



UNIVERSITY OF
FLORIDA

E X T E N S I O N

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SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

December 14, 2007

With the exception of a cool spell before Thanksgiving, temperatures have been warmer than usual. Unseasonably warm weather has accelerated crop growth playing havoc with some harvest schedules and strawberry growers in particular are hoping for cooler weather. Highs have been ranging from the upper 70s to the mid 80s. Evening temps have been cooler in the 50s and 60s with a few evenings in the 40s.

Fort Pierce recorded the highest precipitation with just over an inch and a half followed with most other areas receiving an inch or less for the period. Despite these official totals, many areas experienced scattered showers with parts of western Hendry County and eastern Collier getting from a half an inch to over an inch in several shower each night of the past weekend – Friday, Saturday, and Sunday (12/7 – 12/9). In addition to scattered light showers many areas have been experiencing foggy mornings and heavy dews accentuating disease pressure and some scattered problems with rain check in tomato.

FAWN Weather Summary

Date	Air Temp °F		Rainfall (Inches)	Ave Relative Humidity (Percent)	ET (Inches/Day) (Average)
	Min	Max			
Balm					
11/16 -12/14/2007	39.78	86.54	0.02	77	0.07
Belle Glade					
11/16 -12/14/2007	43.75	87.21	0.51	79	0.08
Clewiston					
11/16 -12/14/2007	42.89	84.13	0.24	79	0.08
Ft Lauderdale					
11/16 -12/14/2007	51.69	86.70	0.66	78	0.08
Fort Pierce					
11/16 -12/14/2007	45.50	83.53	1.58	81	0.07
Homestead					
11/16 -12/14/2007	46.80	85.37	0.04	76	0.08
Immokalee					
11/16 -12/14/2007	40.16	89.24	0.31	78	0.08

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Growers continue to plant, harvest and irrigate crops with the fall tomato crop approaching the end in the Manatee Ruskin area. Harvesting of most vegetables was underway with snap beans, cabbage, cucumbers, eggplant, lettuce, pepper, squash, sweet corn, tomatoes, watermelon and various specialty items coming to market.

The short-term forecast from the National Weather Service in Miami indicates that a surface trough moving in from the Bahamas will bring abundant moisture to the area over the weekend producing a 60 % chance of thunderstorms and heavy rain Saturday and Sunday. A cold front will begin moving across South Florida on Sunday will bring clear skies and cooler more seasonable temperatures next week with day time highs in the mid 70's. Low Sunday night/Monday morning will be in the low 40's. For additional information, visit the National Weather Service in Miami website at <http://www.srh.noaa.gov/mfl/newpage/index.html>

Insects

Leafminer

Most East Coast locations are reporting heavy leafminer pressure with most growers applying weekly controls in tomato, eggplant and leafy crops. Growers in the Glades report a dramatic increase in leafminer activity over the past week or so.

Around Immokalee leafminers are the major pest these days. Growers and scouts report finding adults on plants just a day or two in the ground and are usually treating within about 2 weeks of planting.

Around Manatee County reports indicate that leafminer is still widely present in tomato and other crops.

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. Unfortunately, in many places increased spraying for whiteflies as the result of TYLCV has impacted beneficials negatively.

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. Spintor (Spinosad) has also given good results and is labeled on a wide range of crops. Dow AgroScience's new product Reliant (Spintoram) has also performed very well in trials. 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).

Field sanitation is an important control tactic that is often 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

Around Immokalee, respondents report that whiteflies remain fairly low but scouts note an increase in adults in several fields over the past week and indicate that in some places nymphs are starting to develop in serious numbers on older crops.

Reports from Palm Beach whitefly pressure is low to moderate depending on the location and indicate that whiteflies are beginning to move from older plantings into younger crops nearby.

In the Manatee Ruskin area, grower and scouts report whiteflies are mostly low but note some increase in numbers in recent days. There is some concern that with strong markets causing growers to try to pick fields longer than usual, spring planting scheduled only a month away and TYLCV incidence now running rampant at high levels in many fields, the makings of a problem in the spring crop are coming together.

For current management recommendations – see **Management of Whiteflies, Whitefly-Vectored Plant Virus, and Insecticide Resistance for Vegetable Production in Southern Florida** - <http://edis.ifas.ufl.edu/IN695>

Worms

Around southwest Florida, worms are still around but pressure is fairly low. Growers are still finding mostly southern armyworms and a few beet armyworms, loopers, and fruitworms. Melonworms have been active in cucurbits and in many places numbers have been higher than in recent memory.

