



UNIVERSITY OF  
FLORIDA

E X T E N S I O N

Institute of Food and Agricultural Sciences

# SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

May 8, 2020

**Most areas reported received much needed rain at the end of April.** Totals ranged from less than a half inch in Homestead to over four inches in Belle Glade and Balm.

**Unseasonably warm weather in April hastened maturity of many crops and South Florida production is rapidly coming to an end as the season progresses northward.**

**Fortunately, markets stabilized toward the end of April following the Covid-19 related decline in demand that sent markets into a tailspin at the end of March and much of April.**

## FAWN Weather Summary

Date	Air Temp °F		Rainfall (Inches)	Ave Relative Humidity (Percent)	ET (Inches/Day) (Average)
	Min	Max			
<b>Balm</b>					
4/13 – 5/8/2020	53.28	93.38	4.07	77	0.15
<b>Belle Glade</b>					
4/13 – 5/8/2020	55.92	95.38	4.67	82	0.15
<b>Clewiston</b>					
4/13 – 5/8/2020	54.27	96.48	1.97	70	0.15
<b>Ft Lauderdale</b>					
4/13 – 5/8/2020	61.65	96.48	2.24	74	0.18
<b>Homestead</b>					
4/13 – 5/8/2020	58.82	92.67	0.42	77	0.17
<b>Immokalee</b>					
50.97	50.97	99.03	1.16	74	0.17
<b>Okeechobee</b>					
4/13 – 5/8/2020	49.23	97.41	3.58	79	0.14

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

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**The National Weather Service forecast indicates that on Saturday, a cold front will move into northern and central Florida and stall out.** At the same time, a disturbance over the western Gulf of Mexico will move eastward allowing for quite a bit of moisture advection to take place across South Florida for the second half of the weekend and into early next week. This combined with the frontal system to the north will bring the potential for a heavy rain across the region beginning on Saturday night and lasting into early next week. The heaviest rainfall should occur on Sunday.

**The exact locations that will see the heaviest rainfall or the greater flooding potential remain uncertain, but in general, this disturbance could produce upwards of 3 to 6 inches of total rainfall through the early portion of next week especially along and south of a line extending from Fort Lauderdale to Everglades City.**

**As for Tuesday and into the middle portion of next week, the latest computer model guidance shows the coverage of showers and thunderstorms decreasing.** However, the chance of showers and thunderstorms will remain in place across the area. The stronger showers and thunderstorms could produce heavy rainfall.

**For additional information, visit the National Weather Service in Miami website at <https://www.weather.gov/mfl/>**

## **Insects**

### **Whiteflies**

**Around Central Florida, tomato growers are barely keeping whitefly pressure under control, but pressure is rising.** Some growers have already experienced whitefly and virus issues in Spring crops and have pulled up entire first plantings due to very high incidence of TYLCV. Respondents indicate that whiteflies are also increasing in melons. Whitefly pressure is also high in green beans.

**Whiteflies are blowing up in a number of locations around SW Florida.** Around Immokalee, pressure has been extreme in remaining acreage for the past few weeks. Whitefly pressure is also high in watermelon and other cucurbits.

**On the East Coast respondents report that whitefly have become unmanageable in many tomato and eggplant fields.** Whitefly populations are also high in cucumber and pepper.

**Reports from Homestead indicate that most growers are finished with tomatoes and green beans, but whitefly numbers are high levels in all remaining susceptible vegetable crops.**

**With whitefly populations beginning to build and continued warm weather, growers are advised to take precautions to protect spring crops especially those like tomato and watermelon where whitefly vectored viruses are a threat.** Studies conducted by Dr Bill Turechek at USDA ARS looking at whitefly populations and virus incidence indicates that there is a high correlation between mild winters and the level of problems experienced in any particular year.

### Efficacy Ratings for Insecticides and Miticides on Tomato

		Whiteflies	Other pests controlled			
MOA	Active Ingredient	Whiteflies	Southern Armyworm	Spider mites	Stinkbugs	Leafminer
4A	dinotefuran	E**			G	
4A	imidacloprid	E**				
4A	thiamethoxam	E**			G	
4D	flupyradifurone	E**				
23	spiromesifen	E†		E		
23	spirotetramat	E†		G		
7C	pyriproxyfen	E†				
28	cyantraniliprole	E**	E			E
1B	malathion	G*				
3A	beta-cyfluthrin	G*	F		G	
3A	bifenthrin	G*			G	
3A	esfenvalerate	G*	G			
3A	fenpropathrin	G*	F		F	
3A	lambda cyhalothrin	G*	F			
3A	permethrin	G*	G			
3A	zeta-cypermethrin	G*	G		F	
4A	acetamiprid	G				
9	pymetrozine	G†				
16	buprofezin	G†				
21 A	fenpyroximate	G		G		
4A	clothianidin	F**				
Unk.	horticultural oil	F†		G		
Unk.	Azadiractin	F†				
Unk.	Soap, insecticidal	F†				

\* OP+Pyrethroids tank mix. † Effective primarily against nymphs \*\* Most Effective as a drench. Check labels before using any pesticide.

Preventative soil applications of either imidacloprid, thiamethoxam, dinotefuran, flupyradifurone or cyantraniliprole should be used preventatively in tomato and cucurbits.

