



Palm Beach County Extension 559 N. Military Trail WPB, Florida 3315 Phone (561) 233-1700

# SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

March 30, 2015

**March saw unseasonably warm weather with high temperatures reaching the mid to upper 80's for most of the past 3 weeks.** A cold front, this past weekend, dropped temperatures to the lowest temps since the freeze in February with most places reporting lows in the low 50's and mid-upper 40s.

**Hot dry conditions in March bought moderate drought conditions to much of Southwest Florida and the lower East Coast.** Increasing ET rates increased the need for irrigation. Unsettled weather in advance of this weekend's cool down bought much needed rain to most of the area with some growers reporting up to 2 inches of rain.

**FAWN Weather Summary**

Date	Air Temp °F		Rainfall (Inches)	Ave Relative Humidity (Percent)	ET (Inches/Day) (Average)
	Min	Max			
<b>Balm</b>					
3/1 – 3/30/15	48.06	88.09	1.38	80	0.13
<b>Belle Glade</b>					
3/1 – 3/30/15	53.04	89.15	1.18	84	0.13
<b>Clewiston</b>					
3/1 – 3/30/15	54.07	91.80	0.53	79	0.13
<b>Ft Lauderdale</b>					
3/1 – 3/30/15	59.85	89.46	0.70	77	0.14
<b>Homestead</b>					
3/1 – 3/30/15	56.16	90.82	1.93	81	0.13
<b>Immokalee</b>					
3/1 – 3/30/15	53.87	92.62	1.95	80	0.12
<b>Okeechobee</b>					
3/1 – 3/30/15	50.81	90.81	1.45	85	0.12

**“Remember, when in doubt - scout.”**

**Yields and size are down on tomatoes and other crops as the result of cold weather in February.**

**Crops are growing quick and most look good but warm temperatures over the past few weeks have caused a spike in insect populations.**

**The National Weather Service forecasts high pressure will prevail across the area resulting in tranquil weather conditions prevailing through the entire week.** Flow over the warm Gulf Stream current will lead to gradual warming along with slightly increasing humidity levels through the week with lows of around 70 returning to southeast Florida by week`s end with highs into the 80s area wide and well into the 80s interior-west.

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

## **Insects**

### **Thrips**

**Around South Florida, thrips numbers have increased significantly and are “going wild” according to one scout.** Growers and scouts are reporting an increase in various Tospo viruses as a result of very high thrips numbers in peppers and tomatoes this past two weeks. Depending on the location, Florida flower thrips, western flower thrips and *Thrips palmi* can be found in blooms and apical meristems in young peppers and eggplants, and tomatoes to a lesser extent.

**Around Immokalee, *Thrips palmi* continue to increase and some pepper and eggplant fields have high amounts of damage. *T. palmi* is causing severe leaf distortion in younger fields and lots of fruit scaring in older fields.**

**On the East Coast, respondents report that thrips are high in areas and low in some other areas.** Any pepper near older pepper areas are reporting significant pressure and more isolated fields are much better off. One growers has reported significant control of thrips by minute pirate bugs in one location where judicious insecticide applications have been made.

**Around Homestead, Dr Dak Seal reports that melon thrips are present on a variety of vegetable crops including tomato.** He notes in the past, he did not observe melon thrips to reproduce on tomato but in recent weeks, he is finding melon thrips larvae in up to 70% of tomato flower samples. Eggplants are getting hammered by melon thrips as usual. A number of other crops are also being damaged.

### **Dak advises growers:**

- A. Do not use insecticides unless you are sure about pest status of the thrips on your crop. In order to be sure, get your thrips identified by the nearest available thrips authority (extension agents, scouts, researchers, etc.). Some thrips such as *F. bispinosa* can be relatively harmless or even beneficial.
- B. Once the species is confirmed to be a harmful one, plan immediately your IPM program.
- C. Scout fields to confirm the level of infestation - if population is below threshold level, use environmentally compatible products, such as Trilogy, Neemix, Requiem, Grandevo. These products can be used alone or in combination (Trilogy + Requiem or Neemix + Grandevo). I
- D. If thrips populations are increasing above threshold levels, (post-bloom >5/flower), use Radiant in combination with Movento followed by Closer/Exirel. All of these above mentioned insecticides will provide suppression of thrips populations but none of them is a silver bullet.