Reports from the Manatee/Ruskin area indicate that worm pressure has slowed down over the past few weeks but note that they are still finding a mixed bag of species.

In Palm Beach County growers and scouts report that worm pressure is moderate to high in pepper and lower in tomato with beet armyworm, southern armyworms and loopers being found. Some melonworms are present in squash and cucumbers.

Broad Mites

Respondents in Palm Beach note that broad mites continue to be a problem in peppers and eggplant.

Growers and scouts in Southwest Florida report that broadmites continue to flare in scattered pepper and eggplant.

Chemical control is not difficult. Kelthane or dicofol, micronized sulfur (i.e. Thiolux) and AgriMek have all given good results locally. It should be noted that none of these materials kills eggs or seems to have enough residual to kill all hatching larvae. Therefore, to achieve control it is necessary to make at least two applications about 5 days apart to allow time for eggs to hatch and target emerging larvae.

Oberon has also provided good control. It should be applied twice at 7-day intervals and will provide some ovicidal activity.

Research performed by Dr Dak Seal, TREC indicates that tank mixing 1% Trilogy with half rates of Kelthane or Agrimek provided mite control equivalent to that obtained with full rates of either product alone.

Aphids

Around Immokalee, reports indicate that aphids are increasing in several locations with many winged singles being found on upper foliage. Some colonization has been reported on pepper and squash.

Reports from Palm Beach indicate that aphid pressure is increasing in pepper, eggplant and leaf greens.

Aphids are still present around Manatee County.

Thrips

On the East Coast respondents report that thrips are starting to increase in pepper. In some locations these have been identified as mainly western flower thrips, while in others they are a mixture of western and eastern flower thrips.

Low levels of thrips are also being reported around Immokalee.

Pepper Weevils

Around Immokalee, pepper weevils are increasing slowly and have become established in several locations. Organic producers in particular report that they lack effective controls for this pest.

Respondents in Palm Beach County report finding weevils in scattered locations mainly in older pepper.

Silkfly

Silkfly is beginning to show up in corn around the area particularly where several plantings have been made in close succession.

Diseases

Downy Mildew

Cucurbit producers around Southwest Florida are major problems with downy mildew in cucumbers and squash where incidence and severity has reached high levels in over the past few weeks. In some instance, pressure has been extremely high resulting in rapid death of affected foliage. Some cucumbers fields have been picked once and abandoned as the result of heavy disease pressure and poor prices.

Growers and scouts in Palm Beach report that the disease is “bad” in a number of places.

Downy mildew is a common problem in Florida and a new strain that can be devastating to cucurbits has been found throughout the Southeast, prompting vegetable specialists to encourage growers to pay special attention to managing the disease.

Downy mildew, caused by the fungus *Pseudoperonospora cubensis*, is found annually on squash, cucumbers, pumpkins, and muskmelons grown in all areas. Although downy mildew of all cucurbits is caused by the same species, strains of *P. cubensis* exist. For example, it is not uncommon to see squash, cantaloupe, and cucumber severely diseased by downy mildew, whereas watermelons, nearby, show no signs of the disease. A particularly troublesome strain of downy mildew began showing up around the Southeast around 3 years ago devastating cucurbit crops.

Downy mildew causes severe vine and leaf problems, which reduces the number and size of fruit.

Typically, the disease does not cause fruit rot, as is the case with many cucurbit diseases, but it does reduce sugar content, especially in watermelons and cantaloupe.

The best time to look for spores is in the morning before dew has dried. The spores are brownish-purple and the mold growth is white to colorless.

Symptoms on watermelon are different than symptoms on other cucurbits. Leaf spots on watermelon are dark brown and irregular in shape. Slight yellowing may be seen around the edges of the spots or in small patches in other parts of the leaf. Leaves that are infected curl inward as the leaves die.

Gummy stem blight is often confused with downy mildew damage on watermelon. For growers not familiar with the two diseases, growers should look at the size, shape and position of leaf spots. Leaf spots on plants infected with gummy stem blight are much larger individual spots of downy mildew, he explains.

Growers who find downy mildew in their crops are faced with some difficult challenges. The best approach in managing the disease is to alternate available fungicides and to mix the newer more efficacious materials with chlorothalonil or mancozeb, which have been used to manage fruit and vegetable diseases for many years.

Mobile (systemic, translaminar) fungicides with an active ingredient that specifically targets oomycete fungi are recommended beginning when downy mildew is forecast to occur in the area or symptoms have just started to develop.