Proper scouting is essential to manage silverleaf whitefly. Over the years, UF entomologists have developed usable action thresholds that have been successful for many tomato farmers. However, these thresholds are only guidelines. Farm managers may modify them to fit their particular situations and expectations. \*

#### Silverleaf whitefly thresholds

0-3 true leaves 10 adults/plant\*

3-7 true leaves 1 adult/leaflet

**NOTE - \*If the source of whiteflies is believed to be tomato or melons, where virus is present, the threshold will be lower!**

**Systemic insecticides applied to soil for whitefly control**

Common name	Mode of Action	Trade Names	Rates
Imidacloprid	4A	Various	Check Label
Thiamethoxam	4A	Platinum 75 SG	1.66 - 3.67
	4A	Venom 70% Scorpion 35 SL Certador 10%	5 - 7.5 oz./ac 9 - 1 0.5 fl oz./ac 32.5 - 47.5 fl oz./ac
Flurpyradifuron	4D	Sivanto 200 SL	21-28 fl oz./ac
Verimark	28	Verimark 18.7%	5-10 fl oz./ac

Tomato and melon growers may wish to consider practicing “social distancing” with spring crops around locating them at least 5 miles (not sure what the distance should be) from other crops and sources of whiteflies.

Field hygiene should be a high priority and should be an integral part of the overall strategy for managing whitefly populations, whitefly vectored viruses, and insecticide resistance.

- Disrupt the virus-whitefly cycle in winter by creating a break in time and/or space between fall and spring crops, especially tomato and cucurbits.
- Destroy crops quickly and thoroughly after harvest, killing whiteflies and preventing re-growth.
- Promptly and efficiently destroy all vegetable crops within 5 days of final harvest to decrease whitefly numbers and sources of plant viruses.
- Use a contact desiccant (“burn down”) herbicide in conjunction with a heavy application of oil (not less than 3% emulsion) and a non-ionic adjuvant to destroy crop plants and to kill whiteflies quickly.
- Time burn down sprays to avoid crop destruction during windy periods, especially when prevailing winds are blowing whiteflies toward adjacent plantings.

For more whitefly management tips – see: Management of Whiteflies, Whitefly-Vectored Plant Virus, and Insecticide Resistance for Vegetable Production in Southern Florida - <http://edis.ifas.ufl.edu/in695>

**Pepper weevils**

On the East Coast, pepper weevils are out of control in most places. Growers are also reporting damage increasing in eggplant.

Around SW Florida, pepper weevil is extreme in remaining pepper and will cause growers to terminate many plantings.

In addition to the pepper weevil (*Anthonomus euginii*), we are hearing scattered reports of **Cuban pepper weevil** showing up around South Florida. Cuban pepper weevil adults are easily distinguished from the

glossy black *A. eugenii*, bearing numerous rough or raised areas, and a considerable amount of brown coloration. Larva are similar in appearance to *A. eugenii*.

**Sanitation and a crop-free period, if accompanied by destruction of alternate hosts, can disrupt the life cycle.** It is very important to eliminate wild solanaceous host plants if pepper weevil is to be managed effectively.

**Adult population estimates are best obtained by visual examination and yellow sticky traps.** Action thresholds are one adult per 400 terminal buds or 1% of buds infested.

**Insecticides are commonly applied to the foliage at short intervals once buds begin to form.** Insecticidal suppression is feasible, but insecticides vary considerably in effectiveness, and even in the presence of chemical insecticides some loss commonly occurs. Actara, Vydate, diamides and pyrethroids can be used in a program to control this pest. Consult UF/IFAS recommendations for currently labeled insecticides for pepper weevil control in Florida.

### **Worms**

**In the Manatee Ruskin area, respondents indicate that armyworms and loopers are increasing.**

**Around the EAA scouts report that worms have become a major issue pre-silking sweet corn and growers are starting to see more worm damage in ears of corn.** Scouts report heavy hatches of a mixed bag of fall and corn ear worms.

**Growers and scouts in SW Florida report worms, mostly loopers and southern armyworms have been on increase in several places.** Some watermelon growers are experiencing problems with worms feeding on watermelon rinds. Melonworms remain active in cucumbers and squash.

**On the East Coast, respondents report that worms, especially loopers have been active.** A few beet armyworm egg masses are also being reported.

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

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

**Consult the UF/IFAS Vegetable Production Handbook for labeled products.**

### **Thrips**

**On the East Coast, respondents report thrips are very high in some areas and relatively low in others.**

**Grower and scouts in Manatee and Hillsborough Counties report that some pepper producers are struggling with chili thrips.** Thrips are also causing some issues in green beans.

**Around SW Florida, *Thrips palmi* starting to build in some areas.**

### **Spider Mite**

**In the Manatee Ruskin area spider mites are increasing in tomato melons and other cucurbits.**

**On the East Coast, spider mites are high in some eggplant and in some other crops including kale.**

**Around Belle Glade, spider mites are developing on sweet corn flags and ear husks in a number of areas.**

**Reports from SW Florida, indicate spider mites are starting to pop up all around in many crops.**

**Under optimum conditions (approximately 80°F), spider mites complete their development in five to twenty days.** There are many overlapping generations per year. The adult female lives two to four weeks and can lay several hundred eggs during her life.

**Spider mite prefers the hot, dry weather of the spring months, but may occur throughout the year.**  
**Management Methods**

**A number of effective products including insecticidal soaps and oils are available for control depending on the crop.** The twospotted spider mite has been known to develop resistance to many chemicals after prolonged use so resistance management is essential.

**Most miticides are not effective on eggs.** Therefore, two or more applications at five-day intervals during the summer or seven-day intervals are advised to break the life cycle.