**Common blossom thrips (*Frankliniella schultzei*) and western flower thrips (*F. occidentalis*) are also causing serious damage to tomato around Homestead by transmitting tospovirus. Malathion, Radiant, Requiem, Spintor, Agrimek in rotation or in combination are doing well in suppressing thrips numbers.**

For more information on “Managing Thrips and Tospo Viruses in Tomato”, see <http://edis.ifas.ufl.edu/in895>

## **Whiteflies**

**Growers and scouts report that whitefly numbers are building in a variety of crops around South Florida in recent weeks.**

**Whitefly numbers remain high in Homestead in tomato, squash and cucumber and reports indicate that silverleaf whitefly transmitted viral diseases like Tomato Yellow Leaf Curl virus and Bean Golden Mosaic virus are increasing.**

**In the Manatee Ruskin area, whitefly numbers are increasing especially in fields adjacent to cabbage that is being or has been harvested.**

**Around Palm Beach County, whiteflies pressure is increasing but remains under low to moderate depending on location.**

**Growers and scouts in Southwest Florida report that whitefly numbers are taking off in a number of places and are high in tomato and squash but pupae numbers remain mostly low.**

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

**See Recommendations for Management of Whiteflies, Whitefly-transmitted viruses, and Insecticide Resistance for Production of Cucurbit Crops in Florida - <http://edis.ifas.ufl.edu/in871>**

**See Management of Whiteflies, Whitefly-Vectored Plant Virus, and Insecticide Resistance for Vegetable Production in Southern Florida - [http://indian.ifas.ufl.edu/hort/Whitefly\\_Management\\_Vegetable\\_Production-ENY-735.pdf](http://indian.ifas.ufl.edu/hort/Whitefly_Management_Vegetable_Production-ENY-735.pdf)**

## **Aphids**

**Reports from the EAA indicate that aphid numbers remain high in leafy vegetables and include cabbage aphid, green peach, melon aphid and potato aphid.**

**In Palm Beach County, aphids are building in pepper in some areas.**

**Around Southwest Florida, respondents note that aphids continue to blow around and colony formation has been noted in peppers, watermelons and leafy vegetables like kale and Swiss chard.**

**Hundreds of natural enemies have been recorded attacking aphids. Various studies that selectively excluded or killed beneficial organisms have demonstrated the explosive reproductive potential of these aphids in the absence of biological control agents, thus demonstrating their value in reducing damage potential.**

**Infested crops should be destroyed immediately after harvest to prevent dispersal, and it may be possible to destroy overwintering weedy hosts in some cases.**

**Excessive and unnecessary use of insecticides should be avoided.** Early in the season, aphid infestations are often spotty, and if such plants or areas are treated in a timely manner, great damage can be prevented later in the season. In some cases, use of insecticides for other, more damaging insects sometimes leads to outbreaks of green peach aphid. Inadvertent destruction of beneficial insects is purported to explain this phenomenon, but aphid resistance to some types of insecticide may also be involved.

**Softer pesticides including insecticidal soaps such as M-Pede), nicotinoids like Admire, Provado, Assail and others including Beleaf, Movento and Fulfill will provide good control help reduce impact on beneficials.** Dr. Dak Seal, Entomologist at TREC reports that a relatively new product Sulfoflor (Closer – Dow Agrosiences) is the best insecticide to control green peach aphid.

**Resistance to some insecticides has been reported in some aphid populations.** Rotating pesticide materials may effectively help slow the development of resistance.