These materials can be applied every 5-7 days, depending on disease severity. Fungicide resistance is a concern with downy mildew and with these fungicides due to their specific mode of action. Alternating among systemic fungicides in different chemical classes and tank-mixing with protectant fungicides when the systemic is not formulated with a protectant are highly recommended, as is planting resistant varieties when possible. Fortunately growers have several systemic fungicides available to manage this rapidly changing disease.

Both downy mildew and powdery mildew have shown an ability to adapt to fungicides. In 2005, researchers in Georgia and North Carolina documented resistance of these diseases to strobilurin fungicides, which had provided easy and relatively inexpensive management for a number of years. Fortunately a number of good fungicides remain available to growers.

Of the fungicides available, Tanos and Previcur Flex have provided consistent protection from the newer strains of downy mildew.

Tanos, (DuPont) is labeled for use in commercial and/or farm plantings on cucurbits (including cantaloupe, cucumber, honeydew melon, muskmelon, watermelon, pumpkin, summer squash, and other cucurbits), head lettuce, peppers, potatoes and tomatoes.

Tanos contains 25 percent cymoxanil and 25 percent famoxadone. Famoxadone is an oxazolidinedione contact fungicide and affects susceptible fungal pathogens through inhibition of mitochondrial respiration. The maximum application rate is 72 ounces of product per acre per year (1.1 pound per acre/year of cymoxanil and 1.1 pound per acre per year of famoxadone).

Previcur Flex (Bayer Crop Protection) is a fully systemic fungicide that penetrates the leaf and stem surface and moves throughout the plant to protect new growth. A long-time favorite of potato and vegetable growers, this fungicide has flexible use rates and application timing can be used with a variety of tank mix partners to control early blight, late blight and downy mildew.

Broad-spectrum contact fungicides (Bravo, Maneb, Dithane, copper), used to protect against infection, provide some downy mildew control.

Researchers in North Carolina, who regularly conduct fungicide efficacy trials for downy mildew rated chlorothalonil better than mancozeb and maneb, both of which were rated higher than copper.

Forum (dimethomorph), is a new 2006 formulation labeled for use at 6 ounces per acre tank-mixed with a protectant fungicide, such as chlorothalonil, on a 5-10 day schedule for a maximum of five times with no more than two sequential applications.

Gavel (mancozeb and zoxamide) can be used on cucumber, melon, summer squash, and watermelon. Gavel is labeled for use at 1.5 to 2.0 pounds per acre and can be applied every 7-10 days, or when conditions are favorable for disease for a maximum of eight applications.

New phosphorus acid fungicides, including Phostrol, ProPhyt, and Fosphite) can be applied to cucurbits at 2.5-5 pints per acre on a 7-14 day interval up to 6-7 times per crop per season. Phosphite ion, the active ingredient for these fungicides, effects fungal pathogens directly and promotes the plant's defense system.

Ranman is labeled for use at 2.1-2.75 fluid ounces per acre on a 7-10 day schedule for a maximum of six applications per season. This fungicide has some specific use limitations and should be used in a tank-mix with a protectant fungicide.

Some growers around South Florida indicate use of a spreader sticker has helped improve fungicide performance in some cases.

Cucurbit downy mildew updates are available from the North American Plant Disease Forecast Center at <http://www.ces.ncsu.edu/depts/pp/cucurbit/>. Excerpted from Roy Roberson, SE Farm Press, 11/14/07

Bacterial Spot

Growers and scouts in Palm Beach County report that bacterial spot is widely present in older tomato where it continues to move slowly up the canopy. The situation is worse in pepper where bacteria is active in young and old plantings. In some area severity is high and is causing leaf and fruit drop.

Around Southwest Florida, bacterial spot is present in both tomato and pepper and incidence has increased in some fields following recent showers and foggy mornings.

Respondents in Manatee County report that wet mornings are keeping bacteria active in tomato.

Target Spot

Around Manatee County reports indicate that target spot is widely present on tomato and is still active in a numbers of places. In many places it is easy to find lots of plants with no bottoms as the crop nears the end.

Growers and scouts around Immokalee report that target spot is present on tomato in a number of locations and noted that in some places it has increased following recent showers and foggy morning.

Target spot is being reported on cucumbers from scattered sites around Palm Beach County.

Target Spot is the name often used for vegetable diseases caused by the fungus *Corynespora cassiicola*. The name target spot derives from the ringed or bull's eye appearance that is sometimes seen in lesions caused by *C. cassiicola*.

However, concentric rings are not always readily apparent in target spot lesions, and not all lesions with concentric ringing are caused by *C. cassiicola*. It is often necessary to examine suspected target spot lesions for the characteristic spores of the causal fungus to ensure that a correct diagnosis is made.