**Consult UF/IFAS recommendations for currently labeled insecticides for twospotted spider mite control in Florida vegetables.**

**Insect predators are very important in regulating spider mite populations.** Several predator mites commonly attack spider mites. Commercially available species include *Phytoseiulus persimilis*, *Neoseiulus californicus*, *Galendromus occidentalis* and *Amblyseius fallicus*.

### **Broad Mite**

**Broad mites have also returned at significant levels in a number of locations around South Florida.**

### **Stinkbug**

**Growers and scouts are reporting increasing problems with stinkbugs in tomato around Immokalee and in the Manatee Ruskin area.** In the past, stinkbugs have primarily been a problem in organic tomato and were rarely seen in conventional tomato crops, but this situation appears to be changing and some growers have reported increasing difficulty in controlling stinkbug when they show up.

### **Leafminer**

**Around SW Florida and in the Manatee Ruskin area, respondents indicate that leafminer pressure remains high in places.**

**On the East Coast, respondents indicate that leafminer pressure is low to moderate depending on the location.**

### **Aphids**

**On the East Coast growers and scouts report that aphid numbers are increasing.** Scouts are beginning to find some aphid colonies in pepper and note virus incidence is increasing rapidly in squash.

**Around SW Florida, aphids are active and have started building up in some older pepper, squash, cucumbers and watermelons.** Scouts note that in many places, whitefly sprays have pretty much kept them under control.

**In the EEA, respondents report sweet corn growers are still contending with aphid populations but having good control.**

### **Silk fly**

**Around the EAA, silk fly pressure in the Glades has remained lower than expected.**

### **Diseases**

**Heavy rains in some area over the past few weeks has flared some disease in places.**

### **Cucurbit Downy Mildew**

**Respondents indicate that downy mildew has been active around South Florida in cucurbits like squash and cucumber.**

**Growers and scouts report that downy mildew is also showing up most watermelon and note infections have increased in areas pounded by recent rains.**

**Around Manatee County respondents report that downy mildew really kicked into high gear after the last rains and has been quite aggressive in some situations.**

**Downy mildew remains active on cucumber and some squash on the East Coast.**

**Leaf symptoms can be used to diagnose downy mildew in the field in some cases.** On cucurbits other than watermelon, small yellowish spots occur on the upper leaf surface initially away from the leaf margin. Later, a more brilliant yellow coloration occurs with the internal part of the lesion turning brown. Lesions are usually angular as leaf veins restrict their expansion. When the leaves are moist, a downy grayish fungal growth may be seen on the underside of lesions.

**On watermelons, yellow leaf spots may or may not be angular and later turn brown to black in color.** On watermelons an exaggerated upward leaf curling occurs that growers sometimes liken to a dead man's hand.

**Spores are easily dispersed by wind from one leaf spot to another leaf in a field or to another nearby planting.** Under ideal conditions spores may be transported for many miles (sometimes hundreds of miles) from one field to another.

**Since nighttime temperatures between 55° and 75°F and relative humidity above 90%, provide ideal conditions for infection, cucurbits planted in South Florida are always at risk from downy mildew.**

**Control of downy mildew on cucurbits is achieved primarily by the use of resistant varieties and/ or fungicide spray programs.** Fungicide sprays are recommended for all cucurbits. Resistant varieties are currently available for some cucurbits and can help reduce fungicide applications.

**Spray programs for downy mildew are most effective when initiated prior to the first sign of disease since once a planting becomes infected; it becomes more and more difficult for fungicides to control downy mildew.**

**A range of fungicides is available for the control of downy mildew depending on the crop.** Consult UF/IFAS recommendations for currently labeled fungicides for downy mildew control in Florida.

### **Powdery mildew**

**Powdery mildew is widely present on older squash in a number of locations around South Florida.**

**Growers and scouts report that powdery mildew has recently started to show up on watermelon around Southwest Florida.**

**In the Manatee Ruskin area, powdery mildew is showing up on squash and cantaloupe.**

***Podosphaera xanthii* and *Erysiphe cichoracearum*, are the two pathogens that cause cucurbit powdery mildew, attack cucurbits, particularly cucumbers, year-round.** *P. xanthii* is a particularly aggressive pathogen that attacks during warmer months, while *E. cichoracearum* strikes during cool spring and early summer. The disease thrives in high humidity, making the Southeast a high-risk area for powdery mildew.

**Powdery mildew can develop rapidly under favorable conditions.** Symptoms of powdery mildew of watermelon appear as yellow blotches on the oldest leaves first. If untreated the fungus quickly spreads to completely affect the entire leaf. As the disease progresses these blotches become bronzed and turn dark brown or purplish. Eventually the leaf dies and has a crisp texture. Powdery mildew tends to appear in the middle of the season, so preventive treatments can help maximize yield potential while preventing plant damage.

**White masses of sporulation that are frequently seen with other powdery mildews are not commonly seen with the powdery mildew of watermelon.** In some cases, affected leaves may display the typical yellowing, bronzing, and a fair amount of white powdery fungal growth. Often little or no white powdery mycelia are present, and, in these cases, microscopy may be necessary to find a limited amount of the powdery mildew fungus in the yellowed areas. In some instances, powdery mycelia may be absent on the leaves but present on the fruit

**Growers who wish to minimize the risk of yield loss to powdery mildew should make preventative fungicide applications and scout fields regularly.**

**Tolerance or resistance to powdery mildew is available in some vegetable crops.** Most commercial cucumber varieties grown in Florida have acceptable levels of resistance.

**In addition to resistance, economic control can be achieved with chemicals.** Under low disease pressure, some materials applied preventatively for downy mildew may provide satisfactory control of powdery mildew.