### Worms

**Worm pressure is beginning to pick up with warmer temps and the full moon earlier in the month.**

**Around Belle Glade, growers and scouts report an increase in fall army worm activity in young sweet corn but scouts note that growers need to be careful to verify the presence of worms as cucumber beetle damage is also present.**

**Respondents in Palm Beach County note worm pressure has spiked recently with the high temps and scouts are finding fall armyworm eggs on pepper fruit along with beet armyworm egg masses.** Worm pressure in squash remains low.

**Around SW Florida, reports indicate that worm pressure has increased significantly with growers finding all kinds of army worms, loopers, pickleworms and melonworms depending on crop and location.**

**In the Manatee Ruskin area, worms are around but remain light overall with beet armyworms, southern armyworms and an occasional pinworm showing up in fields.**

**Around Homestead, worms are active on a variety of crops.**

### Lesser Cornstalk Borer

**Growers and scouts in the EAA report that lesser cornstalk borers have been bad due to hot dry weather and note that growers have had to treat some areas to suppress adults for the first time in years and years.**

### Leafminer

**Growers and scouts in most areas report that leafminer pressure is beginning to fall off somewhat but sources in the Manatee Ruskin area report that leafminer pressure remains steady and growers continue spray for control.**

**Respondents in Homestead also report continuing problems with leaf miner in a number of crops.**

**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.

**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 Radiant (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 (cyazypyr) 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. Growers often learn about the importance of sanitation the hard way!

### Silk fly

**In the EAA, silk flies are increasing and beginning to be a problem primarily in areas where they always seem to be an issue.**

**In the Homestead area, corn silk fly remains active. Dr Dak Seal reports tomato fields provide good breeding grounds for corn silk fly.** He notes that the silk fly populations are increasing with increasing decomposed tomatoes in harvested fields. Other fruiting vegetables may also serve as breeding grounds of corn silk fly. As a management tool, vegetable and fruit growers should clean their fields immediately after harvest. Certis Bait pellets show significant reduction of corn silk fly adults and corn silk fly damage on corn ears. In addition, pyrethroids can be used to reduce silk fly adults.

**To preserve the effectiveness of pyrethroids growers are advised when using a pyrethroid during ear stage sweet corn, to always use the maximum labeled rate.** Never use below label rates for pyrethroids at any time in sweet corn. Do not add pyrethroids to another chemical unless it is directly needed for control of something that the other product does not control. If growers need to control armyworm or earworm, but no cornsilk flies are present, then they should not use pyrethroids to control these Lepidoptera, because there are many alternative choices.

**Growers should eliminate the use of "insurance sprays" of pyrethroids, because the continuous low residual levels of pyrethroids on corn are leading to resistance development in cornsilk flies to pyrethroids.** If there were many other products for control of these flies, then this would not be as critical.

**However, there is only one other material that provides good control of the flies and that is the organophosphate, chlorpyrifos.** While some contact control is provided by methomyl, this product has no residual control of the cornsilk flies. To conserve the remaining effectiveness and to try to regain previous levels of effectiveness of pyrethroids, growers must eliminate unnecessary pyrethroid treatments.

### Pepper Weevil

**Around Southwest Florida, weevil pressure has really kicked up, with scouts reporting finding lots of adults in buds and blooms the past couple of days.**

**On the East Coast, pepper weevil numbers are increasing in older pepper but about normal for the time of year.**

**In the Homestead area pepper weevil remains a major threat to pepper and in the past week or so reports of pepper weevils in a number of eggplant fields.as well.** Growers should avoid planting pepper near infested eggplant fields.

**Growers should routinely scout fields to detect the beginnings of an infestation.** This can be done by visually inspecting the field and also by using yellow sticky traps. Once infestation is detected, in the absence of Vydate on the market, growers should start applying chemical insecticides such as Actara, the diamides and pyrethroids in a program to control pepper weevil.

