labor in Florida Agriculture - By Dr. Fritz Roka, Associate Professor, Southwest Florida Research and Education Center, Immokalee, FL
- Impact of International Competition on Florida Tomato and Strawberry Industries - By Dr. Zhengfei Guan, Assistant Professor, Gulf Coast Research and Education Center, Wimauma, FL
- Understanding the Costs of Agricultural Best Management Practices - By Dr. Tatiana Borisova, Assistant Professor, and Dr. Serhat Asci, Postdoctoral Researcher, Food & Resource Economics Department, Gainesville, FL
- Adoption of Drought Adaptation Measures Among Florida Vegetable Growers - By Dr. Kelly Grogan, Assistant Professor, and Elizabeth van Dijl, Graduate Student, Food & Resource Economics Department, Gainesville, FL

It can be found at http://edis.ifas.ufl.edu/pdffiles/cv/cv29500.pdf

Xanthomonas - This amazing animated video shows how a common bacterial pathogen infects a susceptible tomato plant to cause bacterial spot disease. It also shows how resistant plants fight off the infection to remain disease free. http://vimeo.com/34378870

Quotable Quotes

It was only a sunny smile, and little it cost in the giving, but like morning light it scattered the night and made the day worth living. - F. Scott Fitzgerald

I slept and dreamt that life was joy. I awoke and saw that life was service. I acted and behold, service was joy. - Rabindranath Tagore

Every man should be born again on the first day of January. Start with a fresh page. Take up one hole more in the buckle if necessary, or let down one, according to circumstances; but on the first of January let every man gird himself once more, with his face to the front, and take no interest in the things that were and are past." -- Henry Ward Beecher

I don't suffer from insanity; I enjoy every damn minute of it!

On the Lighter Side

Top 10 Reasons Farm Trucks Aren't Stolen

10. They have about 20 miles before they overheat, breakdown or run out of gas.
9. Only the owner knows how to operate the door to get in or out.
8. It is difficult to drive fast with all the fence tools, grease rags, ropes, chains, syringes, buckets, boots and loose papers in the cab.
7. It takes too long to start, and the smoke coming up through the rusted-out floorboard clouds your vision.
6. The cur dog on the toolbox looks mean.
5. They're too easy to spot. The description might go something like this: The driver's side door is red, the passenger side door is green, the right front fender is yellow, etc.
4. The large round bale in the back makes it hard to see if you're being chased. You could use the mirrors if they weren't cracked and covered with duct tape.
3. Top speed is approximately 45 mph.
2. Who wants to steal a truck that needs a year's worth of maintenance, u- joints, $3,000 in body work, tail-lights and windshield?
1. It is hard to commit a crime with everyone waving at you.

Cold Weather Coming

Late fall and the Indians on a remote reservation in North Dakota asked their new chief if the coming winter was going to be cold or mild.

Since he was a chief in a modern society, he had never been taught the old secrets. When he looked at the sky, he couldn't tell what the winter was going to be like.

Nevertheless, to be on the safe side, he told his tribe that the winter was indeed going to be cold and that the members of the village should collect firewood to be prepared.

But, being a practical leader, after several days, he got an idea. He went to the phone booth, called the National Weather Service and asked, 'Is the coming winter going to be cold?'

'It looks like this winter is going to be quite cold,' the meteorologist at the weather service responded.

So the chief went back to his people and told them to collect even more firewood in order to be prepared.

A week later, he called the National Weather Service again. 'Does it still look like it is going to be a cold winter?'

'Yes,' the man at National Weather Service again replied, 'it's going to be a very cold winter.'

The chief again went back to his people and ordered them to collect every scrap of firewood they could find.

Two weeks later, the chief called the National Weather Service again. 'Are you absolutely sure that the winter is going to be very cold?'

'Absolutely,' the man replied. 'It's looking more and more like it is going to be one of the coldest winters we've ever seen.'

'How can you be so sure?' the chief asked.

The weatherman replied, 'The Indians are collecting a boatload of firewood'

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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