**Consult UF/IFAS recommendations for currently labeled insecticides for powdery mildew control on cucurbits in Florida.**



## **Gummy Stem Blight**

**Around SW Florida, gummy stem blight is mostly low but has increased in some fields after harvest started.**

**Some gummy stem has also been reported on melons in west central Florida.**

**Multiple applications of fungicides are necessary to control gummy stem blight. It is important to begin a fungicide program prior to the first sign of gummy stem blight.**

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

**Consult UF/IFAS recommendations for currently labeled fungicides for gummy stem blight control in Florida.**

## **Late Blight**

**Late blight continues to be reported on some tomatoes around Manatee County.**

**Late blight is also present on potatoes around Hastings.**

## **Target Spot**

**Respondents in the Manatee Ruskin area report some issues with target spot in tomato.**

**Target spot continues to be a problem in some remaining tomatoes around SW Florida.**

## **Bacterial spot**

**Bacterial spot is active in some tomatoes in the Manatee Ruskin area following recent rains.**

## **Phytophthora**

**On the East Coast, phytophthora picked up after recent rains but remains mostly low in pepper and eggplants and squash.**

## **Tar Spot**

**Tar spot has been confirmed in sweet corn in the EAA.**

**Tar spot disease of maize caused by *Phyllachora maydis* was first detected in Florida in early June 2016, when a University of Florida researcher collected a leaf sample with symptoms from a South Florida corn field. The diagnosis was confirmed by the USDA Laboratory in Beltsville, Maryland. Prior to this finding, *P. maydis* was first reported and confirmed in both Indiana and Illinois in September 2015.**

**The disease was previously only known to occur outside the US in Mexico and Central and South America, and the West Indies.**

**Corn is the only known host of *P. maydis*. Infections first appear on the lower leaves, usually 10-18 days before silking.**

**Symptoms of tar spot include smooth oval to circular lesions, surrounded by chlorotic borders.** Spots may enlarge with an initially water-soaked area becoming necrotic, to form circular-oval brown lesions with a dark outer edge, known as a 'fish-eye' symptom.

**Larger lesions coalesce after 7-14 days with areas between spots becoming dried out.** The fungus spreads from the lowest leaves to upper leaves, and the husks of developing ears.

**The disease has resulted in up to an estimated yield loss of up to 30% in Mexico, with an average loss of around 8%.** Affected ears have reduced weight and loose kernels, and kernels at the ear tip may germinate prematurely.

**Tar spot disease is usually only a minor problem; however, a more severe form of tar spot complex occurs when there is a joint infection of *P. maydis* and *Monographella maydis*. To date, *M. maydis* has not been reported in the United States.** The disease they cause is occurs in the cooler and higher elevations of Mexico and Central and South America, and the West Indies, so their ability to spread over land through other climatic zones may be limited.

**Natural dispersal is by windborne ascospores which can move relatively long distances.** Tar spot is not known to be seedborne, however it could be transported on fresh or dry maize leaves or husks, or products made from them.

**Other than corn, no other host is known.** Ascospores of *Phyllachora maydis* may survive in crop debris for 3 months or longer.

**Conditions conducive to disease development are high relative humidity, leaf wetness of at least seven hours at night, low light intensity, high levels of nitrogen fertilizer and two continuous crops of corn per year.**

**In Mexico, disease is most severe in the cooler months from November to April and rainfall does not appear to be a significant factor in disease progress and severity.**

**Lower leaves should be examined for small, raised, glossy, dark, circular, or oval to irregular, spots, or for brown lesions, often with a dark border, having a dark ascomata at the centers.**

**Where corn is grown continuously in the vicinity, efforts at sanitation are not likely to be effective.**

**There are currently no fungicides registered in the United States to prevent or manage tar spot.** Tar spot has not been a major problem in sweet corn as fungicides applied for the control of other diseases appears to provide control.

**In fungicide trials conducted in the Midwest last year showed that most corn fungicides have efficacy against tar spot, but timing is crucial.** Applications were most effective last year when there was still very little disease showing

**Tar spot is a greater threat in field corn varieties which are typically sprayed much less frequently and can cause economic loss if not managed.**

## **Northern and Southern corn leaf blight**

**In the EAA, low levels of southern and northern corn leaf blight continue to be reported in some sweet corn.**

## **Bean red node/Tobacco Streak Virus**

**Beans are mostly done in South Florida, but scouts report that red node was pretty high towards the end.**

## **Tomato Yellow Leaf Curl Virus**

**Some growers in the Manatee Ruskin report terminating some early planting of tomato due to very high levels of TYLCV.**

**Growers are advised to plant resistant tomato varieties for the spring crop.**

## **Cucurbit Crumple Leaf Virus and Cucurbit Yellow Stunting Disorder Virus**

**Growers and scouts report cucurbit yellow stunting disorder virus is widespread around Immokalee and seems to dwindle as you head north, crumple mixed in with it.**

## **Squash Vein Yellowing Virus**

**Around SW Florida, scouts are reporting small patches of squash vein yellowing virus aka vine decline in several watermelon fields where vines are collapsing as fruit matures.**

## **News You Can Use**

### **Sanitation, Sanitation, Sanitation...**

Once again as we near the end of the season, growers are reminded of the importance of sanitation in an integrated pest management program. Disease and insects do not magically materialize to plague growers. Many require a living host to carry them from one season to another.