### **Spider Mites**

**Spider mites have been reported on some melons in Manatee County.**

**Low levels of spider mites are also showing up around Southwest Florida.**

**Two-spotted spider mites continue to cause problems on beans and squash around Homestead.**

### **Broadmites**

**Broad mites have just popped up on pepper in a couple of locations after not being seen for the past couple of months.**

### **Diseases**

Disease activity has been relatively quiet over the past few weeks but the situation may change after last weeks rain.

### **Late Blight**

**Around SW Florida, late blight is hanging around and continues to work on some tomato fields but never really developed much in potatoes.** While there are some tomato plantings that suffered losses due to defoliation and fruit infection, pressure has declined somewhat in the past few weeks.

**Late blight is also widely present in the Manatee Ruskin area but appears to be settling down in recent weeks.**

**Reports from Palm Beach County indicate some late blight has been detected on organic tomatoes.**

**Respondents in the Hasting area note that late blight has been found on potato in the past two weeks.**

**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 proper conditions.

### **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
ametoctradin + dimethomorph	Zampro.	40 + 45

\*\* resistance documented in many races

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

**Mid-season update from Dr. Pam Roberts, Pathologist at UF/IFAS SWFREC, late blight (*Phytophthora infestans*) continues to occur in south Florida. Only a single genotype, US23, has been confirmed this season. The US-23 genotype is reported as sensitive to intermediate to mefenoxam (metaxyl).**

**From this season, 20 isolates of the pathogen collected from tomato and potato fields were tested for mefenoxam sensitivity in the lab at SWFREC and all of them were confirmed to be very sensitive.**

**Field evaluation of the USAblight Decision Support System (formerly Cornell Decision Support System) is underway for the second season at SWFREC. Last season, we decreased the number of fungicide applications while maintaining the same level of late blight control using this weather-based forecasting system.**

**For additional information on late blight please visit: <http://usablight.org/>**

### **Target spot**

**Around Immokalee, target spot continues to work on maturing tomatoes. It is especially problematic in older tomato where it is working inside the canopy of mature plants.**

**In East Coast production areas, target spot is common in cukes but appears to be have slowed somewhat in 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.**

**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, bacterial spot is present at mostly low levels in pepper and tomato and jumped up in some places in the past few weeks. Incidence is mostly sporadic but is reaching higher levels in some pepper fields where some defoliation has been reported. Despite this many fields remain clean.**

**On the East Coast, respondents note that bacterial spot has been creeping up in some older pepper and tomato fields but for the most part has not reached very significant levels except for some pepper where non-resistant varieties were planted. Resistant peppers remain clean.**

**Bacterial spot is widely present on pepper and tomato around Homestead.**

### **Early Blight**

**Early blight has been reported on some tomatoes around South Florida. Some fruit infections have been noted.**

**Foliar symptoms generally occur on the oldest leaves and start as small, pencil-point-size, brownish to black lesions. These leaf spots enlarge up to ½ inch (1.3 cm) in and usually have readily visible, concentric**

**rings that look somewhat like a bull's-eye.** These concentric leaf spots are distinctive enough to make early blight one of the easier tomato diseases to diagnose.

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

**Control of early blight is best achieved by a combination of control strategies. Cultural controls will allow the fungicide to do a better job as cultural controls reduce the amount of initial inoculum.**

**Maintenance of plant vigor through adequate irrigation and fertilization will help increase disease resistance.**

**Look for and destroy volunteer tomato and potato plants and eliminate solanaceous weed hosts in and around the field and burn down or plow down adjacent fields planted to potatoes or tomatoes immediately after harvest.**

**Begin a fungicide spray program at first sign of disease or before.** Contact fungicides such as chlorothalonil and mancozeb provide moderate levels of control when applied preventively.

**Maintain spray applications on a 5 to 14 day interval throughout the growing season.** Use the shorter intervals if rainfall is frequent or where history of early blight has been severe or when temperatures from 75-85°F prevail.