On cucumbers, the disease starts as small, yellow leaf flecks that gradually enlarge to about 1 cm (0.4 in) across and become angular. Individual mature lesions are very light tan with a thin brown margin (Fig. 2). Lesions may coalesce, with the development of large circular areas of dead tissue which dry and tear out.

Small, elongate target spot lesions may occasionally occur on cucumber petioles and stems. Target spot, especially in the early stages, is difficult to distinguish from angular leaf spot and downy mildew, two common foliar diseases of cucumber. In late stages, the disease can be confused easily with anthracnose of cucumber. Microscopic examination of lesions for signs of specific pathogens is essential to make a positive diagnosis.

Downy Mildew on Basil

Downy Mildew has been reported on downy mildew in at least three locations around south Florida. It has also been confirmed at the plant disease clinic in Immokalee. Downy mildew is a new disease on basil in Florida and may be related to a downy mildew that has been seen in Europe on greenhouse-grown basil in Italy and Switzerland.

The greenhouse industry has also reported that a new downy mildew that affects coleus has recently been discovered in multiple locations around the United States and is causing alarm for both coleus growers and researchers. This new coleus downy mildew disease is caused by a microorganism that may be new to North America.

Tests of coleus downy mildew DNA, however, have indicated that it is a different species — one that has previously been seen in Europe on greenhouse-grown basil in Italy and Switzerland. For now, the coleus pathogen can be referred to as *Peronospora* sp. It is known that it can infect both coleus and basil, but the possibility it can go to additional plant hosts certainly exists.

Growers should be aware that downy mildew can be explosive when the weather is wet and humid. The downy mildew pathogen requires free moisture from condensation or watering on the plant surface to germinate. Reports indicate that some growers have had difficulty achieving satisfactory control.

Downy mildew has the bad habit of changing and becoming resistant to the systemic fungicides. Alternating systemic and protectant materials with different activities will help guard against the development of pesticide resistance in this downy mildew.

Dr Rick Raid, Pathologist EREC in Belle Glades and Dr Pam Roberts, Pathologist SWFREC are currently investigating this disease and are conducting fungicide tests with a number of materials to determine efficacy against this pathogen. Experience with coleus reported in Greenhouse Product News indicates that many of the products labeled for downy mildew in other crops provide good control of this pest. Be sure to check the label to make sure it is registered for use on basil.

Choanephora Blight

Growers and scouts report that Choanephora blight, caused by the fungus *Choanephora* sp., although diminishing in incidence and severity is still widely present green beans in numerous locations across South Florida including Homestead and the Glades, as well as several locations on the East Coast and Southwest Florida.

TYLCV

Reports from Manatee County indicate that tomato yellow leaf curl virus is widely present in older fields where it is running rampant in the tops and has reached 100% in many older fields.

Around Southwest Florida, tomato yellow leaf curl virus is still fairly low but has been slowly increasing. Overall most mature fields are still at 5% or lower but reports indicate that there are some hotspots (small patches within some fields) where symptoms are 20-30%.

Respondents in Palm Beach County indicate that tomato yellow leaf curl virus incidence is beginning to increase in the oldest plantings.

Gummy Stem Blight

Gummy stem is causing problems on melons and squash around Immokalee. In some instances fruit infections have been noted.

Respondents in Palm Beach County report that gummy stem is present on cucumbers and squash in several locations.

Powdery Mildew

Growers and scouts in Palm Beach County report that powdery mildew is widely present in cucumber and squash and incidence, severity and occurrence has increased in recent days.

Around Southwest Florida, powdery mildew continues to increase in cucurbits reaching very high levels in some squash and cucumbers.

Alternaria

Alternaria is beginning to be reported on beans and tomatoes from a number of locations around South Florida

Botrytis

Problems with botrytis on pepper have been reported around Immokalee and in Manatee County.

Botrytis is most severe on plants grown in acidic, sandy soils with high soil moisture. Adequate calcium should be available and uniform soil moisture maintained for maximum calcium availability. Calcium to phosphorus ratio of 2 or higher in leaf petiole tissue has been demonstrated to aid in control. Growers are

advised to scout for this disease, which is difficult to distinguish from other diseases; thus, emphasizing the need for laboratory confirmation prior to control measures.

In addition to standard fungicides, Topsin (Ceraxagri) is labeled for white mold but also has activity against botrytis. Endura (BASF) has recently been labeled for fruiting vegetables for control of botrytis but reportedly will not be available until sometime this winter due to production limitations. Phyllis Gilreath notes that results from grower trials being conducted indicate Topsin and Endura have good activity after several applications.

