



UNIVERSITY OF  
FLORIDA

EXTENSION

Institute of Food and Agricultural Sciences

Hendry County Extension

PO Box 68 LaBelle, Florida 33975-0068

Phone (863) 674-4092

# SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

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**A cold front moved through the area earlier this week bringing some short-term relief from the unseasonably warm weather, which has blanketed South Florida for most of the past month which saw temperatures running 6 – 13 degrees above normal and many days in the mid 80's.** Reports from the National Weather Service indicate that December was the 3<sup>rd</sup> warmest on record. Growers report that above normal temperatures have accelerated crop growth and are playing havoc with planting schedules as some planting are as much as 15 days ahead of scheduled harvest. Daytime temperatures have been mostly in the 70's and 80's with nighttime temps in the 40's, 50's and 60's and a few 30's in normally colder locations.

**Unsettled weather during the holiday period bought some rain to south Florida growing areas.**

Accumulations varied widely with highest reported totals from Balm and Homestead. In addition to rain, fog and heavy dews and mostly cloudy conditions punctuated with varying amounts of rainfall has continued to favor disease development in many areas over the past few weeks. In some places, growers reported minor disruptions of planting and cultural activities.

### FAWN Weather Summary

Date	Air Temp °F		Rainfall (Inches)	Hours Below Certain Temperature (hours)							
	Min	Max		40°F	45°F	50°F	55°F	60°F	65°F	70°F	75°F
<b>Balm</b>											
12/22/06 – 1/12/07	37.8	78.7	2.21	1.2	20.1	8.2	14.7	14.9	27.4	13.3	98.5
<b>Ft Lauderdale</b>											
12/22/06 – 1/12/07	53.5	84.3	0.80	0.0	0.0	0.0	6.6	16.1	6.0	34.6	17.0
<b>Fort Pierce</b>											
12/22/06 – 1/12/07	43.0	84.1	1.48	0.0	4.7	24.4	4.5	9.0	29.5	23.0	1.0
<b>Homestead</b>											
12/22/06 – 1/12/07	46.4	83.7	2.16	0.0	0.0	6.0	1.9	0.5	6.6	10.2	11.3
<b>Immokalee</b>											
12/22/06 – 1/12/07	40.2	84.8	0.01	0.0	11.7	5.0	2.8	4.6	3.2	43.1	9.0

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**Crops coming to market include cabbage, celery, cucumbers, eggplant, endive, escarole, lettuce, okra, peppers, radishes, snap beans, squash, strawberries, sweet corn, tomatoes, watermelons and specialty items.** Quality is mostly good although reports indicate that warm weather has affected strawberry quality. Reports from the Ruskin area indicate that they are between crops at this time.

**The short-term forecast from the National Weather Service in Miami calls for no significant changes to the current weather pattern through the early part of next week.** A ridge of high pressure to the north will maintain breezy conditions. Flow off the Atlantic will bring patchy clouds and low-level moisture and the possibility of a few scattered showers. A cold front is predicted to impact the area by Thursday possibly dropping temperatures to seasonable lows. For additional information, visit the National Weather Service in Miami website at <http://www.srh.noaa.gov/mfl/newpage/index.html>

## **Insects**

### **Leafminer**

**Growers and scouts in around Southwest Florida report that leafminer pressure has been extremely high in a number of places and that they just won't quit.** Some growers are calling it one of the worst years ever. A number of growers have observed increased pressure when nearby crops like beans are harvested.

**Reports from Homestead, indicate that leafminer are widespread and causing problems in tomato, squash, bean and other crops.**

**Respondents in Palm Beach also report heavy leafminer pressure on a variety of crops including beans, cucurbits, tomatoes, lettuce, and specialty greens.**

**Leafminers attack many row crops but are particularly damaging on celery, crucifers, cucurbits, okra, potato and tomato.** Florida growers report that leafminers are the second most important tomato insect pest especially in south and central production areas. Leafminers are present for much of the year in Florida. In south Florida, populations peak between October and March while in central Florida they are a problem in both spring and fall.

**The two major species of leafminer that cause problems in vegetables in Florida are the vegetable leafminer (*L. sativae*) and most commonly (*Liriomyza trifolii*) - sometimes referred to as the celery leafminer but which has no approved common name.** The adults are small yellow and black flies about the size of a gnat. The female punctures or "stipples" the leaves with her ovipositor to lay eggs in the leaf tissue or to feed on sap.

**Leafminer damage is easily recognized by the irregular serpentine mines in leaves, which are caused by feeding larvae.** Heavy leafmining damage can reduce photosynthesis and cause leaf desiccation and abscission. The yellow maggots with black, sickle-shaped mouthparts feed on the mesophyll or chlorophyll tissue between upper and lower leaf surface leaving a winding trail or pattern through the leaf. The tunnel is clear with the exception of a trail of black fecal material left behind as the maggot feeds.

**There are three larval stages.** Each larval instar is completed in 2 - 3 days. The maggots feed approximately 7 days growing to about 1/10 to inch in length prior to exiting the leaf to pupate on the ground or mulch under infested plants.

**Leafminer injury is readily visible to the grower but healthy plants can tolerate considerable damage without excessive loss of vigor and yield.** The Florida Tomato Scouting Guide sets action thresholds at 0.7 larva per plant for young plants with less than 2 true leaves and 0.7 larva per 3 terminal leaflets for larger plants. Heavily damaged leaves will often drop, due in part to entry of pathogenic organisms into old mines.

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

**Fortunately, populations are usually prevented from reaching truly damaging levels by a number of parasites that attack leafminers.** Several parasites for this insect have been recorded in Florida, but parasitic wasps such as *Opius*, *Diglyphus* are most common. Wasp larvae develop on or in the leafminer larva or pupa. The host ceases to feed and the parasitoid egg or larva is visible through the leaf epidermis using a hand lens against strong light. In scouting fields, growers should be careful to note the number of parasitized mines before deciding to apply insecticides.

**Due to its feeding habit, this pest is resistant to many insecticides.** 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. Spinosad (Spintor, Entrust) has also given good results and is labeled on a wide range of crops. Some other materials that may be used to conserve beneficials include azadirachtin (Neemix) and insecticidal oils. Neemix and Entrust are approved for use by organic growers.

**Field sanitation is an important control tactic that is overlooked.** When crops are not present in the fields, leafminers can survive on a variety of broad-leaf weeds. These plants serve as reservoirs for pest.

