



# SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

January 26, 2018

**Two strong cold fronts blasted South Florida dipping temps in many areas to below freezing and into the mid to low 30's in others.** Fortunately, most growing regions in the southern part of the state were spared significant crop damage as winds limited frost formation and temps dipped to below freezing for only a brief period. Growers are reporting widespread wind damage to foliage, scarred fruit and some burnt tops.

**There were a few reports of major damage to some corn and beans around Belle Glade and some sensitive crops in normally colder areas of SW Florida.** Most of the fall crops in the Manatee Ruskin are finished and growers will be planting spring crops with this week's warmer weather.

**FAWN Weather Summary**

Date	Air Temp °F		Rainfall (Inches)	Ave Relative Humidity (Percent)	ET (Inches/Day) (Average)
	Min	Max			
<b>Balm</b>					
1/2 - 1/26/18	25.20	82.99	1.11	77	0.06
<b>Belle Glade</b>					
1/2 - 1/26/18	33.70	84.18	0.46	83	0.06
<b>Clewiston</b>					
1/2 - 1/26/18	33.27	83.77	1.52	83	0.06
<b>Ft Lauderdale</b>					
1/2 - 1/26/18	40.56	82.53	3.13	79	0.06
<b>Homestead</b>					
1/2 - 1/26/18	37.35	82.80	0.66	82	0.06
<b>Immokalee</b>					
1/2 - 1/26/18	30.25	84.13	0.54	82	0.06
<b>Okeechobee</b>					
1/2 - 1/26/18	29.38	83.61	0.67	82	0.06
<b>Wellington</b>					
1/2 - 1/26/18	35.48	84.45	1.42	82	0.06

**Relatively cool temperatures for most of the month have held back crops and reduced volumes.** Light volumes of a range of vegetables are coming to market and prices which have been generally favorable are showing signs of weakening. Around SW Florida, newly set watermelons have struggled with cool, wind and dampness.

**The National Weather Service forecast indicates that the weather through Saturday should be relatively dry, with just a very isolated shower or two spreading inland from the Atlantic at times.** Temperatures will exhibit a slow warming trend, with windy conditions persisting.

**Low pressure will cross north Florida on Sunday, with trailing cold front gradually moving into South Florida overnight bringing significant showers, and possible isolated thunderstorms.**

**Behind the front, much cooler, drier air moves in Monday night, and low temperatures in the 40s are likely across northwest interior both Monday and Tuesday nights.** Tuesday night/early Wednesday morning 40s may invade most of interior South Florida. Toward the end of the week, temperatures will moderate.

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

## **Insects**

**Insect activity remains relatively light in most areas**

### **Leafminer**

**Around SW Florida, growers and scouts report that leafminers are popping up here and there requiring treatment in a few places.**

**Respondents on the East Coast indicate they are seeing low levels of leafminer activity in eggplant.**

**Leafminer is widely present in Homestead on a variety of crops.**

**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. 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).

**Newer chemistries which have added to the grower's arsenal of control include Coragen (rynaxpyr), Exirel and Verimark (cyazypyr) which have given good results and have greatly reduced leaf miner pressure on many farms.**

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

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

## Worms

**Around Immokalee, there are still a few worms around, mostly southern armyworms.**

**Producers on the East Coast are reporting mostly low worm pressure.** Diamondback moth have been active in some locations on host crops such as collards, kale, arugula, and broccoli.

**Melonworms remain active on cucurbits around Homestead.**

**Low numbers of fall armyworms are present in sweet corn in the Glades.**

## Whiteflies

**Around SW Florida, whitefly populations remain low.**

**Growers and scouts on the East Coast indicate that whiteflies remain a non- issue in most locations at present.**

**Reports indicate that whiteflies are present in some crops around Homestead.**

**Whiteflies remain well below normal but they are around and some days it appears they are starting to rebound but then cold, wind or rain knocks them back.**

**While populations remain low, they can build up quickly, so growers should scout regularly to avoid being taken unawares later in the season.** Preventative soil applications of either imidacloprid, thiamethoxam, dinotefuran, flupyradifurone or cyantraniliprole should be used as normal in tomato and cucurbits.

**Consider the use of metalized (UV reflective) mulch as an additional management practice for day-flying pests such as whiteflies, thrips, aphids, pepper weevil and even broad mites, the last of these which use flying insects to move around.**

**Table 1; Systemic insecticides applied to soil for whitefly control**

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

## 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.

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 Weevil

On the East Coast, weevil numbers remain very low in the Palm Beach area. Growers and scouts in St Lucie county are reporting a bit more weevil activity there.