**The strobilurin fungicides (azoxystrobin, pyraclostrobin, etc.) provide excellent control in trials. Consult UF/IFAS recommendations for currently labeled fungicides for early blight control in Florida.**

**Many of the newer fungicide chemistries including the strobilurins have a narrow mode of action and are prone to the development of resistance by fungi; be sure to rotate these with fungicides from different groups and include cultural methods in your disease management strategy to avoid the development of disease resistance.**

### **Botrytis**

**Around Southwest Florida, growers and scouts report scattered problems with botrytis causing abortion of tomato flowers.**

**Botrytis is also a problem in strawberries.**

### **Gummy stem Blight**

**Mostly low levels of gummy stem is present in watermelons around southwest and west central Florida.**

### **Downy Mildew**

**Around Southwest Florida, downy mildew remains widespread at low levels on watermelon, squash and cucumber.**

**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.

**Downy mildew has also been reported in leafy brassicas and will jump on kale and other leafy brassicas if left unprotected.**

### **Downy Mildew on Crucifers**

**Downy mildew is widely present at mostly low levels on crucifers, especially kale around South Florida.**

### **Basil Downy Mildew**

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

**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**

**Growers and scouts around Southwest Florida report that powdery mildew continues to cause problems in cucurbits, especially in squash.**

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

**Powdery mildew is present on some beans in the EAA**

**Powdery mildew is also common on some older pepper in some East Coast locations.**

**Powdery mildew is also present in some strawberries.**

## **Corn Leaf Blight**

**Growers and scouts in the EAA report finding low levels of both northern and southern corn leaf blight on sweet corn along with rust in bottom growth of older fields.** All three are present in fairly equal amounts, which is very unusual. Younger plants are getting preventative sprays.

**NCLB produces a long, elliptical lesion, while those of southern corn leaf spot tend to be oblong and much smaller than those produced by NCLB.** Southern blight lesions are also lighter in color (light tan to brown), and have parallel sides rather than the tapering sides of lesions caused by NCLB.

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

**Resistant varieties are available and should be considered, particularly for spring plantings.**

**Fungicides should be applied when lesions first become visible on the lower leaves or when disease is reported to be in the area.**

**Triazoles and strobilurins both provide control, with some pre-mixes giving superior control.** These products should be used with a broad spectrum protectant to minimize development of fungal resistance.

**Use EDBC fungicides such as mancozeb as a protectant before disease is present.** Apply 4- 6 sprays on a 5 – 7 day basis. Use a surfactant/sticker as corn leavers are waxy and spray tends to run off. Rotate with a stobulurin such as Headline etc. As corn matures or disease becomes present, rotate between triazoles such as Folicur, Monsoon, Propimax etc and strobilurins or premixes of the two.

## **Corn Rust**

**Common rust is a cool weather disease.** In south Florida, common rust normally occurs in the spring, while southern corn rust occurs in the fall.

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

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

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

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

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

**Control is similar to northern/southern corn leaf blight.**

## **Bean Rust**

**Some rust has been reported on snap beans in the EAA. The disease is more common during the cooler months and in South Florida, the disease generally appears first in January and continues to increase in severity until into the spring.** Heavy dews during cool months provide sufficient moisture for spores to germinate and penetrate host plants. The bean rust fungus differs from other rust fungi in not requiring an alternate host to complete its life cycle.

**The first symptom of bean rust is the appearance of pale yellow spots on lower leaf surfaces.** One or two days later, the round spots become raised and the leaf surface breaks, exposing pustules of red spores. These characteristic, spore-producing pustules are primarily found on the lower leaf surface and occasionally on pods.

**If the disease is severe and pustules cover much of the leaf surface, premature leaf drop may occur.** When leaves are severely affected before blossoming, yield losses may be much greater than when the disease occurs after the formation of blossoms. On susceptible bean varieties, pustules may be surrounded by yellow halos, while on resistant varieties only very small spots may appear.