### Whiteflies

**Reports from the East Coast indicate that whitefly numbers are starting to build seasonally in a number of places.** Pressure is variable ranging from moderate to heavy on a variety of crops including cucurbits, eggplant, peppers tomatoes and other items. In some places, respondents indicate problems with large numbers of adult migrating into young plantings. Some problems with silverleaf have been noted in squash.

**Around Immokalee, whitefly levels are up and down depending on location.** Reports indicate that whiteflies are increasing as fields get destroyed and some farms are experiencing problems with the movement of adults from adjacent fields. Nymphs are present in many of the older fields around on several crops.

**Around Homestead, reports indicate that the whitefly situation is getting worse.** Growers are having a difficult time controlling them with Admire, Provado, Knack and other common insecticides. TYLCV incidence and occurrence also appears to be earlier and higher on tomatoes compared to last year.

**Phyllis Gilreath writing from Manatee County reminds growers that as they finish the fall season and begin the spring season, the Tomato Burn Down Rule is in effect and, if anyone is aware of fields that are not being maintained or harvested, it is enforceable.** See Tomato Burn Down Rule below.

**She continues that as a result of the relatively warm weather thus far this winter, the stage may be set for large populations of whitefly as well as other insects in the following weeks and months.**

**Phyllis notes that while growers can't do a lot about what may be in the woods.** They can reduce the numbers coming off of old fall fields and moving into the woods or new spring fields by promptly destroying those old tomato fields and adding an oil or insecticide to the herbicide for spraying, followed by quick removal of old plant debris to eliminate regrowth on vines that were not completely killed.

**To review the revised UF/IFAS Recommendations for Management of Whiteflies, Begomovirus, and Insecticide Resistance for Florida Vegetable Production and the New Tomato Burn-Down Rule, visit the**

Manatee County Extension website at <http://manatee.ifas.ufl.edu/vegetable.htm>. Remember that good sanitation and prompt clean up is important in management of whiteflies on a regional basis.

### Worms

**Around Southwest Florida, reports indicate that worm pressure has slowed a bit in some places but that growers continue to battle a wide variety of worms including southern armyworm, beet armyworm as well as a few fruitworms and loopers.** Pickleworm and melonworm are also present and causing problems in cucurbits. Pinworms have been reported from one location.

**Around the Glades, respondents indicate fall armyworm pressure in sweet corn has eased up a bit is still moderate to high.**

**On the East Coast growers and scouts report s indicate that worm pressure is mostly low.** Growers and scouts report are finding some new beet armyworm egg masses.

**Respondents in Homestead report an increase in beet armyworm pressure in tomatoes.** Reports also indicate that melonworm and pickleworms are present in damaging numbers in cucumbers and that silk fly is now infesting sweet corn and field corn. Diamondback moths are present in crucifers and appear to be increasing.

### Broad Mites

**Growers and scouts on the east coast indicate that broadmites still continue to cause problems in eggplant and pepper.**

**Around SW Florida repots indicate that broadmites have flared up in a number of places.**

### Aphids

**Around Immokalee, aphids are around and growers and scouts report finding colonies in several fields.** Growers are treating as needed.

**Reports from Palm Beach County indicate that aphids are mostly low but colony formation has been noted in a number of crops including eggplant, pepper and specialty items including oriental brassicas.**

**Around Belle Glade, Dr Gregg Nuessly reports aphids are definitely on the rise.** Weekly suction trap aphid counts here at UF/IFAS EREC remain high and aphids are showing up in high numbers in cabbage.

**Respondents in Hillsborough County indicate some problems with aphids in strawberries.**

### White Grubs

**Respondents in Homestead report increasing problems with white grubs in sweet potato and boniato**

**True white grubs are the larvae of May beetles (also called June Beetles) found in the genus *Phyllophaga*, of which there are over 100 different species.** *Phyllophaga* larvae and other larvae of the family Scarabaeidae are often referred to as "white grubs."

**Although white grubs can be a problem every year, the most serious damage tends to occur in regular three-year cycles.** The greatest damage to crops occurs the year after the appearance of the adults. During the years of heavy May beetle infestation, deep-rooted legumes, such as alfalfa or clovers, should be planted.

**If corn is present, every effort should be made to keep the field free of grass and weed growth, as this will reduce the number of eggs laid.** The year following heavy flights of May beetles, planting corn or potatoes should be avoided in fields that were previously under sod or grass.

**Late spring or early autumn disking destroys many larvae, pupae, and adults in the soil and also exposes the insects to predators, such as birds.** For this practice to be effective, disking must occur before the grubs migrate below the plow depth.

**Inoculating the soil with milky spore bacteria *Bacillus popilliae* Dutky and *B. lentimorbus* Dutky spores may aid in reducing populations.** These products are available commercially.

**Soil applied insecticides such as Imidan and Mocap are also effective.**

### **Spider Mites**

**Growers and scouts in Palm Beach County report some problems with spidermites in eggplant.**

**A few problems with mites on squash have been reported around Southwest Florida.**

**Spider mites are also present on strawberries around Plant City.**

### **Thrips**

**Growers and scouts on the East Coast continue to report problems with thrips in pepper and eggplant.** Both Florida flower thrips and *Thrips palmi* are present depending on the location and there have been several reports of scarring of fruit under and around the calyx.

### **Pepper Weevil**

**Around Southwest Florida, pepper weevils are building in several older fields and have been found in some younger plantings.**

**A few pepper weevils have been reported around Palm Beach County.**

### **Diseases**

#### **Late Blight**

**The big news is around southwest Florida continues to be late blight, which has spread considerably over the past week or so.** While many of the early occurrences were clustered around Immokalee is now widely present from Naples to LaBelle and showing up in many home gardens as well as commercial fields.

**The rapid spread actually started with the rainy weather Christmas weekend (and possible reduced attention to spraying as the holiday mode set in) and has continued to spread rapidly.**

**Presently there are few if any tomato and potato farms around without some level of late blight.** In many fields there are only a few single leaf lesions scattered around, at least for right now. There are also a few fields around where nearly all plants have a few lesions in the top of the plant.

**Scout also report finding late blight on volunteers around the entire area, on volunteers in row middles, around field edges and in fallow areas.** Some of those little tomato volunteers that sprout up along the end of

the beds prior to planting can and are developing late blight symptoms before the crop is planted. There have also been a number of reports of late blight on transplants so growers would be advised to examine plants carefully.

**Respondents in Palm Beach report that they are also beginning to find a few late blight infections here and there.** No reports of late blight have been received from Homestead or Manatee.