Field sanitation is one of the most important tactics in vegetable pest and disease management. One of the best things that growers can do for themselves and their neighbors is to clean up crop residues promptly after harvest. Sanitation is an important IPM technique that should not be overlooked as an effective, preventative tool against many vegetable pest and disease problems. Sanitation includes any practice that eradicates or reduces the amount of pathogen inoculum, pests, or weed seeds present and thus helps reduce or eliminate subsequent pest and disease problems.

Prompt crop destruction at the end of the season will immediately end the production of disease inoculum and insects and eliminate the spread of diseases and pests to any other host plants in the vicinity. Downy and powdery mildew on melons can spread via wind from older, diseased plants to plants in surrounding fields that are still maturing. These diseases are obligate parasites. This means that they can only grow and multiply on living host tissue. Some plant pathogens, such as the bacterium that causes bacterial spot of tomato and pepper, are unable to survive for extended periods of time outside of the host tissue. Plowing or disking under infected plant debris helps not only by covering up the inoculum but also speeds up the disintegration of plant tissue and kills the pathogen. Good sanitation will help control a number of important vegetable pathogens.

Cull piles should not be neglected as several scouts over the past few years have reported that they have found both insects and diseases such as TYLCV, late blight, whiteflies and others in volunteer plants springing up around cull piles.

Soil tillage can destroy insects and expose them to birds and other predators. It can also speed the breakdown of plant residues that harbor insects and plant pathogens. By either allowing the organic matter in a field to decompose completely before you plant the next crop and /or allowing a fallow period between crops, you can enhance the control of a number of insects and diseases.

Destruction of tomato vines will kill off white fly populations and eliminate transmission of the tomato yellow leaf curl and other viruses to subsequent crops and also eliminate inoculum from late blight and other fungal diseases. This is particularly important in the case of TYLCV and other viruses, as sanitation, a crop-free period, and whitefly/thrips control are the only tools currently available for the management of this disease. A crop-free period is also considered a necessity for the control of a number of other important vegetable pests such as diamondback moth, pepper weevil, tomato pinworm, whitefly and thrips and is recommended for management of all vegetable pests.

A little extra effort spent in cleaning up old fields at the end of the season may well prevent or reduce a number of potential problems next fall!

Summer weed management can be a challenge and will become increasingly important in the post- methyl bromide era. Growers should check field margins to make sure that pest species are not building up there and migrating out into cropping areas. Many insects over summer on weeds, so efforts to control them can be profitable by reducing their movement into the crops next growing season.

Weeds are also known reservoirs of nematodes as well as a number of viral, fungal and bacterial pathogens. Weeds and volunteers should be removed to prevent the survival and over-summering of pathogens that could serve as inoculum reservoirs for the next crop. Techniques such as mowing off pepper should not be relied upon as this often results in re-sprouts, which can harbor pests and disease problems over summer.

The use of cover crops and summer fallowing of fields are also effective tools in reducing weed populations that can cause problems in the subsequent crop. The role of summer fallow in weed management is often overlooked and again promises to become more important in the absence of methyl bromide as a component of a comprehensive methyl bromide alternative strategy. Summer fallow keeps new weed seeds from being added to the soil seedbank. It also reduces the increases in asexual propagated plants such as nutsedge. Yellow nutsedge can put out 70 new tubers (nuts) every two months. Keeping the weeds from propagating will reduce the weed problems encountered during the next cropping season and help reduce insects and diseases that may over summer in weedy fields.

Chemical fallowing is a twist on the traditional method of fallowing that depends on disking fields throughout the summer period to reduce weed pressure in subsequent crops. One approach uses glyphosate to kill weeds during the crop-free period. Note with some combinations of high use rates, heavy weed infestation, soil fumigation, short plant back times and other factors growers have experienced carryover resulting in phytotoxicity and plant damage in subsequent crops on sandy soils.

Some growers have had success controlling glyphosate resistant weeds by utilizing alternative modes of actions such as the organo-auxin herbicides such as 2, 4-D during the summer fallow season.

Cover crops planted prior to the main cash crop can also improve soil fertility and provide a valuable source of organic matter.

With new regulations for fumigants, building soil organic matter content with summer cover crops can help provide credit which will allow reductions in the proposed required buffer zones which will come into effect in 2012. For example, by raising soil organic content to the 1 - 2 % level in the fumigated block you can reduce buffer zones by 20%, increase soil organic content to 2 - 3 % and you get a 30% buffer zone reduction.

When devising a crop rotation strategy, a grower should also be aware of which crops, and cover crops might increase disease problems. Sunn hemp can increase soil populations of *Pythium* and *Rhizoctonia* damping-off fungi. Some varieties of cowpea may host of root-knot nematode. These factors should be considered before selecting a cover crop.

Soil solarization is the use of plastic tarps placed on the soil surface to increase soil temperatures to a level that kills soilborne pathogens, weeds, and other crop pests. Soil solarization works best when summer temperatures are uniformly high. These conditions don't always occur in Florida. Soil solarization will not eradicate a pathogen from a field, but it may lower pathogen populations.

USDA-ARS, U.S. Horticultural Research Laboratory in Fort Pierce, FL has also performed research looking at anaerobic soil disinfestation (ASD) combined with soil solarization as an alternative to methyl bromide and found that ASD combined with solarization may provide an alternative to chemical soil fumigation for control of soilborne plant pathogens and plant parasitic nematodes in Florida raised-bed vegetable production systems.

Soil flooding is a related means of creating conditions—in this case, saturated soil over an extended period - that might result in a decline of soil-borne pathogens.