Around SE Florida, weevil numbers remain low to very low in most places with some fields reporting no detects to date.

**Since adults will migrate readily from old fields to new plantings, populations generally build up during the season so that populations are greatest in later spring plantings.**

**Commercially available pheromone traps may aid in early detection.** Fruit and flower buds should be examined for damage and fallen fruit and buds examined for presence of larvae.

**Infested fruits can be recognized before they fall by the yellow calyx and the presence of oviposition punctures that look like small dimples.** Hot peppers like Jalapeno and Serrano's are often the first peppers to be affected. Fruit and flower buds should be examined for damage and fallen fruit and buds examined for presence of larvae. If possible, all damaged and fallen fruit should be removed and destroyed.

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

**Spraying needs to commence at the first sign of weevils or with flowering in fields with a history of problems. Dow has announced the return of Vydate to the market** which has been the standard control and has given pretty good results when sprayed weekly.

**Other products that have performed well in trials include Capture (bifenthrin), Kryocide (cryolite) and Actara (thiomethoxam).** Unfortunately, applications are limited to two per season and growers are still trying to work out the timing of applications to achieve the best results.

**Many of the currently labeled materials are difficult to work into an IPM program once plantings begin to be harvested due to the 7-day PHI in force for all of them.** This is particularly true for hot peppers which are often harvested multiple times during the course of a week. Consult UF/IFAS recommendations for currently labeled insecticides for pepper weevil control in Florida vegetables.

**In addition to chemical controls, a complete IPM approach is recommended for pepper weevil management.** Adjacent or nearby sequential plantings should be avoided. Sanitation is important. Crops should be deep plowed immediately following harvest and after treating with insecticide to reduce adult movement into nearby fields and to reduce survival over the summer. A crop free period is essential in helpful in reducing populations between crops. Crop destruction is probably the best option for older plantings where weevils become unmanageable.

### **Aphids**

**Around SW Florida, a few winged aphids are blowing around but little colony formation has been noted.**

**Respondents on the East Coast indicate that aphids remain mostly low otherwise with a few blowing around in a variety of crops.**

### **Spider mites**

**Growers in Palm Beach County report seeing some spidermite activity in eggplant.**

**Growers and scouts report patchy low levels of spidermite activity around SW Florida.**

**Two-spotted spider mites are building up in strawberries in Plant city area**

## **Broad Mite**

**Mostly low numbers of broad mites remain present in all areas of South Florida.**

## **Thrips**

**Melon thrips are fairly common on susceptible crops around Homestead.**

**On the East Coast, growers report very low thrips numbers showing up in some bell pepper blossoms.**

## **Wireworms**

**Very low levels of wireworm are taking out single plants in some sweet corn around Belle Glade.**

## **Diseases**

### **Lettuce downy mildew**

**Lettuce downy mildew, caused by *Bremia lactucae*, remains active in the Glades.**

**Growers are advised to be on a consistent preventative program using mancozeb and a phosphite.**

**Now that the disease is present, growers should also consider working in some of the more specific fungicides with translaminar or systemic activity such as Revus, Zampro, Orondis, Ranman, Reason, Forum, Presidio, Previcur flex, Aliette, etc.** Growers should check with their suppliers and read the label carefully before using for plant back, use patterns, and rates.

### **Downy mildew of Crucifers**

**Downy mildew has been extremely active in cabbage and broccoli in a number of locations around South Florida starting at the 2 to 3 true leaf stage.**

**Downy Mildew of cruciferous crops is caused by the fungus *Peronospora parasitica*.** All crucifers are susceptible.

**Leaf symptoms usually appear on the underside of the leaf as black or dark specks on young leaves.** These spots are often irregular in shape and may appear net-like. The upper side of the leaf will also develop dark spots similar in shape and may be accompanied by leaf yellowing.

**On older leaves, these spots will often coalesce resulting in larger areas of the leaf blade having large, sunken, paper tan-colored spots.** Leaf yellowing may accompany these symptoms. Early infection on young plants can cause stunting.

**On the underside of the leaf spots, a white-grey, downy growth can often be observed with or without the aid of a hand lens, especially when leaves are wet.** On mature cabbage, downy mildew can appear as dark sunken spots on the head or wrapper leaves.

**Cauliflower curds and broccoli heads can become infected with blackened areas on the outside of the tissue.** The infection can become systemic and turn inner curd and stem tissue dark.