Cercospora

Respondents around Southwest Florida are reporting scattered problems with cercospora in pepper.

Cercospora leaf spot, sometimes known as frog-eye leaf spot, is fairly uncommon most years in south Florida and is more common in north Florida and Georgia during the summer months. Symptoms may occur in leaves, stems, petioles, and fruit stalks. However, the leaf lesions are very distinctive and allow one to readily recognize the disease in the field. Spots are circular to oval, with light tan centers and dark red borders. Under conditions of high moisture, the fungus *Cercospora capsici* may be observed growing in the middle of the spot, especially if a good hand lens is used. Under a microscope, one can observe many long, thin, colorless, multicelled spores, characteristic of *Cercospora* fungi.

The fungus can survive on crop debris. The spores are readily transmitted via wind. The disease is usually most severe during warm, wet weather.

Prompt destruction of abandoned pepper crops and crop rotation are non-chemical methods of control. Fungicides can control the disease.

New Cucurbit Viruses in Florida

Over the last couple of years, the number of whitefly-transmitted viruses in some cucurbit fields has increased to almost epidemic proportions. Growers and scientists are now dealing with 3 major viruses in cucurbits, all of which are transmitted by the silverleaf whitefly, *Bemisia tabaci*. The host range is similar (mostly cucurbits) but the symptoms differ.

Most growers are aware of Squash Vein Yellowing Virus (SqVYV). Symptoms of this Ipomovirus were first seen in watermelon in Florida in the mid 1980's. It is widely distributed in SW and West Central Florida and has also been reported from southern Indiana. It is probable that this virus is native to Florida. Cucurbits are hosts, especially squash and watermelon, but *Momordica charantia* (balsam-apple) is also a known host and potentially an excellent reservoir of SqVYV. Symptoms of SqVYV in watermelon are death of young plants, death of vines of older plants and necrosis in the fruit, especially just inside the rind. **This virus is the cause of watermelon vine decline (WVD) which Florida watermelon growers have been battling since 2003.** Trials for resistance to SqVYV are being conducted by grafting watermelon germplasm onto gourd rootstock and evaluating the watermelon scions for symptoms. Several potential sources of resistance in wild type watermelons have been identified. Also being evaluated are insecticides and use of silver plastic mulch to manage SWF and thus WVD.

Cucurbit Leaf Crumple Virus (CuLCrV) is a begomovirus first seen in Florida in 2006 in squash. At the same time it was found in grafted watermelon transplants received in Georgia from the Western U.S. Known hosts include tobacco and bean. Like the other viruses, SqVYV and CYSDV (see below), CuLCrV is able to infect most cucurbits including watermelons, cucumbers, squash, and pumpkin. Weed hosts are being investigated, but it is possible that balsam apple may be a host as it is in SqVYV. Initial symptoms include a chlorotic mottle pattern on foliage and crumpling of leaves. Plants which are infected early are stunted. In

squash, leaves can be thickened and distorted as well as curled and crumpled. Fruit symptoms vary but severe color break was observed in yellow summer squash in 2006.

Cucurbit Yellow Stunting Disorder Virus (CYSDV) was not seen in Florida until 2007. It infects melons, cucumbers, gourds and winter and summer squash. Symptoms appear first on older leaves toward the center of the plant, progressing outward along vines toward growing points. Symptoms often mimic water stress. Then a yellowing between the leaf veins appears and the leaves later turn bright yellow. On some, small green spots develop on leaves of certain varieties. Older leaves drop as the plant's internal transport system breaks down. This virus does affect fruit quality by reducing fruit size and sugar content, plus shortening the product's shelf life. It was first identified in cucumber and melon crops in the Middle East more than 15 years ago and in cucumbers and melons in Spain about 10 years ago. In 2003-04, it was identified in Central America and the Rio Grande Valley, Texas, and 2006 in Arizona and California where it and CuLCrV caused significant yield losses. It is not known if this virus infects wild cucurbits or other uncultivated hosts. As with some other viruses, it may cause symptomless infections in some hosts.