**Late blight can easily devastate a tomato or potato field within a few weeks if it is not properly controlled.** Since the disease can spread so rapidly, growers should scout their fields thoroughly each day, especially when cool and wet conditions conducive to disease development prevails. Since late blight symptoms may be confused with symptoms of other diseases, the following diagnostic pointers may help growers distinguish between the late blight and other diseases.

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

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

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

**Currently, fungicides are the most effective means of controlling late blight and will remain the primary tool until cultivars with resistance to this disease become available.** Fungicides slow the rate at which the disease develops in the field by creating a protective barrier on the foliage. Just applying a chemical, however, does not necessarily equate with effective disease control. Relative effectiveness of a product, coverage, and timing must be factored into the equation for maximum benefit.

**Numerous fungicide products are registered for late blight control.** Protectants, as the name implies, protect foliage from infection by spores. Protectant chemicals must be well distributed over the leaf surface and must be applied before spores land on leaves. They are ineffective against established infections.

**Systemic products become distributed locally within plant tissues and protect foliage from infection by spores.** Newer products such as Curzate (DuPont) boast “kick back” action that can help arrest infestation if applied within 48 –72 hours of initial infection. They may kill some established infections and may suppress production of new spores. Even a short break in spray schedules, despite what is said regarding some of the newer fungicides, can result in a dramatic increase in blight under the conditions we have had during the past two weeks.

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

**Growers are advised to be aware of the presence of the disease in SW Florida and should be alert for the appearance of symptoms in their fields as well as be sure to apply protective fungicides such as chlorothalonil.** In addition, it may not a bad idea to put out an application of the late blight fungicide of your choice - Previcur Flex (Bayer Crop Science), Reason (Bayer Crop Science), Curzate (DuPont), Forum (BASF) to help prevent possible infections. No other disease will find an unprotected field as rapidly as late blight.

**Testing by Dr. Pam Roberts at the UF/IFAS SWFREC in Immokalee and by Syngenta pathologists at the Vero Beach Research Center has shown isolates of the current field strain of late blight on tomatoes to be sensitive to mefenoxam, the active ingredient in Ridomil products.**

**Dr. Pam Roberts, Plant Pathologist at UF/IFAS SWFREC has launched a website that pulls together current information on late blight from various sources and which will help keep growers apprised of the late blight situation in Florida.** You can check out the Late Blight Information Center at [http://swfrec.ifas.ufl.edu/plant/late\\_blight/](http://swfrec.ifas.ufl.edu/plant/late_blight/)

### **Bacterial Spot**

**Growers and scouts on the East Coast report widespread problems with bacterial spot on pepper and tomato.** Incidence and severity is moderate to high in many places following recent rainy weather.

**Around Immokalee, bacterial spot has flared up over the past week with new activity in both tomato and peppers and transplants.** Several tomato fields have new lesions across the top foliage and also fruit infections.

**Reports from Homestead indicate that bacterial spot is present in some tomato fields.**

### **Target Spot**

**Respondents on the east Coast indicate that target spot is increasing and is widely present in tomato.** Incidence and occurrence is high in some older plantings.

**Around Southwest Florida, target spot is widespread on tomato.** A number of older plantings have the entire inner foliage consumed by target spot and lesions also showing up on fruit.

### **TYLCV**

**Around Southwest Florida, tomato yellow leaf curl virus is increasing seasonally with a number of older fields now at 1 – 5 % infection level and in-field transmission increasing.** Reports also indicate finding new infections in younger plantings and there have been several reports of infected transplants coming from the plant house. Growers should take care to examine transplants carefully to avoid problems.

**Respondents on the East Coast report TYLCV also beginning to increase with growers actively roughing younger plantings.**

Reports from Homestead indicate that TYLCV is an issue in tomato. **Some reports suggest that TYLCV incidence on tomato and BMG on beans may be higher than this time last season.**

### **Alternaria**

**Respondents on the East Coast report that early blight is present in a number of scattered locations and is causing problems on some fruit being held on the bush.**

**Around Immokalee, early blight has increased somewhat and incidence and occurrence is mostly low.**

**Respondents from Homestead indicate that Alternaria is widely present in beans and is affecting pods in some instances.** Reports indicate that Alternaria is also widely present on tomatoes.

### **Downy Mildew**

**Around Immokalee downy mildew continues to be a problem cucumbers and squash and has reached moderate to high levels in some older fields.** Organic growers are having particular difficulty in achieving control and disease is a limiting yields.

**On the East Coast, downy mildew is widely present on cucumbers.** Incidence and severity is moderate.

**Leaf symptoms can be used to diagnose downy mildew in the field in most cases.** On cucurbits other than watermelon, small yellowish areas occur on the upper leaf surface. Later, a more brilliant yellow coloration occurs with the internal part of the lesion turning brown.

**Usually the spots will be angular as they are somewhat restricted by the small leaf veins.** When the leaves are wet, a downy white-gray-light blue fungus growth can be seen on the underside of individual spots (lesions). As the disease develops an exaggerated upward leaf curling will often occur.

**Some growers are reporting good control using high rates of Previcur alternated with Ranman.** They stress that it important to begin application early before symptoms are seen, even as early as the first true leave stage.

### **Powdery Mildew**

**Growers and scouts around South Florida are reporting increasing problems with powdery mildew on squash and cucumbers.** Incidence and severity is high in some older fields. Powdery mildew is more wide spread and a bigger problem in squash.

**Reports indicate that powdery mildew is also widely present on cucurbits on the east Coast.** A few reports of powdery mildew on pepper have also been received.

**Around Hillsborough County, powdery mildew is being reported on some strawberry varieties.**

### **Sclerotinia**

**East Coast growers and scouts report a number of problems with Sclerotinia on pepper, eggplant and tomato.** Dr. Ken Pernezny reports that finding Sclerotinia in pepper is a little surprising considering how warm it has been. He advises that scouts and others should look for the tell-tale black sclerotia inside the stems of wilted pepper plants. In response to questions about the source of inoculum, he reports little if any direct germination and infection occurs from sclerotia. Most all of the inoculum occurs from ascospores which form in specialized structures called ascocarps that develop off the sclerotia. These then become **windborne** and are transported to susceptible hosts such as pepper, tomato, and eggplant. Growers need to look to special exemption uses such as Topsin-M for control, as many general-purpose fungicides are not that good for Sclerotinia.

**Around Immokalee, Sclerontinia has been showing up in a number of crops including tomato, pepper, potatoes, beans and watermelons.**

## Fusarium

Around Immokalee, fusarium crown rot is increasing in tomato. Reports indicate that incidence is as high as 10 –12% in some older fields

Scattered problems with fusarium crown rot on tomato have also been noted on the East Coast.