Resistant varieties and fungicides are used to manage this disease.

## **Tomato Yellow Leaf Curl Virus**

**Growers and scouts around Immokalee indicate that TYLCV is patchy and pressure is pretty high, with some locations at over 75% infection rate while other fields still remain below 1%.**

**In Palm Beach County, TYLCV remains mostly low but increasing in incidence in older and younger tomato due to higher background whitefly numbers.**

**Around Manatee County some in-field transmission of TYLCV has been reported in young tomato and is making growers nervous.**

**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.** In some fields around Homestead, up to 30% infection rate has been reported.

**In Palm Beach County, GRSV and/or TCSV is increasing in areas of pepper and tomato where there are a lot of thrips. Incidence has reached 15% in some younger tomato.**

**Scattered symptomatic plants have also been reported around SW Florida.**

**Tomatoes infected with TCSV display necrotic lesions and chlorotic spots, and ring spots on leaves, stems, petioles, and fruit.** Following the initial symptoms, wilting and bronzing of the infected plants may occur. Infection of TCSV in young tomato plants may result in severe stunting and eventually death of the plant. Symptoms of Groundnut Ring Spot Virus and Tomato Chlorotic Spot Virus are similar and require lab diagnosis to distinguish the two.

**TCSV was first reported in tomato plants from South Florida in 2012.** Like Tomato spotted wilt virus (TSWV), TCSV is transmitted by thrips. Western flower thrips (*Frankliniella occidentalis*), common blossom

thrips (*F. schultzei*) and possibly other thrips species are vectors of this new tospovirus. The fact that the disease is beginning to show up more widely with greater frequency across South Florida is a cause for concern.

**The close relationship between TCSV and TSWV indicates that integrated management strategies directed against TSWV may also be effective for control of these new tospoviruses.** Research in North Florida has demonstrated that a combination of UV reflective mulches, acibenzolar-S-methyl (Actigard), and insecticides has provided excellent management of TSWV in commercial tomato fields.

**A number of varieties of tomato that are resistant or tolerant to TSWV are commercially available.** The source of resistance in all of the resistant cultivars is reported to be the Sw5 gene. It is thought that cultivars containing the Sw5 gene may also confer resistance to other tospoviruses such as TCSV. Trials currently being conducted in Homestead using TSWV resistant varieties appears to bear this out.

**Insecticides Radiant (spinetoram), Spintor and Entrust (spinosad) are efficacious against thrips while sparing predator populations.** Field trials were conducted in Homestead with various insecticides such as Entrust, Closer, Verimark, Exirel, Belay, Movento, Requiem, Lannate, and pyrethroids for melon thrips control. The insecticides were applied four times weekly with the exception of Verimark, which was applied only once at planting. All products showed a reduction on melon thrips populations. The best control was achieved by combining Radiant with Requiem and alternating this combination with other above mentioned insecticides.

**Research in North Florida with TSWV has indicated that insecticides alone may not be adequate to control the virus.**

For more information, see ENY859- Managing Thrips and Tospoviruses in Tomato at <http://edis.ifas.ufl.edu/in895>.

## News You Can Use

### Weather limits tomato volumes, size profile

By Andy Nelson  
The Packer  
March 25, 2015

A slow start to new-crop Florida production and continued weather-related problems in Mexico put a dent in tomato volumes and size at the beginning of spring.

In the second half of March, Homestead, Fla.-based The DiMare Co. was beginning to see the effects of a February cold snap on its Immokalee, Fla., tomato crop, said Tony DiMare, vice president.

“Yields are starting to fall, size was down last week, and it’s down again this week,” DiMare said March 24, adding that warm March weather also was having effects.

“We’re basically having April weather in March.”

Rain and hail in Mexico and light production during the Florida transition led to a demand exceeding supplies in the second half of March, said Chuck Weisinger, president and chief executive officer of Fort Myers, Fla.-based Weis-Buy Farms Inc.