**Cool, wet conditions are conducive for the development of downy mildew.** Moisture is required for disease development. If temperatures are suitable, the disease will be more severe under conditions of high rainfall or heavy dews and fog.

**Downy mildew is controlled primarily by fungicides at the present time.** Protectant fungicides should be applied at least weekly beginning when night time temperatures are conducive for sporulation and disease development and when rains, dews or irrigations are frequent or heavy.

**Some of the newer fungicides are highly effective in controlling the disease but will typically have a limited number of applications and should be rotated between FRAC classes to reduce the possibility of the development of resistance and to help lengthen the effective lifespan of these fungicides.** Consult UF/IFAS recommendations for currently labeled fungicides for downy mildew control in Florida.

**Since favorable weather for disease development may occur at seeding or transplanting time growers should be prepared to spray at an early stage of crop development.** Growers should strive to purchase disease-free transplants. Excess transplants should not be dumped in cull piles where they might continue to grow and serve as sources of inoculum.

### **Sclerotinia**

**Respondents on the East Coast report a significant increase in Sclerotinia activity in eggplant and pepper with the recent cold drizzly weather but still at fairly low levels overall.**

**Growers and scouts around Immokalee are also reporting low levels of sclerotinia in tomato, pepper and eggplant.**

**The fungus, Sclerotinia sclerotiorum, is responsible for a number of vegetable diseases attacking a wide range of crops.**

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

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

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

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

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

**The fungus produces a survival structure called a sclerotium either on or inside the tissues of a host plant.** When conditions are favorable, the dormant sclerotia will germinate to produce fruiting bodies. These produce ascospores, which then germinate on the host and begin to invade the host's tissues via mycelium,

causing infection. *S. sclerotiorum* is capable of invading nearly all tissue types including stems, foliage, flowers, fruits, and roots. Once a plant is infected white mycelium will grow on the surface of the infected tissues. At the end of the season, sclerotia are produced. The sclerotia will then remain on the surface of the ground or in the soil, on either living or dead plant parts until the next season.

**Consult UF/IFAS recommendations for currently labeled fungicides for sclerotinia control in Florida vegetables.**

### **Botrytis**

**Growers and scouts on the East Coast report finding Botrytis in pepper in a couple locations and note that incidence has reached moderate to high levels in one location.**

**Botrytis or gray mold can cause a variety of problems including damping-off and blights of flowers, fruits, stems, and foliage.** Entry often occurs through damaged tissue. Stems can become infected through leaf scars, dead leaves, or other form of stem damage. Stem lesions appear as large elliptical, water-soaked lesions. These may partially girdle the stem, but sometimes the entire stem is affected and the plant is killed.

**Leaf lesions develop into wedge-shaped grayish-brown lesions.** During cool moist weather, a gray fungal growth may be evident on infected tissue.

**Fruit are often infected at the stem end or shoulder where they contact other infected plant parts.** Young fruit can also become infected directly by airborne. Water-soaked spots appear with a light brown to tan central region. Decay progresses rapidly. A soft rot may develop with the fruit skin remaining intact, while the inner tissue becomes mushy and watery. Sclerotia may form in infected tissues.

**If there is a rapid weather change (not favorable to the fungus), fruit infections may abort.** White circular (halo) spots appear on the fruit and are called "ghost spots." These spots persist on green, and mature fruit.

### **Northern Corn Leaf Blight**

**Northern Corn Leaf Blight is present in the Glades and will probably remain so throughout the next several months.** Northern corn leaf blight caused by the fungus *Exserohilum turcicum* is one of the most important sweet corn disease in southern Florida causing significant losses some years.

**Initial symptoms of the disease include yellow spots that develop on the foliage.** These enlarge to form tan or straw-colored dead areas about 4 to 6 inches long and one half inch wide. 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 *E. turcicum*.

**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.

**Spores are spread by rain and wind and may be carried long distances by the wind.** Lesions can produce spores in as little as one week, allowing NCLB to spread much faster than many other corn leaf diseases.

**Disease development is favored by heavy dews, frequent showers, high humidity and moderate temperatures**

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

**Fungicide application can effectively control Turcicum when applied at the right time.** Fungicide 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.