## Rhizoctonia Diseases of Vegetables

**Dr. Rick Raid, Pathologist at UF/IFAS EREC reports abnormally warm seasonal temperatures have made the warm-temperature fungal pathogen *Rhizoctonia solani* a real scourge this growing season.** Causing web blight and bottom rot of lettuce and other leafy crops, basal stalk rot of celery, and web blight, root rot, and pod rot of snap bean, growers are having a tough time controlling this soil-borne fungus.

**High humidities and moist soil conditions in many areas have aggravated the problem even further.** Tough to control using broad-spectrum protectants such as the EBDCs or chlorothalonil, growers may have better results with fungicides exhibiting some translaminar or systemic activity.

**On beans, viable translaminar candidates would include the sterol inhibitor Nova, the strobilurins Amistar, Headline, and Quadris, and the dicarboximide Rovral.** Although fungicide programs for this disease are primarily preventative and may seem expensive, they may prove especially fruitful where cropping needs require a second or third cropping cycle without complete breakdown of old crop residues between crops.

**These residues frequently serve as a ready source of *Rhizoctonia inoculum* for the following crop.** Read all labels for further details on rates, application instructions, and PHIs. Cultural practices that lead to keeping the soil and canopy somewhat drier, such as lower water tables, soil aeration through cultivation, and lower planting densities may assist in limiting the impact of *Rhizoctonia* diseases.

## Downy Mildew on Lettuce

**Dr. Raid notes that lettuce downy mildew, caused by *Bremia lactucae*, has been observed in south Florida and all lettuce growers should be on a strict preventative spray program and scouting heavily for this disease.** So far, it has not been reported on muck-grown lettuce.

**Fungicide programs that have proven very effective when applied in a preventive mode have been tank-mixtures of a phosphonic fungicide and maneb, rotated with a fungicide of an activity dissimilar to the phosphonics.** Rotational prospects are dimethomorph (Forum or Acrobat), Previcur Flex, Reason, and Tanos. Manidipropamid (Revus) has also shown good activity in trials and may soon have a label for this particular crop and disease, but as of this moment, registration is still pending.

## Rust on Beans and Sweet Corn

**As we head toward spring, Dr Rick Raid, Pathologist at UF/IFAS EREC advises that growers should become more observant for common rust on sweet corn and common rust on snap beans.** These disorders are easily recognized by the presence of small orange/brown pustules on the leaf.

**Thus far, both rust diseases have been nearly absent from Palm Beach and Hendry Counties, but they typically begin rearing their ugly heads after the first of the year.** Whenever possible, growers should plant varieties with known resistance to rust, keeping in mind that the pathogen has many variants which may overcome resistance.

**From a chemical standpoint, strobilurin fungicides are the compounds of first choice, followed by the sterol inhibitors and finally the broad-spectrum protectants.** Although low levels of rust are tolerable,

growers should not wait until this foliar disease gets out-of-hand before trying to control it. Rust can significantly impact yield when severe by causing extensive defoliation and may even cause lesions on bean pods and corn ear husks.

### **Gummy Stem Blight**

**Gummy stem blight is present on cucurbits in a number of locations around South Florida.** There have been some reports of infected transplants.

**Scouts report that gummy Stem Blight is also causing problems on the East Coast.**

### **Pepper Spot**

**Over the years, “pepper spot” (gomasho or black speck) of cabbage has been a problem for growers, particularly for producers of Chinese napa cabbage.** While pepper spot is often called a disease, it is actually a physiological disorder whose cause is still being debated. The problem has been attributed to many conditions including excess water, excess N, warm temperatures at the heading stage, rapid growing conditions, cloudy weather, cold snaps, early nutrient stress, harvesting of over-mature heads and varietal differences. Recent research about this disorder is difficult to find and often is inconsistent, however the problem can have significant economic impact.

**Pepper spot typically causes black to brown spotting or specking of the white leaf midribs of napa, almost as if someone had sprinkled pepper on the leaves, hence the name.** It is typically thought of as a postharvest disorder and while not always obvious at harvest, it is exacerbated by certain storage conditions. Research has been conducted on temperature, carbon dioxide levels and ethylene. Cool storage followed by warm temperatures seems to make it worse. Storage with high (10%) CO<sub>2</sub> reportedly reduces development on round cabbage, while ethylene does not appear to promote it.

**This disorder is not just a postharvest problem as it is frequently seen in the field in West Central and on the East Coast of Florida.** This fall we have seen fairly severe symptoms in napa cabbage in West Central Florida and we may even be seeing it in transplants. Although we have never observed it in transplants before, no pathogens have been isolated and there is no definitive test for pepper spot. Most of the research that has been conducted has focused on fertility, most often N rate and source.

**The general consensus is that in the leaves, absorbed nitrate is located in the midribs and it changes to amino acids in the leaf blades. If nitrate cannot be reduced fast enough due to excess N, cloudy weather (nitrate reductase is a light-induced enzyme), etc., then nitrite that is produced as an intermediate accumulates in the midribs thereby causing the “pepper spots”.** The presence of nitrite has been detected even before the spots are completely formed, lending further credence to this theory. It has also been reported that excess N side-dressing during head formation contributes to the problem. In at least one study spotting was worse with high rates of N or P and at a high soil pH (8.3). Ammonium nitrate resulted in more spotting than urea.

**Napa cabbage cultivars vary greatly in their susceptibility to pepper spot. In work at UC Davis, ‘T-740’ and ‘Yuki’ had the least amount, followed by ‘Spring Flavor’ and ‘Southern King’. ‘Blues’ and ‘WR-70’ had much higher amounts.** Growers with pepper spot problems are advised to choose less susceptible varieties and take a close look at their fertility program. On-farm trials would also be helpful in evaluating cultivars as well as N rate, source and timing on the incidence of “pepper spot”.

Excerpted from an article by Phyllis Gilreath and Eric Simone in the Vegetarian Newsletter, January 2007.

### **Gray Wall**

**Several growers around Southwest Florida have reported problems with gray wall over the past few weeks.** Incidence and severity has ranged from low to fairly high in some cases.

**Scattered problems with gray wall have also been reported in Palm Beach County.**

**Gray wall is commonly observed in Florida tomato growing areas during periods of low light and morning fog, and during the winter and spring tomato production windows.** The exact cause of gray wall is elusive. The fruit defect is associated with a wide variety of environmental conditions including, but not limited to, high nitrogen, low potassium and compacted soil conditions or growing medium. TMV, certain bacteria and fungi are also thought to be contributing factors to the development of gray wall.