Management recommendations for these viruses are similar to recommendations for tomatoes and TYLCV. They include:

- Select the most vigorous and well adapted varieties
- When using transplants, use pathogen-free, whitefly-free transplants. Use caution when buying transplants that were produced in the western U.S.
- Use reflective mulches
- Treat prior to planting with nicotinoids to manage whiteflies in the field
- Apply appropriate insecticides for whitefly control during production in the field
- Don't plant in old established fields. Volunteers, especially cucurbits and balsam apple, can be a significant reservoir for these viruses.
- Post-production sanitation – pull up the plastic and plow fields under. Prevent growth of volunteers or remove all volunteers
- Maintain a host-free period between spring and fall crops

Excerpted from UF/IFAS Vegetarian, December, 2007, for photos, go to <http://www.hos.ufl.edu/vegetarian/07/December%2007/Triple%20Threat%20for%20Cucurbits.htm>

News You Can Use

On-Farm Food Safety Standards for Produce

FFVA reports that at least one major retailer has sent a letter to its suppliers, which contains a document entitled, “Food Safety Leadership Council On-Farm Produce Standards”. The document was developed by a consortium of retail and food service companies who appear to be requiring its suppliers to comply with the standards as a condition of their business relationship.

Examples of the demands made by the consortium are:

- Apply to all fresh produce grown in the United States, not just tomatoes, lettuce or leafy greens
- The new standards appear to require that only potable water that meets US EPA drinking water standards may be used on fresh produce crops eliminating the use of commonly used irrigation water sources. The requirement of ANY water used (irrigation or foliar spray) to be tested with results being less than 1.1 MPN/100mL. This level is unrealistic for production agriculture where water is sourced from the ground.

- Require a one mile buffer zone between fresh produce fields and concentrated animal feed lots.
- Require a ¼ mile buffer zone between fresh produce fields and animal grazing.
- Use “bright-line” generic E. coli counts to determine acceptable or unacceptable irrigation water.

These new standards clearly imply that the inspections performed during third-party food safety audits already required by them are inadequate. Furthermore, the standards appear to require mandatory additional independent, expensive and unnecessary audits.

The consortium has not provided the fresh produce industry with its own set of good handling practices that demonstrate consortium members are properly handling fresh produce after receipt of produce from fresh produce suppliers. Nor do the standards contain an explicit reference to or requirement that fresh produce suppliers from other countries adhere to the same standards being imposed on US fresh produce suppliers.

At a minimum, the development of these standards by an ad-hoc group of buyers would appear to further exacerbate the piece-meal approach to food safety that FFVA and other industry organizations are fighting strongly against.

In addition, FFVA also is concerned with some of the specific requirements of the standards, and the ability of industry members to comply.

FFVA strongly encourages you to become better educated about any new standards and to wait until the fresh produce industry receives from the consortium more scientific evidence and validation to support their new standards

Excerpted from FFVA Marketing Bulletin, November 7, 2007

South Florida Water Management District Report

In an unprecedented move to protect the region's dwindling water supply, water managers on Thursday voted unanimously to allow residents to water their grass just once a week. The new water restrictions which take effect Jan. 15, are the most stringent limitations ever imposed by the South Florida Water Management District.

Surface water and groundwater levels across much of the District remain unseasonably low and already are showing signs of decline with the start of the dry season in November. The water level in Lake Okeechobee, the source of water for the Florida Everglades and the primary back-up water supply for five million South Floridians, is at its lowest elevation ever recorded for the month of December. At 10.16 feet above sea level this morning, the lake level already is so low that water from the lake cannot be used to replenish the regional supply. Even with average dry season rainfall, water managers expect the lake level to drop over the coming months below its all-time low of 8.82 feet above sea level, recorded on July 2, 2007. With out major inflows this winter, water managers indicate evaporation alone could drop the lake to around 7 feet by May.

Operation Cleansweep turns Eight

Operation Cleansweep will enter into its eighth year of existence for fiscal year 2007-2008. The 2007 legislature has appropriated \$100,000 to help maintain this operation.

Operation Cleansweep is a program that provides farmers, nursery operators, golf course operators, and pest control services a one-time safe and economical way to dispose of their cancelled, suspended, and unusable pesticides. Some of these materials are very old and may be in containers that are deteriorating. Some, such as

chlordane and DDT, are so toxic to humans and hazardous to the environment that they are no longer allowed to be used. Proper disposal can be costly and a regulatory burden for small farmers and other pesticide users.

Operation Cleansweep offers an opportunity to avoid these formidable barriers and to promote safe and environmentally sound pesticide use, handling and disposal.

Operation Cleansweep began in 1995 with a statewide collection of more than 70,000 pounds of lead arsenate, a widely used pesticide for citrus operations which was banned from use by the EPA. Since then, Operation Cleansweep has collected and disposed of nearly 1,000,000 pounds (483.5 tons) of cancelled, suspended and unusable pesticides from almost 1,400 participants in 65 counties.

You may email either Robin Waddell (Cleansweep@doacs.state.fl.us) of the Department of Agriculture and Consumer Services or call toll-free at 877-851-5285 to sign up.