**Consult UF/IFAS recommendations for currently labeled fungicides for northern corn leaf blight control in Florida.**

### **Alternaria Leaf and Pod Spot**

**Alternaria leaf and pod spot is being reported on beans from several locations.**

**The most serious symptoms of this disease occur on bean pods, since damage to the marketable portion of the plant can render the produce unfit for sale.** Lesions on pods usually appear as very small, dark-brown to black flecks. When examined with a hand lens, these flecks are somewhat raised and cone-like. Large numbers of unsightly flecks, however, can result in rejection of the entire lot, especially at lower market prices.

**Leaf symptoms first appear as small, water-soaked flecks that rapidly develop into circular to irregular spots with pale-brown centers and reddish-brown borders.**

**Faint, concentric rings may occasionally be visible in older lesions.** As the disease progresses, leaf lesions may merge together leading to large, blighted areas and premature leaf drop.

**Ideal conditions for the development of Alternaria leaf spot include high relative humidity, rainfall, and cool temperatures.** Outbreaks of the disease can be expected from January through March in Homestead, Belle Glade and Devil's Garden growing areas of southern Florida.

**For scouts and others with access to a microscope, the multi-celled, pigmented spores that have both transverse and longitudinal septa (cell walls) and a short "tail" or "beak" are diagnostic of the disease.**

**Management of Alternaria leaf and pod spot consists of maintaining adequate crop nutrition and avoidance of close between-row and within-row plant spacing.** Fungicides also play a major role in the integrated management of this disease.

**It is particularly important that effective fungicides be applied when pods are small (pin pod stage) in order to avoid infections that will be evident later as pods mature.**

**Strobulurin fungicides have given good results but should be applied according to the label and rotated with materials with other modes of action to avoid potentials problems with resistance.**

### **Target spot**

**Target spot remains active in tomato around South Florida.**

**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.**

**Widespread resistance has been documented to QoI fungicides including both strobilurins and non-strobilurin fungicides in FRAC Group 11 and their use is not recommended for target spot control.**

**In addition, moderate resistance has been documented in the SDHI fungicides FRAC Group 7 which includes boscalid, penthiopyrad, fluopyram and fluxapyroxad. These should be used with caution and attention paid to rotating with alternative modes of action.**

**In recent efficacy trials, at the University of Florida – Approvia Top, Inspire Super, Luna Tranquility, Revus Top, Rhyme, and Scala are top performers. Contact protectant fungicides like mancozeb and Bravo are effective and should be used early in the crop cycle switching to more efficacious materials once disease is present.**

**Consult UF/IFAS recommendations for currently labeled fungicides for target spot control in Florida vegetables.**

### **Bacterial spot**

**Around Southwest Florida, bacterial spot is widespread in tomato and some susceptible pepper varieties and is jumping on wounded tissue from recent cold windy weather.**

**Since water movement spreads the bacteria from diseased to healthy plants, workers and farm equipment should be kept out of fields when fields are wet because the disease will spread readily under wet conditions.**

**It is important to apply sprays before and during wet weather. Spraying wet plants can actually assist in the spread of bacterial spot. If conditions are favorable, frequent spraying may not be sufficient to maintain bacterial spot below damaging levels.**

**Attention to application techniques is as important as choice of material in achieving adequate control.**

### **Pythium**

**Growers and scouts report that Pythium is working on newly planted spring watermelon struggling in cold wet soils.**

**Growers may consider applying a fungicide to help limit damage of damping off caused by Pythium spp.**

**Currently labeled fungicides for Pythium can be found in the Vegetable Production Handbook for Florida. As always, it is recommended that a disease diagnostic clinic assist with determining the pathogen associated with the problem in order to make an effective fungicide management recommendation.**

### **Phytophthora**

**Phytophthora blight remains active in squash in Miami Dade County.**

**Phytophthora remains active in pepper and eggplant around Palm Beach, Martin and St Lucie counties following recent rains.**

**Growers and scouts report that Phytophthora is taking out some pepper plants in scattered locations around Southwest Florida.**

**Current options for pre-transplant applications include a Ranman (cyazofamid, 21) drench up to one week before transplanting or as a seedling tray drench at transplanting for Pythium and Phytophthora in tomato, pepper, and eggplant.** Previcur Flex (propamocarb HCL, 28) has a label for the suppression of Pythium and Phytophthora in tomatoes and peppers. Phosphite fungicides such as ProPhyt, Rampart, and K-Phite (FRAC code 33) can also be applied as a pre-transplant drench in the greenhouse. Additionally, there are a number of biologicals such as Trichoderma, Streptomyces, and Bacillus products which can also be used in the greenhouse as drenches or incorporated in to the soilless mix to help suppress soil-borne pathogens. Remember, biologicals typically need to be applied without conventional fungicide.