**Also known as blotchy ripening, gray wall symptoms usually appear on immature tomato fruit as blotchy gray or brownish-gray spots.** As the tomato matures to red, the discolored areas remain gray or turn yellowish, resulting in fruits that do not ripen evenly. The dark brown tissue can also be seen in the walls of the tomatoes when they are cut open, making them less desirable to consumers.

### **Management Tips for the Prevention of Gray Wall**

1. Use gray wall tolerant varieties
2. Plant only varieties that offer TMV resistance Academic research indicates a greater incidence of gray wall in non-TMV resistant varieties.
3. Watch the weather An awareness of predicted cold fronts or rainy conditions allows the grower to implement early preventative crop management steps that may help reduce gray wall. Such steps may include de-leaving above the bottom truss to allow more light penetration to the crop, increasing K fertilization levels, and reducing the frequency of irrigations.

### **News You Can Use**

#### **South Florida Water Management District Report**

Coupled with irregular 2006 rain patterns that disproportionately favored southern and southwestern portions of the District, SFWMD meteorologists recorded District-wide rainfall of 40.75 inches for 2006, marking the sixth-driest year on record in South Florida dating back to 1932.

The total is nearly a foot, or 22 percent, below the historical average rainfall of 52.25 inches per year District-wide.

All of the District's major basins experienced below average rainfall for the year. Most notably, the Upper Kissimmee Basin, comprised of the Kissimmee Chain of Lakes, received a record low of 32.20 inches of rain in 2006, nearly an inch below the previous record of 33.00 inches set in 1961 and nearly 18 inches below the basin's historical average of approximately 50 inches.

Similarly, the Martin/St. Lucie Basin, along the District's northeastern border, received 33.70 inches of rain, approximately 61 percent of that basin's historical average and the second-lowest annual rain total on record here dating back to 1915.

At present, the water level of Lake Okeechobee, a bellwether measurement of the District's water supply, is more than three feet – or 21 percent – below its historical average for this time of year. This is a concern because the lake serves as the region's primary back-up water supply.

## **WPS Inspection Frequency to Increase**

If your farm has not had a WPS inspection yet, be expecting a visit in the near future. The goal of the Florida Department of Agriculture and Consumer Services is to have every farm inspected once a year.

There are several widespread compliance problems that inspectors report finding during farm audits. Awareness of these common problem areas will allow you to make sure that your operation is handling them correctly.

The number one problem reported by inspectors is the lack of proper WPS training for workers and handlers. Workers must receive WPS training by the beginning of the 6<sup>th</sup> day of work. Workers that handle pesticides must be given the additional training required for pesticide handlers. Make sure that anyone that is handling or spraying chemicals has received the required additional handler training before they do any handler duties.

Posting of treated areas is another big area of widespread non-compliance. Be sure to read the label to see what type of warning needs to be given to workers - oral warnings of the treated area, posted signs or both. When posting a treated area be sure to place the signs only around the treated area not at the farm entrance. Signs should go up no more than 24 hours before spraying and should come down no later than 3 days after the Restricted Entry Interval (REI) has expired.

Remember the signs are a way to tell your workers which areas of the farm have been treated and they are to stay out of – signs should not be used as “do not trespass” signs for the public.

One of the easiest things for an inspector to check is the Central Posting on the farm. Be sure to have your posters up and that they are legible and not faded. Be sure the name and address of the nearest medical facility is readable. You must have a record of your spray activity posted at the central location.

This must include the following information:

1. Location of treated area.
2. Brand name of spray material.
3. EPA registration number.
4. Active ingredient.
5. Time (when finished) and date of application.
6. REI.
7. Time and date workers can enter which is the expiration of REI.

Decontamination supplies must to be supplied for workers and handlers. For workers you need water, soap and single use paper towels. These must be kept in place for 30 days after the REI has expired. For handlers you need enough water for washing the body, soap, paper towels and coveralls in case clothing gets contaminated. For handlers this must be located at the mixing site and where they remove their personal protection equipment (PPE). Keep decontamination supplies in place for the duration of the handling task.

Some pesticides may require eyewash bottles be included in decontamination supplies.

If at all possible avoid early re-entry by workers into a treated area. If you must send workers into an area before the REI is expired be sure they have been trained for early re-entry. Early re-entry workers and handlers need to be provided with the PPE required by the pesticide label.

Be sure PPE is clean and in good condition.

Remember that the pesticide label your best source of information for complying with WPS. Read and follow the label!

Excerpted from article by Alicia Whidden, Vegetable/Berry Times, January 2007

## **Florida Weed Science Annual Meeting**

Be sure to mark your calendars for the next annual meeting of the Florida Weed Science Society schedule to take place February 26<sup>th</sup> and 27<sup>th</sup>.

This year's meeting will be held at the Florida Fruit and Vegetable Association's office in Maitland and offers two notable changes to past Society meeting formats. First, the week of the meeting has been altered so that now the Society will get together during the last week of February. Second the days and times of the meeting have also changed.

Traditionally, the meeting has been all-day on Tuesday and Wednesday morning. This year the meeting will start early Monday afternoon and conclude by mid-afternoon Tuesday. The schedule modification eliminating the morning of the first day should save everyone one overnight stay and allow most to drive to the meeting on that first day. The meeting again promises to be an exciting event, one that you will not want to miss so make your reservations early.

A block of 50 rooms has been reserved at the Sheraton North, which is located an easy walking distance directly across the street from FFVA's offices, and the rate is a very reasonable \$119. The current cutoff date for this room block is January 29, so make your reservations now by calling (407) 660-9000 and be sure to mention the FFVA/Florida Weed Science Society meeting to obtain the discount rate.

For additional information call Syngenta's Eric Rawls at (772) 567-5218 or FFVA's Mike Aerts at (321) 214-5200.

## **Florida Minimum Wage**

On January 1, 2007 a new minimum wage went into effect for Florida. The minimum wage is now \$6.67/hour, which is a 27¢ increase from the 2006 rate. Employers are required by law (Section 448.109 of the Florida Statutes) to post a notice of the new minimum wage where workers can see it.

This is another poster for your Central Posting location. A copy of the poster can be downloaded from the Agency for Workforce Innovation at [http://www.floridajobs.org/resoureces/fl\\_min\\_wage.html](http://www.floridajobs.org/resoureces/fl_min_wage.html)

The federal minimum wage poster must also be displayed even though the rate is \$5.15/hr. It can be downloaded from the U. S. Department of Labor website at: <http://www.dol.gov/esa/regs/compliance/posters/flsa.htm>

Be sure to check that your payroll programs are correctly calculating the new minimum wage and that you have changed your Worker Information - Terms and Conditions of Employment forms (WH-516) to show the new minimum wage of \$6.67.