“Right now it’s extremely light,” Weisinger said March 24. “The quality’s good but there’s not enough to cover the bases. This time of year is normally Mexico’s time, but there hasn’t been anywhere near enough as there should have been.”

On March 24, the U.S. Department of Agriculture reported a price of \$10.95 for 2-layer cartons of 4x4 and 5x5 vine-ripe tomatoes from Mexico, down from \$12.95-14.95 last year at the same time.

There should be plenty of pent-up demand for new-crop tomatoes when regions of the U.S. hit hard by winter finally thaw out, Weisinger said.

“There were 108 inches of snow in Boston. Some people spent the winter hunkering down. I think people want to get out and do things and eat lots of fruits and vegetables.”

The warm weather has pushed production up in Immokalee, DiMare said, with double plantings some weeks.

The decline in size profile was pushing up prices for extra-large fruit in the second half of March, DiMare said.

The effects of the February weather will likely be felt the week of March 23 and the week of March 30, DiMare said.

Homestead, Fla., supplies were expected to be steady for The DiMare Co. through the week of March 23 before tapering off dramatically beginning the week of March 30, DiMare said.

The DiMare Co. expects to begin shipping grape and cherry tomatoes from the Palmetto/Ruskin areas of Florida about April 10, DiMare said. Romas and rounds should follow about April 17-20.

Volumes should be back to seasonal norms the week of April 6 or the week of April 13, Weisinger said.

A flooded grape tomato market at the end of March would likely continue into April, DiMare said.

“There are tremendous volumes out of Mexico. They’ve been at the floor price for a good part of the season.”

Roma prices, meanwhile, were coming down in late March, DiMare said, as Mexican growers moved into new crops following a period of rain-plagued winter fruit.

### **UF/IFAS SWFREC Plant Disease Clinic**

The plant pathology program at SWFREC has expanded its plant disease diagnostic services through the newly re-opened Florida Extension Plant Diagnostic Clinic. The clinic is intended to serve all clients in the region and state experiencing plant disease problems. The clinic in Immokalee joins the network of the Florida Plant Diagnostic Network and of plant diagnostic clinics located in Gainesville and at research and educational centers. The Plant Disease Clinic at SWFREC has been updated with key equipment and diagnostic personnel.

Plant disease samples are accepted during regular operational hours of 8 am to 5 pm or may be submitted by mailing to SWFREC-Plant Disease Clinic.

SWFREC Plant Disease Clinic  
University of Florida-IFAS-SWFREC  
2685 S.R. 29 N  
Immokalee, FL 34142-9515

There is a \$40.00 charge per sample. The clinic number is 239-658-3432.

## **Chlorothalonil in Short Supply**

Multiple sources are reporting shortages of the fungicide chlorothalonil, which is widely used in vegetable crops, and marketed under numerous trade names such as but not limited to Bravo WeatherStik, Bravo Ultrex, Echo 720, Equus 720, Chloronil, Chlorothalonil 720, etc. Issues with product formulation are the likely cause of chlorothalonil shortage.

There are also chlorothalonil combination and supplies of these products are also likely to be limited. In many crops, chlorothalonil is a critical broad-spectrum anchor in nearly all fungicide programs due its good activity at relatively low cost against many foliar diseases as well as its value as a resistance management tool with other fungicides.

Some options for stretching chlorothalonil supplies may include:

- Reducing chlorothalonil application rates where feasible
- Combining a reduced rate of chlorothalonil with another fungicide in a tank mix
- Replace one or two early season chlorothalonil applications with alternative fungicides
- Consider using copper fungicides for some applications.

Due to the potential risk of resistance-related control failures for triazole fungicides and the strobilurin fungicides limit the total application numbers of these fungicides to half or less of the total number of fungicide applications in control program.

With the limitations to the use of above systemic, single site fungicides, there are not a lot of broad-spectrum alternatives to chlorothalonil with a similarly high efficacy level.