The end of the season is also the ideal time to take samples taken to predict the risk of nematode injury to fall crops well in advance of planting to allow for sample analysis and treatment periods if so required. For best results, sample for nematodes at the end of the growing season, before crop destruction, when nematodes are most numerous and easiest to detect.

Collect soil and root samples from 10 to 20 field locations using a cylindrical sampling tube, or, if unavailable, a trowel or shovel. Since most species of nematodes are concentrated in the crop rooting zone, samples should be collected to a soil depth of 6 to 10 inches.

Sample in a regular pattern over the area, emphasizing removal of samples across rows rather than along rows. One sample should represent no more than 10 acres for relatively low-value crops and no more than 5 acres for high value crops.

Fields which have different crops (or varieties) during the past season or which have obvious differences either in soil type or previous history of cropping problems should be sampled separately. Sample only when soil moisture is appropriate for working the field, avoiding extremely dry or wet soil conditions. Plant roots should also be examined visually for the telltale signs of galling caused by root knot nematode.

Recognizing that the root-knot nematode causes the formation of large swollen areas or galls on the root systems of susceptible crops, relative population levels and field distribution of this nematode can be largely determined by simple examination of the crop root system for root gall severity. Root gall severity is a simple measure of the proportion of the root system that is galled. Immediately after final harvest, a sufficient number of plants should be carefully removed from soil and examined to characterize the nature and extent of the problem within the field. In general, soil population levels increase with root gall severity. This form of sampling can in many cases provide immediate confirmation of a nematode problem and allows mapping of current field infestation.

The detection of any level of root galling usually suggests a nematode problem for subsequent plantings of susceptible crops. Detection of a potential problem well in advance of the next growing season will provide ample time to devise and implement an effective management strategy.

Integrated pest and disease management is a year-round commitment that should incorporate a combination of cultural, biological and chemical pest management techniques.

## **SWFL Fresh” brand website**

The “SWFL Fresh” brand website is one step closer to becoming live.

Many of you have been involved with the development of this brand over the past year and it seems there’s never been a more important time to connect consumers with direct-to-market producers than with what’s happening with the state of Agriculture during COVID-19.

Many other industry organizations such as FDACS, the Florida Fruit and Vegetable Association, UF/IFAS Extension and countless others are working tirelessly to get comprehensive lists of producers in front of consumers. We believe launching the website now will be complimentary to those efforts. The more eyes we can get on you all, the better.

### Creating your Farm Profile

Temporary Link: <http://sny.eaf.myftpupload.com/>

We want to give you all a chance to input your farm information before we launch this week.

Scroll down to “Growers: Register now”.

Attached are directions for creating a profile. It is easy, intuitive, and will take you 10 minutes to complete.

The goal is connecting consumers with local farms. So, indicate how and where you sell your products, e.g.: 3rd Street Farmers Market; On the Farm; Farm Stand; Retail; Wholesale; Chefs; Catering; Private Events, etc. Give the profile as much information as you can so it’s easy for people to find you.

You will have control over your profile and can update as much as you’d like to include new products, changes in operation hours or locations.

Who can have a profile on the website?

The SWFL Fresh brand that was developed to encourage Southwest Florida residents and visitors to choose food and beverages sourced from Charlotte, Collier, Glades, Hendry, Lee and Sarasota counties. The website and brand is geared towards small to mid-size growers selling direct-to-market products.

However, this brand may include restaurants featuring local foods on their menus, products made in the region using local ag products. Large agricultural producers are welcome to participate because we believe that all scale of local food production is important to our diverse food system. Again, the goal is for the public and consumers interested in local food to have a way to find you.

What’s the next step?

This has been an ongoing and collective effort spearheaded by the SWFL Regional Planning Council and multiple people and organizations including our regional producers, UF/IFAS Extension, EatLocaLee, FGCU and many others.

Many of you will have questions about who can use this logo? How to use it? What kind of accountability will there be? What's the definition of "local"? What's the definition of "SWFLregion"? What if your farm is outside of the counties listed but you sell to consumers in the 5-county region? What if your product is sold outside of the region but produced here; can you still use the logo? And more...

These are important and will be addressed in the coming weeks and months. But for now, we think it's important to your names and products in front of the public. We understand that accountability, in particular, will need to be addressed. Once things calm down a bit, we will address these as a group and will look for your input and direction.

We are still figuring out a few issues on the site, such as the 'what's in season' page. Let us know if something looks off to you.

We are also in the process of creating downloadable logos to use on your websites, product stickers, t-shirts, window decals for your trucks, and banners for farmers market---the production of some of these items may be slowed to the global pandemic, but we can get them out to you as soon as possible.

If you have suggestions and questions, please contact:

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### **Tips to Avoid Heat Related Illness**

It is hot out there - remember to take care of yourself and your workers in hot weather and avoid heat related illness.

Summer in Florida can be overwhelmingly hot, even for long-time residents. Heat stress, heat exhaustion, and heat stroke are illnesses that can overcome you when your body is unable to cool itself.

Heat stress hits quickly, and it may be deadly.

The most serious forms of heat related illness include heat cramps, heat exhaustion and heat stroke.

As many as 600 people die of heat-related causes a year across the United States.

Never leave children or pets in a parked car. The temperature inside cars can rise to 135°F in less than ten minutes, which can kill children or pets. If you see a child or pet left unattended in a parked car, you should call 911.

Slow down. Strenuous activities should be reduced, eliminated, or rescheduled to the coolest time of the day. At-risk Individuals should stay in the coolest available place, not necessarily indoors.