## **Required Workplace Posters**

The following are posters that should be posted at the work site. Many can be downloaded and printed from the websites listed below. Phone numbers are also included for additional information. Please note that FFVA provides some posters for members. This list also includes some optional posters and information on the WPS poster.

The following six posters can be printed from the Poster Page of the U.S. Department of Labor at <http://www.dol.gov/osbp/sbrefa/poster/main.htm> (Or call 1-866-USWAGE or 1-866-487-9243)

**Family & Medical Leave Act** - Required if you hire 50 or more people at any one time during the year within a 50-mile radius.

**Fair Labor Standards Act** - Federal Minimum Wage. You must now have the **state poster** as well. Florida's 2007 minimum wage poster is available for downloading in English and Spanish at: [http://www.floridajobs.org/resources/fl\\_min\\_wage.html](http://www.floridajobs.org/resources/fl_min_wage.html).

**Job Safety & Health Protection** - OSHA Health & Safety.

**The Law: Equal Employment Opportunity Commission.**

**MSPA - Migrant & Seasonal Worker Protection Act.**

**Uniformed Services Employment and Reemployment Rights Act.** (A new poster)

**Unemployment Compensation** (From your insurance carrier)

**Workers' Compensation** (get this from your carrier - broken arm poster)

**Florida Human Relations Commission.** <http://fchr.state.fl.us> (Tallahassee, 850-488-7082 or 1-800-342-8170 for voice messaging) This poster not available online. Call the commission for a copy.

**Florida Child Labor** (needed only if anyone under 18 is hired) (FL Dept of Labor, Tallahassee, 850-488-3131) <http://www.state.fl.us/dbpr/pro/childlabor/poster.shtml>

**Tractor Decals** (Spanish and English, side-by-side) (These are available from FFVA to members only. (Optional)

**Protect Yourself from Pesticides** (EPA WPS Poster) (Can be ordered from Gempler's along with other WPS materials at 1-800-382-8473) [www.gemplers.com](http://www.gemplers.com)

**WH-516** (this is not a poster, but a MSPA disclosure statement that you can post. (Optional) [http://www.dol.gov/esa/forms/whd/Form\\_WH-516\\_English.PDF](http://www.dol.gov/esa/forms/whd/Form_WH-516_English.PDF)

Excerpted from article by Phyllis Gilreath and Alicia Whidden, Vegetable/Berry Times, January 2007

## **Tomato Plant Burn Down Rule**

### CHAPTER 5B-59 PLANT PEST CONTROL

5B-59.001 Plant Pest Control.

5B-59.002 Standards for Determining when to Cease Use of a Pesticide During an Emergency Response to a Plant Pest Infestation Which Involves the Aerial Application of a Pesticide to an Urbanized Area.

5B-59.003 Tomato Plant Destruction.

(1) Definitions. For the purpose of this rule, the definitions in Sections 1.01, 500.03, 570.02, 677.102, and 581.011, Florida Statutes, and the following definitions shall apply:

- (a) Commercial Tomato Producer. A person who is engaged in and has an economic risk in the business of producing, or causing to be produced, tomatoes for market.
- (b) Final harvest. When an active pest management system is no longer maintained in the field following tomato harvest or if harvest has not occurred or not intended and no pest management system is being maintained.

(2) Tomato Plant Destruction. Within five days following the final harvest of a tomato crop, commercial tomato producers shall destroy remaining tomato plants on the production site using a chemical burn-down with a contact desiccant type herbicide that is EPA labeled and approved for this use such as paraquat or diquat that also contains a minimum three percent oil and a nonionic adjuvant to destroy crop vegetation. This must be followed by immediate complete destruction by crop removal unless double cropping is planned.

(3) The commercial tomato producer failing to destroy tomato plants within five days following final harvest as described in (2) shall be issued an immediate final order. An immediate final order issued by the department pursuant to this section shall notify the property owner that the tomato plants that are the subject of the immediate final order must be removed and destroyed unless the commercial tomato producer, no later than 10 days after delivery of the immediate final order requests and obtains a stay of the immediate final order from the district court of appeal with jurisdiction to review such requests. The commercial tomato producer shall not be required to seek a stay of the immediate final order by the department prior to seeking the stay from the district court of appeal. If the commercial tomato producer refuses or neglects to comply with the terms of the notice within 10 days after receiving it, the director or her or his authorized representative may, under authority of the department, proceed to destroy the tomato plants. The expense of the destruction shall be assessed, collected, and enforced against the commercial tomato producer by the department.

The rule can also be seen at <http://manatee.ifas.ufl.edu/Vegetables/TomatoBurnDownRule.pdf>

**Grower's IPM Guide for Florida Tomato and Pepper Production** – The UF/IFAS IPM Florida office has been assembling an IPM decision-making resource for Florida's pepper and tomato industry. This guide will serve as an interdisciplinary, comprehensive resource to assist growers in the adoption of IPM tactics as means to reduce the risk of epidemics, conserve chemistries against resistance and reduce overall production costs.

The Grower's IPM Guide is a work in progress and suggestions and comments are welcome. The guide can be seen on line at <http://ipm.ifas.ufl.edu/agricultural/vegetables/tomato/T&PGuide.htm>. When completed it will be published and will be available for purchase.

## **Job Opportunity**

Dulcinea Farms, a wholly owned subsidiary of Syngenta AG, grows, markets and sells consumer-directed fresh produce nationwide. Dulcinea Farms is currently looking for an experienced Production Manager to join our team to be responsible for the successful production throughout Arkansas, Indiana, and Texas. The Production Manager will ensure product quality and availability through interactions with growers, harvesters, vendors, packaging suppliers, warehouses, and providing accurate internal communications. Position supervises production specialists.

Successful candidate will be results-oriented, flexible, and accountable. Will have a strong background in agronomy and possess excellent social and organizational skills. Mellon experience is a plus. Travel up to 50% required throughout assigned geographical territory as well as the southeast.

Company offers competitive pay and excellent benefits. Position includes company vehicle or auto allowance, cell phone, and laptop.