## **Ag Thefts continue around South Florida**

**It recent thefts around SW Florida, thieves appear to be targeting chemicals in short supply such as Vydate and Chlorothalonil and more recently have gone after Trimble Auto-Steer units.**

It is imperative that farmers and ranchers work together to deter crime by reporting all suspicious incidents and individuals: like suspicious buyers, people selling chemicals, or other equipment.

Here is the contact information for the Agricultural Deputies in SW Florida.

Palm Beach – Office: 561-992-1270 (Detective Ryan Reeder)

Charlotte - Office: 941-505-4638 (Deputy Justin Treworgy)

Collier - Office: 239-252-0321 (Sergeant David Estes)

Glades - Office: 863-946-1600 (Sergeant David Hardin)

Hendry – Office: 863-674-4092 (Charles White)

Lee - Office: 239-691-9062 (Sergeant Randy Hodges)

You can remain anonymous and be paid a reward if your information leads to an arrest by calling Crimestoppers at: 1-800-780-TIPS

## Up Coming Meetings

**March 31, 2015**      **Young Farmers and Ranchers of Palm Beach County**      7 PM

Farm Credit  
11903 Southern Boulevard  
Royal Palm Beach, FL

RSVP to Nick Larson at [nklagofarms@aol.com](mailto:nklagofarms@aol.com) and join the group for a discussion of loans, grants and other financial support options for farming operations with representatives from Farm Credit, FSA, USDA, and NRCS.

**April 1, 2015**      **Late Blight Mini Field Day**      10 AM - Noon

UF/IFAS SWFREC  
2685 State Road 29 N  
Immokalee, FL

No pre-registration required.

**April 6, 2015**      **Localecopia Meet and Greet**      1:00 – 3:00 PM

The Breakers Palm Beach  
One South County Road  
Palm Beach, Florida

Entry is free, please RSVP to [info@localecopia.org](mailto:info@localecopia.org)

**April 14, 2015**      **UF/IFAS EREC Field Day**      8:00 AM – 2:00 PM

UF/IFAS Everglades Research and Education Center  
3200 E Canal Street  
Belle Glade, FL 33430

Register on-line at <https://www.eventbrite.com/e/erec-field-day-tickets-15875619405>

**April 15, 2015**      **Certified Crop Advisor CEU Seminar**      7:30 AM – 7:00 PM

University of Florida/IFAS – multiple locations including  
Gainesville, Lake Alfred, Balm, Tavares, Immokalee, Ft. Pierce

Register online now: <https://www.eventbrite.com/e/ifas-cca-training-tickets-15711420281>

**April 23, 2015**      **Spring Vegetable Field Day**      9:00 – 1:00 PM

UF/IFAS SWFREC  
2685 State Road 29 N  
Immokalee, FL

To RSVP please call (239)-658-3400

April 29, 2015

Cucurbit Scouting Workshop

9:00 – Noon

UF/IFAS SWFREC  
2685 State Road 29 N  
Immokalee, FL

To RSVP please call (239)-658-3400

### Websites

**Will agriculture be allowed to feed 9 billion people? Pushing Boundaries in Agriculture.** In this TED Talk video, speaker Rob Saik asserts the anti-science movement is the biggest single threat to global food security today. <https://m.youtube.com/watch?v=xvFD6DRn0Cg&feature=youtu.be>

**Florida Tomato Scouting Guide - Action thresholds utilized for management of insect pests on Florida fresh market tomatoes.** Go to <http://erec.ifas.ufl.edu/tomato-scouting-guide/general/action-thresholds.shtml>

**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 UF/IFAS – Palm Beach County Agriculture on Facebook at**  
<https://www.facebook.com/vegetableandtropicalfruituf.ifas.extpbcc>

**Check out Southwest Florida Vegetable Grower on Facebook**  
<https://www.facebook.com/pages/South-Florida-Vegetable-Grower/149291468443385> **and follow Gene McAvoy 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.

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