**At transplanting applications include Ranman (cyazofamid, 21) in the transplant water or through drip irrigation for Pythium control.** There is a section 2ee for the use of Previcur Flex (propamocarb HCL, 28) + Admire Pro (imidacloprid) in transplanting water for fungus and insect control.

**Presidio (fluopicolide, 43) has a label for drip application for Phytophthora control when conditions are favorable for disease development. Additionally, phosphite fungicides, Pro-Phyt, Rampart, and K-Phite (FRAC code 33) can also be applied through drip irrigation at transplanting to help suppress Phytophthora blight.**

### **Bacterial brown spot**

**Dr. Richard Raid, pathologist at UF/IFAS EREC reports that bacterial brown spot caused by *Pseudomonas syringae* pv. *syringae* is now showing up on some beans in the Belle Glade area.**

**The initial foliar symptom of bacterial brown spot is small water-soaked spots that develop into distinctive necrotic brown spots about 3-8mm in diameter, often with a narrow, diffuse yellow margin** These lesions may enlarge, coalesce, and fall out giving the leaves a tattered appearance. Sunken brown spots can form on the pods. If infection occurs early in pod development, the pod may become bent or twisted at the infection site.

### **Halo Blight**

**Dr. Shoan Zhang, Pathologist at UF/IFAS TREC reports that green bean growers in Homestead are experiencing some problems with halo blight.** Halo blight is caused by the bacterium *Pseudomonas syringae* pv. *phaseolicola*.

**Symptoms of halo blight initially appear as small water soaked spots on the underside of the leaflets, eventually developing into numerous small, reddish-brown lesions on the leaves.** Greenish-yellow halos, highly variable in size, subsequently develop around these spots. During severe infections the disease may become systemic and cause yellowing and death of new foliage. At temperatures above 80°F halos are very small or absent. Pod symptoms first appear as small water-soaked spots and streaks on the pod surface. The water-soaked areas enlarge and are sometimes surrounded by a narrow reddish zone. Light, cream-colored bacterial exudate may be present on the lesions under moist conditions.

**Infected bean seed is the most important source of both bacteria.** Growers should plant only certified, disease-free seed.

**Varieties differ greatly in their susceptibility to different bacterial diseases.** Growers should choose bean varieties with tolerance or resistance to the bacterial diseases that occur frequently in the growing area if possible.

**Copper-based bactericides can help reduce populations of bacterial pathogens on bean foliage, and also reduce disease severity when applied as a preventative.** These compounds, however, cannot eradicate the pathogens once the plants are infected. If wet weather is persistent, bacterial populations can increase very quickly and are difficult to arrest unless several applications of copper-based bactericides are made.

### **Tomato Yellow Leaf Curl Virus**

**Mostly low levels of TYLCV are also being reported around SW Florida and is increasing in some fields.**

### **Cucurbit Leaf Crumple Virus**

**Crumple leaf virus has been reported on squash in the Homestead area.**

### **Tomato Chlorotic spot virus.**

**There have been a few isolated reports of tomato and pepper plants showing TCSV symptoms in Palm Beach and Miami Dade County.**

**Dr. Shoaun Zhang, plant pathologist at TREC advises that TCSV was detected in green bean plants in a greenhouse in August-September 2017 where tomato plants were grown and infected with TCSV.**

**He notes that this poses a potential threat because of the large acreage of beans in South Florida.**

### **Black rot**

**Respondents in Palm Beach County report find mostly low levels of black rot on cabbage and other crucifers.**

**Black rot is caused by the bacterium, *Xanthomonas campestris* pv. *campestris*.** Cabbage, broccoli, cauliflower, kale, collards, radish, and other members of the cabbage family are susceptible.

**In the field, the disease is easily recognized by the presence of large yellow "V"-shaped areas extending inward from the margin of a leaf, and by black veins in the infected area. Usually only a few of the outer leaves are involved.**

**Diseased areas enlarge and progress toward the base of the leaf, turn yellow to brown, and dry out.** The veins of infected leaves, stems, and roots turn black as the pathogen multiplies. On cauliflower, black rot commonly appears on the leaves as numerous, minute brown specks. The infected lower leaves of cabbage and cauliflower are usually stunted, turn yellow to brown, wilt, and drop prematurely. Occasionally, diseased plants have a long bare stalk topped with a small tuft of leaves. In extreme cases, heading may be prevented.