If you are looking for an exciting career opportunity with a growing, fast-paced company, please send your resume to [julie.albert@dulcinea.com](mailto:julie.albert@dulcinea.com)

## Up Coming Meetings

### Manatee County

**March 13, 2007**                      **CORE/Private Applicator and Ag Restricted Pesticide Applicator License Training and Testing.**                      9:00 – 11:00 AM

Manatee County Extension Office  
Palmetto, Florida

Contact Phyllis Gilreath at 941-721-4524 for more information.

### Palm Beach County

**February 5, 2007**                      **General Standards/Core Test Review (2 CEUs)**                      8:00 - 10:00 AM  
**Private Applicator Test review (2 CEUs)**                      10:00 AM - Noon  
**Natural Areas Weed Mgmt (2 CEUs)**                      1:00 pm - 3:00 PM

Clayton Hutchinson Ag Center  
559 N Military Trail  
West Palm Beach, Florida

Contact 561-233-1700 – select option, 1 then option 3

**February 7, 2007**                      **General Standards/Core Test Review (2 CEUs)**                      8:00 – 10:00 AM  
**Ag Row Crop Test Review (2 CEUs)**                      1:00 pm - 3:00 PM

Belle Glade Extension Office  
2976 State Road 15  
Belle Glade, Florida

Contact 561-996-1655

### Southwest Florida

**January 22, 2007**                      **Worker Protection Standard Handler Training**

Hendry County Extension Office                      Spanish - 9:00 AM  
1085 Pratt Boulevard                      English – 1:00 PM  
LaBelle, Florida

Contact Gene McAvoy at 863-674-4092 for details

**January 23, 2006**                      **Watermelon Vine Decline Update**                      **6:00 pm**

UF/IFAS - SW Florida Research and Education Center

Hwy 29 N  
Immokalee, Florida

Contact Gene McAvoy at 863-674-4092

## Other Meetings

### **February 26 –27, 2007 Florida Weed Science Annual Meeting**

Florida Fruit and Vegetable Association Office  
800 Trafalgar Court  
Maitland, Florida

Contact Eric Rawls at 772-567-5218 or Mike Aerts at 321-214-5200 for more information.

### **March 6-9, 2007 2007 MSU Greenhouse Tomato Short Course**

Eagle Ridge Conference Center  
Raymond, Mississippi.

For more information, see the web site <http://www.greenhousetomatosc.com> or contact

Dr. Richard G. Snyder,  
Mississippi State University  
(601) 892-3731  
Email: [RickS@ra.msstate.edu](mailto:RickS@ra.msstate.edu)

## Websites

**Late Blight Information Center** – Dr Pam Roberts, Plant pathologist at UF/IFAS Southwest Florida Research and Education Center has launched a website that pulls together current information on late blight from various sources and which will help keep growers apprised of the late blight situation in Florida. Go to [http://swfrec.ifas.ufl.edu/plant/late\\_blight/](http://swfrec.ifas.ufl.edu/plant/late_blight/)

**American Society of Agronomy's Certified Program (CCA) website** – the CCA program is the largest certification program in agriculture with over 14,000 certified crop advisers throughout the USA and Canada. To learn more about the program or to check on your CEU status go to [www.certifiedcropadviser.org](http://www.certifiedcropadviser.org)

## Quotable Quotes

If our house be on fire, without inquiring whether it was fired from within or without, we must try to extinguish it. - Thomas Jefferson

Never spend your money before you have it. - Thomas Jefferson

I'm a great believer in luck, and I find the harder I work the more I have of it. - Thomas Jefferson  
In matters of style, swim with the current; in matters of principle, stand like a rock. – Thomas Jefferson

Do not bite at the bait of pleasure till you know there is no hook beneath it. - Thomas Jefferson

## **On the Lighter Side**

### **Bullshit and Brilliance**

A wealthy old lady decides to go on a photo safari in Africa, taking her faithful aged poodle named Cuddles, along for the company.

One day the poodle starts chasing butterflies and before long, Cuddles discovers that he's lost. Wandering about, he notices a leopard heading rapidly in his direction with the intention of having lunch.

The old poodle thinks, "Oh, oh! I'm in deep trouble now!"

Noticing some bones on the ground close by, he immediately settles down to chew on the bones with his back to the approaching cat. Just as the leopard is about to leap the old poodle exclaims loudly, "Boy, that was one delicious leopard! I wonder if there are any more around here?"

Hearing this, the young leopard halts his attack in mid-strike, a look of terror comes over him and he slinks away into the trees. "Whew!", says the leopard, "That was close! That old poodle nearly had me!"

Meanwhile, a monkey who had been watching the whole scene from a nearby tree, figures he can put this knowledge to good use and trade it for protection from the leopard. So off he goes, but the old poodle sees him heading after the leopard with great speed, and figures that something must be up. The monkey soon catches up with the leopard, spills the beans and strikes a deal for himself with the leopard.

The young leopard is furious at being made a fool of and says, "Here, monkey, hop on my back and see what's going to happen to that conniving canine!"

Now, the old poodle sees the leopard coming with the monkey on his back and thinks, "What am I going to do now?", but instead of running, the dog sits down with his back to his attackers, pretending he hasn't seen them yet, and just when they get close enough to hear, the old poodle says loudly.

"Where's that damn monkey? I sent him off an hour ago to bring me another leopard!"

Moral of this story....

Don't mess with old folks...age and treachery will always overcome youth and skill! Bullshit and brilliance only come with age and experience.

### **Cowboy**

A cowboy went to an insurance agency to buy a policy. The agent asked, "Have you ever had an accident?"

"Nope," replied the cowboy. "Last summer, a bronc kicked in two of my ribs, and a couple of years ago, a rattlesnake bit me on the ankle."

"Wouldn't you call those accidents?" quizzed the puzzled agent.

"Naw," the cowboy replied. "They did it on purpose!"

### **Retirement Planning**

If you had purchased \$1000.00 of Nortel stock one year ago, it would now be worth \$49.00.

With Enron, you would have had \$16.50 left of the original \$1000.00.

With WorldCom, you would have had less than \$5.00 left.

If you had purchased \$1000 of Delta Air Lines stock you would have \$49.00 left

But, if you had purchased \$1,000.00 worth of beer one year ago, drank all the beer, then turned in the cans for the aluminum recycling REFUND, you would have had \$214.00.

Based on the above, the best current investment advice may be to drink heavily and recycle.