Clothing is important. Dress for summer. Use common sense and wear light colors, a loose weave, long sleeves and a hat. Lightweight, light-colored clothing reflects heat and sunlight and helps your body maintain normal temperatures.

Put less fuel on your inner fires. Foods that increase metabolic heat production--such as proteins--also increase water loss.

Drink plenty of water and other nonalcoholic fluids. Your body needs water to keep cool.

Drink plenty of fluids even if you don't feel thirsty.

People who may be at most risk:

(1) have epilepsy or heart, kidney, or liver disease.

(2) are on fluid-restrictive diets; or

(3) have a problem with fluid retention, should consult a physician before increasing their consumption of fluids.

Do not drink alcoholic beverages. Alcohol dehydrates you.

Do not take salt tablets unless specified by a physician. People on salt-restrictive diets should consult a physician before increasing their salt intake.

Spend more time in air-conditioned places. Air conditioning in homes and other buildings markedly reduces danger from the heat. If you cannot afford an air conditioner, spending some time each day in an air-conditioned environment (during hot weather) can offer some protection.

Don't get too much sun. Sunburn makes it harder for you to cool off.

**REMEMBER TO DRINK BEFORE YOU FEEL THIRSTY!**

Factors Leading to Heat Stress:

- High temperature and humidity
- Direct sun or heat
- Limited air movement
- Physical exertion
- Poor physical condition
- Some medicines
- Inadequate tolerance for hot workplaces

### **Symptoms of Heat-related Illnesses**

Heat Cramps - Rest in a cool place, drink sports drink, and stretch the cramped muscle.

Heat Exhaustion - Hot and sweaty.

Headaches, dizziness, lightheadedness, or fainting

Weakness and moist skin

Mood changes such as irritability or confusion

Upset stomach or vomiting

Move the victim to a cool place, give the person sports drinks, lay them down and elevate their legs, remove excess clothing, sponge with cool water and fan the person. If there's no improvement within half an hour, call 911.

Heat Stroke - Clammy and dry.

Dry, hot skin with no sweating

Mental confusion or loss of consciousness

Seizures or fits



This is The Big One! This one can, and does, kill. CALL 911 IMMEDIATELY even if the victim seems to be improving; move the victim to a cool place, remove excess clothing, keep the head and shoulders slightly elevated, fan the victim and spray with water, place ice packs under the arms, by the groin and sides of the neck where the big veins are. Ice will help cool the blood.

### **Preventing Heat Stress**

- Know the signs and symptoms of heat-related illnesses and monitor yourself and your coworkers.
- Block out direct sun or other heat sources.
- Use cooling fans and air-conditioning, rest regularly.
- Drink lots of water--about one cup every fifteen minutes.
- Wear lightweight, light-colored, loose-fitting clothes.
- Avoid alcohol, caffeinated drinks, and heavy meals.

### **How to Treat Victims of Heat-related Illness**

Call 911 (or local emergency number) at once.  
Move the affected person to a cool, shaded area.  
Loosen or remove heavy clothing on victim.  
Provide cool drinking water to victim.  
Fan and mist the person with water.

### **Up Coming Meetings**

Due to the evolving corona virus situation, UF/IFAS Administration has mandated that ALL in-person group research and extension meetings through the end of April have been postponed (no exceptions).

#### **May 28, 2020 Vegetable Growers Meeting – Focus on Technology in Veg Production - On-line Only**

Join Zoom Meeting

<https://ufl.zoom.us/j/831234086>

Meeting ID: 831 234 086

One tap mobile

+16465588656,,831234086# US (New York)

+16699006833,,831234086# US (San Jose)

Agenda

10:00 AM – Welcome

10:00 AM - Emerging technologies for vegetables – Dr Yiannis Ampatzidis, Precision Ag Engineer, UF/IFAS SWFRECC

In this section, Dr Yiannis Ampatzidis will present new emerging and smart technologies for vegetable crops that will help improve sustainability, reduce production cost and environmental impact

10:30 AM - Growing pains... Is precision ag technology worth the effort? – Mr Scott Berden, Precision Ag Specialist, US Sugar

Mr Berden will discuss various types of precision agriculture technology employed on a large enterprise farm as well as the benefits and lessons learned after nearly a decade of use. Some of the topics covered include vehicle guidance and accuracy levels, data management and reporting, improving logistics and fuel usage and fertilizer and sprayer rate controllers.

11:00 AM – Charles Barrett

11:30 AM – Noon - Questions and Answers with the presenters.

RUP CEU and CCA credit will be provided

## Websites

**PERC** is the **Pesticide Educational Resources Collaborative** – the website provides a wealth of resources to help you understand and comply with the 2015 Revised WPS including training materials, the “new” WPS poster, handouts and WPS respiratory guide. <http://pesticideresources.org//index.html>

### **PERC - WPS Compliance Suite — Training Materials**

Under the newly revised Worker Protection Standard (WPS), training materials must be EPA-approved when officially training workers, handlers, and trainers. At present, the only EPA approved materials available can be found at the PERC website

- Expanded training concepts will be required starting January 2, 2018.
- Training must be delivered in a manner that can be understood, in a location relatively free from distractions.
- When training workers or handlers, the trainer must remain present at all times to be available to answer questions, even when showing a video.
- Trainers must be qualified, most often by holding a pesticide applicator's license or by completing an EPA-approved Train-the-Trainer course.

Training Materials for Workers and Handlers - <http://pesticideresources.org/wps/temp/training/index.html>

## Need CEU's?

Here are a couple of ways to earn CEU's

UF/IFAS offers a number of excellent videos and online modules, that will allow you to earn CEUS.