**Although the distribution of diseased plants in the field may be uniform, symptoms are often more severe in wet or shaded areas.** If infected seedlings were set in the field, scattered pockets of diseased plants often appear. Diseased plants may appear in rows as a result of spread during cultural operations.

**Black rot can be controlled by utilizing an integrated control program.** The control of this disease is based the use of clean seed, and sanitation. Spraying with copper fungicides may help limit spread.

### **Powdery mildew**

**Low levels are powdery mildew are starting to show up on cucurbits in all areas of south Florida.**

## **Downy Mildew**

**Growers and scouts are also beginning to find low levels of downy mildew on cucurbits around south Florida.**

## **News You Can Use**

### **Florida's Migrant Worker Problem**

The Sunshine State's \$8 billion agriculture industry could face worker shortages because of the Trump administration's immigration crackdown.

By Noreen Marcus, Contributor

USNews

Jan. 26, 2018, at 12:01 a.m.

The U.S. Department of Homeland Security probably surprised no one when it announced that as of now, Haitians are ineligible for the H-2A guest farmworker visa program. Officials cited "high levels of fraud and abuse" and "a high rate of overstaying" visas.

The cutoff tracks administration moves against migrants who enter the country legally but stay on illegally. It also closely follows President Donald Trump's consequential use of an expletive to characterize Haiti and, by extension, its people.

Florida agriculture has its share of illegal immigrants from Haiti and many other places. But the state's farmers, harvesters and packers are adamant that the industry runs on H-2A visas and disrupting the program could be ruinous.

An H-2A temporary visa is good for up to 10 months and does not provide a path to citizenship. When the picking season ends, the worker must return home, generally to Mexico or Central America if the fields are in Florida. A breakdown of visa holders by nationality could not be obtained, but Haitians apparently constitute a small percentage of them in Florida.

The visas' importance to an \$8 billion industry cannot be overstated, insiders and savvy observers agree. There simply aren't enough domestic workers willing and able to harvest crops, sometimes while perched on ladders wearing bags around their necks to free both hands for picking.

"Where would we be without H-2A? We'd be out of business," says Steve Johnson, owner of a wide-ranging harvesting company based in Wauchula, south of Tampa. Of the 900 workers he employs to gather berries, citrus and onions, 90 percent are in the program.

Florida leads the nation in H-2A worker positions certified by the Department of Labor. In fiscal year 2017, the state had 15.9 percent of the total 97,285, topping Georgia (13.2 percent) and North Carolina (9.8 percent).

There are an estimated 25,000 visa holders in Florida, or about a quarter of the roughly 100,000 eligible crop workers. (Plant nurseries account for another 100,000 who can't apply because their work is continuous, not seasonal.) And the number of H-2A applications is rising.

"The program nationwide will continue to grow exponentially, and that just speaks to not necessarily the greatness of the program, but to the need to gain an accessible workforce for our agricultural producers. That's

the best avenue and the compliant, legal way to get those workers," says John-Walt Boatright, national affairs coordinator for the Florida Farm Bureau Federation.

Yet no one is delighted with H-2A. Farmers chafe under extensive regulations and paperwork and complain it's too expensive. "Our producers find it incredibly difficult and cost-prohibitive to participate, and yet in order for them to produce their crops they have to have a workforce," Boatright says.

Labor advocates say established farmworker communities such as Immokalee are being destroyed while employers cherry-pick young males from Mexico and other countries with no fair-labor laws. The system is abused by recruiters who illegally charge migrants substantial fees. And employers who want to cheat workers can get away with it because they have the upper hand – in the current anti-immigrant climate, more than ever.

Gregory Schell, an attorney with Southern Migrant Legal Services, tells the story of a Mexican laborer who complained to his foreman about being shortchanged.

"The foreman told him, well, yes, you are being cheated, but I have the magic pen," Schell says. He explained that the foreman recorded the names of returning workers and, when he came to "a complainer, the pen ran out of ink."

The worker was a named plaintiff in a federal class action against Sorrells Brothers Packing Co. of Arcadia, east of Sarasota. The lawsuit claimed the citrus concern failed to pay sufficient wages to dozens of workers as required by federal law and the H-2A program.

Sorrells denied the allegations but settled the case in 2008 for about \$600,000, plus \$150,000 in fees to plaintiffs' counsel from Florida Legal Services.

But these days the courts may be less hospitable to immigrant worker complaints.