New I-9 Form Introduced

The Department of Homeland Security, U.S. Citizenship and Immigration Services Verification Division has issued a notice introducing a newly amended Form I-9, "Employment Eligibility Verification."

Employers are required to use the I-9 form to verify the identity and employment authorization of newly hired employees.

The amended Form I-9 contains an updated list of acceptable identity and employment authorization documents that reflect the current regulations. As of November 7, 2007, the amended Form I-9 is the only valid version of the form. The Department of Homeland Security will not seek penalties against an employer for using a previous version of the Form I-9 on or before December 26, 2007.

More information on this issue can be accessed at the department's web site: <http://www.uscis.gov>.

The I-9 form can be downloaded by clicking this link: <http://www.uscis.gov/files/form/i-9.pdf>.

FAWN News

The new FAWN Station was installed in Clewiston in late October is on-line and can be accessed through the FAWN website (<http://fawn.ifas.ufl.edu>).

The Florida Automated Weather Network (FAWN) is pleased to announce the release of its new-and-improved Internet site. The site has been completely overhauled with a new user interface, database, and web and data servers. The user interface features a completely new look, streamlined navigation, and access to additional resources. The entire FAWN database has been updated to a new, more standardized and efficient format. All this, operating on new servers monitored 24/7 by UF personnel, will provide the user with faster, more reliable access to FAWN data, tools, and other resources. Several new tools have been added, including an Urban Irrigation Scheduler.

Whiteflies Showing Resistance

Dr. David Schuster recently presented results of insecticide resistance monitoring in silverleaf whitefly. The assay used in monitoring determines the relative susceptibility (RS value) for each compound by dividing the LC50 values for the field populations by the LC50 values of the laboratory colony. The RS values declined for the nicotinoids Admire® (imidacloprid) and Platinum® (thiamethoxam) by 23 and 60 percent respectively, compared to 2006. However, several hotspots of increased RS values (equating to potential resistance) for Admire® were noted in Parrish and NE Collier County with RS values of 48 and 86, respectively. A value of 86 largely equates to resistance to the product in this area of the county. Increased RS values for Platinum®,

but not in the same places as Admire®, supports the contention that there may be simultaneous selection for tolerance but not cross-tolerance occurring. Also noted were extremely high RS values for bifenthrin (from 30 to 241). (Tomato Research Report for 2006-2007).

Modified Bt Reduces Resistance Potential

A modified version of the Bt toxin, a class of chemicals that specifically target caterpillars and are naturally produced by a bacterium, may help manage the development of resistance. Thus far, resistance has only been documented in the field for two insects: diamondback moths (*Plutella xylostella*) and cabbage loopers (*Trichoplusia ni*), both of which produce larvae that munch their way through vegetable crops. Two researchers from the National Autonomous University of Mexico in Morelos and their colleagues have designed a new way to stave off pests by modifying the Bt toxins. They found that when they deleted a specific region of a Bt toxin, the toxin no longer needed to bind to a receptor before it could kill its host. They tested two versions of the new toxin against Bt-resistant pink bollworms (*Pectinophora gossypiella*) reared in the laboratory. The bollworms were at least a hundred times more susceptible to one form of the modified Bt toxin than to the natural compound and another version of the modified toxin killed all of the resistant bollworms. (Nature, 11/1/07).

Pesticide Registrations and Changes

- Avaunt (DuPont Crop Protection) is now registered on the entire family of Cucurbits. It is highly effective on leps including melon, pickle, and rind worms. The Avaunt rate is 3.5 ozs. PHI is 3 days and REI - 12 hours. There are no plant back restrictions on Avaunt.

The Florida Department of Agriculture and Consumer Services (FDACS) has approved a Special Local Needs (SLN) registration for the use of EPTC (Eptam® 7-E) herbicide to control weeds such as nutsedge under plastic mulch in transplanted tomato. The registration is FL-070007.