Go to <https://ifas-pest.catalog.instructure.com> where you will find a number of training modules for a variety of license categories which will allow you to earn CEU's online. Note: there is a charge for these.

Be sure to read the class description to make sure it offers CEU's in the category that you need.

Other options to earn CEU's include.

Here is an easy way to obtain CORE CEU's on-line by reading an article and answering questions regarding the online. A passing score obtains one Core CEU.

Go to: CEU Series-Growing Produce

<https://www.growingproduce.com/crop-protection/ceu-series/>

- CEU Series: Mix and Load Pesticides Safely
- CEU Series: Protect Crops and the Environment
- CEU Series: Make Sure to Stow Your Pesticides before You Go
- CEU Series: Avoid Mishaps When Handling Pesticides
- CEU Series: Be Aware of Bees When Applying Pesticides
- CEU Series: Place Priority on Preventing Pesticide Poisoning
- CEU Series: Learning about Pesticide Resistance Is Anything but Futile

Need more CORE CEUs –Earn CEU Credits NOW online through Southeast AgNet & Citrus Industry Magazine

The following series of articles and quizzes are available:

- 2019 #4: The fate of pesticides (10/31/2020)
- 2019 #3: Protecting soil and water while using pesticides (7/31/20)
- 2019 #2: At-a-glance safety information (4/30/20)
- 2019 #1: What is a pesticide, really? (1/31/2020)

Go to <http://citrusindustry.net/ceu/>

### **Worker Protection Standard Train the Trainer Classes Now On-Line**

Exam Administrators - Cesar Asuaje, UF/IFAS Palm Beach County has developed and made available a new EPA-approved WPS Train the Trainer online option. See the following:

The Environmental Protection Agency (EPA) approved this online Worker Protection Standard Train the Trainer (WPS TTT) course, and upon successful completion, the Florida Department of Agriculture and Consumer Service (FDACS) will issue a WPS TTT certificate.

This certificate provides the qualification to train agricultural workers and pesticide handlers under the Worker Protection Standard requirements. The course was developed in collaboration with Ricardo Davalos, Florida WPS coordinator from FDACS.

Cost is \$35

The course is available in the IFAS Catalog at the following link: Certificate version: <https://ifas-farmlabor.catalog.instructure.com/courses/wps-ttt>

**EPA-approved Fumigant training program** for certified applicators using methyl bromide, chloropicrin, chloropicrin and 1,3-dichloropropene, dazomet and metam sodium and potassium. Applicators must retrain every 3 years. - <http://www.fumiganttraining.com/>

### **Check out Southwest Florida Vegetable Grower on Facebook**

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

### **Quotable Quotes**

"Slang is language that rolls up its sleeves, spits on its hands and goes to work." - Carl Sandburg

I keep six honest serving men. (They taught me all I know); Their names are What and Why and When and How and Where and Who.

Experience is a hard teacher because she gives the test first, the lesson afterwards.

Consider the postage stamp: its usefulness consists in the ability to stick to one thing 'til it gets there.

Today, give a stranger one of your smiles.  
It might be the only sunshine they see all day.

Donkeys kill more people annually than plane crashes and shark attacks, so watch your Ass.

## **On the Lighter Side**

### **The Island**

An Englishman, Irishman and Scotsman are stranded on an island when a magic lamp washes up on the beach.

The Englishman picks it up and rubs it.

Whoosh a genie appears.

“I will each grant you a wish,” the genie says.

The Englishman says, “I wish I was back home in the pub with a pint of beer and watching football.”

And, whoosh, the Englishman vanishes.

The Scotsman says, “I wish I was back home in the pub with a dram of whisky, watching the Highland games.”

And, whoosh, the Scotsman disappears.

The Irishman looks at the genie and says, “Christ, it's lonely here now. I wish the lads were back”.

### **Talking Dog for Sale**

A guy spots a sign outside a house that reads “Talking Dog for Sale” Intrigued, he walks in.

“So what have you done with your life?” he asks the dog.

“I’ve led a very full life,” says the dog.

“I lived in the Alps rescuing avalanche victims.

Then I served my country in Iraq.

And now I spend my days reading to the residents of a retirement home.”

The guy is flabbergasted.

He asks the dog’s owner, “Why on earth would you want to get rid of an incredible dog like that?”

The owner says, “Because he’s a liar! He never did any of that!”

## Noah's Ark

Everything you need to know about life, you can learn from Noah's Ark

One: Don't miss the boat.

Two: Remember that we are all in the same boat.

Three: Plan ahead. It wasn't raining when Noah built the Ark.

Four: Stay fit - when you're 600 years old, someone may ask you to do something really big.

Five: Don't listen to critics; just get on with the job that needs to be done.

Six: Build your future on high ground.

Seven: For safety's sake, travel in pairs.

Eight: Speed isn't always an advantage. The snails were on board with the cheetahs.

Nine: When you're stressed, float a while.

Ten: Remember, the Ark was built by amateurs; the Titanic by professionals.

Eleven: No matter the storm, when you are with God, there's always a rainbow waiting...

**This will be the last regular Pest and Disease Hotline issued for this season.** Publication will resume with the start of the 2020-2021 vegetable season. I would like to acknowledge and extend my sincerest thanks to all of the many contributors who graciously shared valuable information, which has made the hotline so successful and also for the generous support of all our sponsors without which publication of the hotline would not be possible.

**This will be the last hotline for the season – wishing you all the best for a safe and restful summer season!**

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*Gene McAvoy*

Gene McAvoy

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