On Jan. 9, a federal judge in Tampa ruled in an H-2A case that Fancy Farms, a Plant City strawberry grower, was not liable for failing to reimburse workers the \$3,000 to \$4,000 they paid recruiters who were working for the employer.

Under the Fair Labor Standards Act farmers must warn recruiters in writing against extracting fees from laborers. But Fancy Farms did not include this contract clause because it was "not aware of any federal regulations requiring it to do so," U.S. District Judge Susan Bucklew wrote in her opinion.

Schell was an adviser to the Florida Rural Legal Services attorneys who brought the case on behalf of 54 Hondurans. He indicated the decision will be appealed.

"The government adopted this requirement to try to enlist employers into the struggle against labor trafficking by reining in their foreign recruiters," Schell says. "If employers can ignore this requirement with impunity, the regulation ceases to be much of a tool against labor trafficking."

There are efforts to clean up the recruitment system. The Coalition of Immokalee Workers, celebrated for exposing slavery rings, is encouraging the Mexican National Employment Service to recruit and screen H-2A applicants.

Johnson, owner of the Wauchula harvesting company, says he doesn't need recruiters. He uses word of mouth, asking his best workers to recommend other workers.

"You get one name, you build it slowly so that you build it right and you build it with the right people," he says. "They hear how we treat people so that spreads, too."

"The biggest thing is morale," Johnson says. "If somebody is happy they'll be more productive."

Yet migrant advocates say the reverse is also true, that if the prevailing policy message is all about deportation, the main motivator is fear and the result is flight.

Reggie Brown notes the connection between policy and labor availability. Brown will retire at the end of January from running the Florida Tomato Committee, the state's tomato regulator and marketer.

"It's one of the biggest challenges in the business and it's been that way for a number of years now," Brown says. He agrees the Trump administration's push for deportations is counter-productive.

"The policy of increasing the pressure certainly does not add in numbers to the workforce and any reduction in the workforce is a challenge to the business," Brown says.

He wants an expanded and better-managed guest worker process that allows migrants to travel freely between the U.S. and their native countries without fearing immigration agents. He isn't optimistic about Congress making the necessary changes, however.

"In the world we live in, who knows what the likelihood is of anything?" Brown asks. "It can all start or end with a tweet."

<https://www.usnews.com/news/best-states/articles/2018-01-26/florida-farmers-fear-backlash-over-migrant-worker-visa-program>

## **USDA clarifies hydroponic organic status**

Tom Karst  
The Packer  
January 25, 2018

The U.S. Department of Agriculture wants organic growers to know that hydroponic, aquaponic, and aeroponic operations can still be certified under USDA organic regulations.

In a Jan. 25 notice, the USDA's Agricultural Marketing Service acknowledged there has been extensive debate on hydroponic, aquaponic, and aeroponic operations since the fall 2017 meeting of the National Organic Standards Board. The agency said it was posting the notice to clarify the status of the operations.

"For these products to be labeled as organic, the operation must be certified by a USDA-accredited certifying agent, and maintain compliance with the USDA organic regulations," according to the notice.

The agency said the National Organic Standards Board has recommended prohibiting aeroponic systems in organic production. While it considers the recommendation, aeroponic production methods remain allowed.

The USDA also announced that it has published transcripts and presentations from the fall meeting of the National Organic Standards Board on its website.

<https://www.ams.usda.gov/event/2017-national-organic-standards-board-nosb-meeting>

<https://tinyurl.com/ycwwkfjl>

## U.S. E. coli outbreak linked to leafy greens over

Chris Koger  
The Packer  
January 25, 2018

Almost a month after the Centers for Disease Control and Prevention announced an E. coli outbreak in the U.S., it reported the outbreak was over on Jan. 25.

(UPDATED 12:30 p.m.) U.S. health agencies have declared the E. coli outbreak is over, but unlike Canada, which linked a similar outbreak there to romaine, no specific source other than “leafy greens” has been identified as the cause in the U.S.

The Centers for Disease Control and Prevention and Food and Drug Administration, which worked with state and local health agencies where illnesses were identified, announced the outbreak over on Jan. 25.

Although Canada, which declared its outbreak over on Jan. 10, warned consumers not to eat romaine, no recall in either country was initiated, and to date no suppliers, growers or origin of production has been identified.

For several weeks, produce industry groups worked with government agencies to declare the end of the outbreak, based on the unlikelihood that the perishable lettuce was still in the marketplace long after the last reported U.S. case on Dec. 12.