**Contributors** include: Joel Allingham/AgriCare, Inc, Karen Ambrester/SWFREC, Bruce Corbitt/West Coast Tomato Growers, Dr. Kent Cushman/SWFREC, Dr. Phyllis Gilreath/Manatee County Extension, Michael Hare/Drip Tape Solutions, Fred Heald/Farmers Supply, Sarah Hornsby/AgCropCon, Cecil Howell/Taylor & Fulton, Loren Horsman/Glades Crop Care, Keith Jackson/SWFREC, Bruce Johnson/General Crop Management, Dr. Mary Lamberts/Miami-Dade County Extension, Leon Lucas/Glades Crop Care, Bob Mathews, Glades Crop Care, Mark Mossler/UF/IFAS Pesticide Information Office, Gene McAvoy/Hendry County Extension, Alice McGhee/Thomas Produce, Jimmy Morales/Pro Source One, Chuck Obern/C&B Farm, Teresa Olczyk/ Miami-Dade County Extension, Dr. Aaron Palmateer/TREC, Darrin Parmenter/Palm Beach County Extension, Dr. Ken Pernezny/EREC, Dr. Pam Roberts/SWFREC, Dr. Nancy Roe/Farming Systems Research, Wes Roan/6 L's, Dr. Dak Seal/ TREC, Kevin Seitzinger/Gargiulo, Jay Shivler/ C&B Farm, Ken Shuler/Stephen's Produce, Ed Skvarch/St Lucie County Extension, John Stanford/Thomas Produce, Mike Stanford/MED Farms, Dr. Phil Stansly/SWFREC, Eugene Tolar/Bright Star Farms, Mark Verbeck/GulfCoast Ag, and Alicia Whidden/Hillsborough County Extension.

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.

Gene McAvoy  
County Extension Director / Extension Agent III  
Regional Specialized Agent - Vegetables/Ornamental Horticulture

Hendry County Extension Office  
PO Box 68  
LaBelle, Florida 33975  
Web: <http://hhort.ifas.ufl.edu/>

863-674-4092 phone  
2863-673-5939 mobile - Nextel 159\*114449\*  
863-674-4097 fax  
[GMcAvoy@ifas.ufl.edu](mailto:GMcAvoy@ifas.ufl.edu)

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***Triangle Chemical Company***

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Groveland, Florida 34736  
Toll Free 877-724-8787 Cell 863-673-2892

Fred Heald

***Farmers Supply Inc***

710 Broward Street  
Immokalee, FL 34142  
Phone 239-657-8254 Fax 239-657-2005

***Gargiulo***

Growers Shippers Importers Exporters  
David Pensabene: Production Manager  
Naples Operations  
Phone 239-353-0300 Fax 239-353-3407

Damon Shelor

***ProSource One***

Immokalee, Florida  
Office 239-657-8374 Cell 239-707-6142  
E-mail: [dshelor@ProSourceOne.com](mailto:dshelor@ProSourceOne.com)

Dr. Nancy Roe

***Farming Systems Research***

5609 Lakeview Mews Drive  
Boynton Beach, Florida 33437  
Phone 561-638-2755

Ed Early

***Dupont Agricultural Products***

5100 South Cleveland Avenue  
Fort Myers, Florida 33907  
Phone 239-332-1467 Mobile 239-994-8594

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Phone 561-746-3740 Fax 561-746-3775

Rachel Walters

***Bayer CropScience***

32871 Washington Loop Road  
Punta Gorda, FL 33982  
Phone 941-575-5149 Cell 239-707-1198

Glen Kaufman

***Paramount Seeds, Inc.***

PO Box 1866  
Palm City, Florida 34991  
Phone 772-221-0653 Fax 772-221-0102

Walter Preston

***Manatee Fruit Company***

PO Box 128  
Palmetto, Florida 34220-0128  
Phone 941-722-3279 Fax 941-729-5151

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Jim Cartwright  
**Syngenta Crop Protection**  
PO Box 960639  
Miami, FL 33296  
Office 305-3800492 Cell 305-439-5968

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**DIAMOND R FERTILIZER**  
1155 Commerce Drive  
LaBelle, Florida 33935  
Phone 863-675-3700 Cell 239-851-0613

John Frieden  
Abacus (Abemectin)  
**Rotam USA LLC**  
Valdosta, Georgia 31602  
Office 229-253-1646 [johnfr@rotam.com](mailto:johnfr@rotam.com)

Linda Lindenberg  
**Dow AgroSciences LLC**  
  
Phone 706-473-9229  
AgNet 158\*17\*29723

Bobby Hopkins  
**SIPCAM AGRO USA**  
Phone 1-800-295-0733 or 770-587-1032  
Cell 678-576-4549  
[www.sipcamagrousa.com](http://www.sipcamagrousa.com)  
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Steve Mike Dave  
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Phone 239-229-5734 Fax 239-368-0969

Sarah Hornsby, CCA  
**Agricultural Crop Consulting, Inc**  
Scouting: Manatee, Hillsborough, Collier  
Office/Fax 941-776-1122  
Cell 941-713-6116  
Email: [AgCropCon@aol.com](mailto:AgCropCon@aol.com)

Donald Allen  
**AGLIME SALES INC**  
1375 Thornburg Road  
Babson Park, Florida 33827-9549  
Office 863-638-1481 Fax 863-638-2312  
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Office 813-818-9594 Fax 813-818-8694  
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Len Duane 863-221-4725  
[UAP - AGRILIANCE - TRIANGLE/CPS](#)

Mike Seese  
**KeyPlex Products**  
Morse Enterprises Limited Inc  
151 SE 15<sup>th</sup> Road  
Miami, Florida 33129  
800-433-7017 Mike Cell 439-910-4837

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Chuck Obern  
**C & B Farm**  
CR 835  
Clewiston, FL 33415  
Office 863-983-8269 Fax 863-983-8030  
Cell 239-250-0551

Bart Hoopingarner  
**Cerexagri-Nisso LLC**  
3605 162 Ave E  
Parrish, FL 34219  
Cell 941-737-7444 Fax 941-776-1844  
[bart.hoopingarner@cerexagri.com](mailto:bart.hoopingarner@cerexagri.com)

Jay Hallaron  
**Chemtura Corporation**  
321-231-2277 cell 407-256-4667 cell  
[jay\\_hallaron@cromptoncorp.com](mailto:jay_hallaron@cromptoncorp.com)

Jared Revell  
**United Agri Products**  
116 Jerome Drive  
Immokalee, Florida  
239-657-3168 office 239-253-0585 cell

Dr. Henry Yonce  
**KAC Agricultural Research**  
Scouting, Consulting  
Research  
386-736-0098 work 386-527-1124 cell  
[HDYONCE@msn.com](mailto:HDYONCE@msn.com)

Ted Holmes  
Southern Regional Sales Manager  
**CDMS**  
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