The United Fresh Produce Association alerted industry members on its Food Safety Community e-mail list about the Jan. 25 announcement. The association is asking companies that were affected by the outbreak to contact it to gain a better picture of how this outbreak affected the industry.

The U.S. outbreak attracted a lot of attention, with Consumer Reports advising consumers to avoid romaine, despite the CDC’s decision not to target any food item because the investigation never led to a specific cause, other than leafy green. The CDC traced 25 illnesses in 15 states and a death in California to the outbreak.

The CDC’s initial notice on the outbreak on Dec. 28 said tests showed the U.S. and Canadian cases were “genetically related,” but even after whole genome sequencing was performed, the agency was unable to definitively match results to the Canadian cases. The Public Health Agency of Canada first reported its outbreak on Dec. 11, and declared it over on Jan. 11.

<https://tinyurl.com/y94tqoqy>

### **Management Tips for Florida Vegetable Growers** from Dr. Phil Stansly, Entomologist at UF/IFAS SWFREC

Many of you noticed low populations of perennial pests on our late planted crops post Irma. They are coming back! It’s time to start thinking about them again if you haven’t already.

**1. Whiteflies:** Soil applied systemic insecticides still give the longest lasting control. Still, it is more important than ever to rotate modes of action. If you started out with a 4A neonicotinoid, available rotation options are Sivanto (4D) or Verimark (28). Both have their advantages (efficacy) and disadvantages (long PHI and high cost respectively). Check the label on the first point. Of course, you will also rotate modes of action with your sprays. Once into the season, the main battle will probably be against the nymphs, so be sure to fully utilize products such as Movento and Knack that are especially good against those life stages.

**2. Pepper weevil.** Populations typically go way down in the summer and start slow in the fall. Don't be lulled into complacency; if you generally see them in the spring they are probably already in your crop. Use pheromone traps along field borders to provide the first heads up, and start spraying at the first sign. Don't hold crops any longer than you have to and turn them under as quickly as possible. Control nightshade both in and around your crop. Help may be coming in the form of a new attract and kill product that we hope to start testing this season. Meanwhile, don't slack up on all your chemical and cultural control options including reflective mulch for the spring crop when pressure is always worse.

**3. Diamondback moth.** If you grow any type of brassica crop, this is for you. DBM is the champion among all insect pests in its ability to develop insecticide resistance. The good news is that it will lose resistance quickly to most any insecticide except pyrethroids if not exposed for a good while. The best strategy is to rotate modes of action on a monthly basis. In this system, any insecticide with the same IRAC number can be used during a given month and then not again until a year has elapsed. This program has worked well in Hawaii and can work in Florida. Also, try and separate successive brassica crops as much as possible to reduce movement of moths from crop to crop. Feel free to consult with us and let us know of any apparent control failures. And remember, for all these pest footprints in your crop are key to success.

## Up Coming Meetings

**January 29, 2018**

**Produce Safety Alliance Grower Training**

**Mounts Building at Mounts Botanical Garden  
531 N Military Trail  
West Palm Beach, FL 33415**

Register online at <https://psa012918.eventbrite.com>  
\$25 for Florida residents (\$125 for non-Florida residents).

**February 21, 2018**

**WPS Train the Trainer**

**Everglades Research & Education Center  
3200 E Palm Beach Rd.  
Belle Glade, FL 33430**

Call for details 561.233.1725 or email at [EEScott@pbcgov.org](mailto:EEScott@pbcgov.org)  
\$25 (*lunch & handouts included*)

**February 22, 2018**

**Lettuce Advisory Committee Meeting**

**Everglades Research & Education Center  
3200 E Palm Beach Rd.  
Belle Glade, FL 33430**

Lunch is being sponsored by AgroLiquid & begins at 12:00PM

Special guest, University of California, Extension Plant Pathology Farm Advisor, Steve Koike will address Fusarium Wilt

**November 4–6, 2018**

**The 24th International Pepper Conference**

Fort Myers, Florida, USA

Learn more at <http://conference.ifas.ufl.edu/pepper2018/>

## Websites

**NRCS assistance can help producers integrate high tunnels into their operations and provide financial assistance through the Environmental Quality Incentives Program (EQIP).** Learn more at <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/organic/?cid=nrcseprd1364702>

**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.

## 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.

- 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 CORE CEU's?** – 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.

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

Go to <http://www.growingproduce.com/?s=CORE+CEUs>

## 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>

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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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