- FDACS has approved a SLN registration for the use of lactofen (Cobra®) herbicide for pre- and postemergent weed control between rows of fruiting vegetables and okra grown in raised bed plastic-mulch production systems. The registration is FL-070006.
- FDACS has conditionally approved the registration of Actara® (thiamethoxam) insecticide for use on brassica leafy vegetables, leafy vegetables, cucurbits, and other crops for control of aphids, whiteflies, and other pests. The EPA Reg. No. for the Syngenta product is 100-938.
- FDACS has conditionally approved the registration of Platinum® (thiamethoxam) insecticide for use on brassica leafy vegetables, leafy vegetables, cucurbits, and other crops for control of aphids, whiteflies, and other pests. The EPA Reg. No. for the Syngenta product is 100-939.
- FDACS has conditionally approved the registration of Delegate® insecticide (spinetoram) for use on banana/plantain, bushberries, citrus, fig, grape, pome and stone fruit, tropical tree fruits, and tree nuts for control/suppression of caterpillars, leafminer, thrips, and certain psyllids. The EPA Reg. No. for the Dow AgroSciences product is 62719-541.
- FDACS has conditionally approved the registration of Radiant® insecticide (spinetoram) for use on bulb vegetables, grains (except rice), cole crops, cotton, cucurbits, fruiting vegetables, herbs, leafy and legume vegetables, leaves of root/tuber and legume vegetables, okra, peanut, potato, tuberous and corm vegetables, soybean, and strawberry for control/suppression of caterpillars, leafminers, thrips, and certain psyllids. The EPA Reg. No. for the Dow AgroSciences product is 62719-545.

Up Coming Meetings

Palm Beach County

January 7, 2008 **General Standards/Core Training and Test Review** 8:00 AM – 12:00 PM

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

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

January 9, 2008 **General Standards/Core Test Review** 8:00 AM – 10:00 AM
Private Applicator Test Review (2 CEUs) 1:00 – 3:00 PM

Belle Glade Extension Office
2975 State Road 15
Belle Glade, Florida

Call 561-996-1655 for more information.

January 30, 2008 **Tractor Safety Training (English)** 9:00 - 11:00 AM

Belle Glade Extension Office
2975 State Road 15
Belle Glade, Florida

Call 561-996-1655 for more information.

Southwest Florida

January 8, 2008 **Vegetable Growers Meeting – Introducing Radiant**

UF/IFAS SW Florida Research and Education Center
SR 29 N
Immokalee, Florida

Contact Gene McAvoy at 863-674-4092 for details

Other Meetings

February 19-20, 2008 **SYSCO 2008 Sustainable Ag/IPM Conference & Farm Tour**

Holiday Inn Palm Beach Airport Conference Center
1301 Belvidere Rd., West Palm Beach FL 33405

Registration: Brooke Williams, SYSCO Quality Assurance, 281-584-2841, Fax
281-584-1240,

Co-hosted by Glades Crop Care, IPM Florida, the Southern Region IPM Center and the US EPA Pesticide Environmental Stewardship Program; co-organized by the IPM Institute of North America.

Websites

Glumbert – claims to have the most amazing videos on the internet – check it out at <http://www.glumbert.com/>

AskNumbers.com – need help in converting kilo to pounds, centimeters to inches, or just about any thing else you can imagine – this convenient site can help. Go to <http://www.asknumbers.com/default.aspx>

Quotable Quotes

It is not enough to have a good mind. The main thing is to use it well. - Rene Descartes

All speech is vain and empty unless it be accompanied by action. - Demosthenes

Small opportunities are often the beginning of great enterprises. - Demosthenes

The easiest thing of all is to deceive one's self; for what a man wishes he generally believes to be true. - Demosthenes

You cannot have a proud and chivalrous spirit if your conduct is mean and paltry; for whatever a man's actions are, such must be his spirit. – Demosthenes

You can go a long way with a smile. You can go a lot farther with a smile and a gun. - Al Capone

On the Lighter Side

A Glass of Milk

One day, a poor boy who was selling goods from door to door to pay his way through school, found he had only one thin dime left, and he was hungry. He decided he would ask for a meal at the next house. However, he lost his nerve when a lovely young woman opened the door.

Instead of a meal he asked for a drink of water. She thought he looked hungry so she brought him a large glass of milk. He drank it so slowly, and then asked, How much do I owe you?"

You don't owe me anything," she replied. "Mother has taught us never to accept pay for a kindness."

He said ... "Then I thank you from my heart."

As Howard Kelly left that house, he not only felt stronger physically, but his faith in God and man was strong also. He had been ready to give up and quit..

Many year's later that same young woman became critically ill. The local doctors were baffled. They finally sent her to the big city, where they called in specialists to study her rare disease.

Dr. Howard Kelly was called in for the consultation. When he heard the name of the town she came from, a strange light filled his eyes.

Immediately he rose and went down the hall of the hospital to her room.

Dressed in his doctor's gown he went in to see her. He recognized her at once.

He went back to the consultation room determined to do his best to save her life. From that day he gave special attention to her case.

After a long struggle, the battle was won.

Dr Kelly requested the business office to pass the final bill to him for approval. He looked at it, then wrote something on the edge and the bill was sent to her room. She feared to open it, for she was sure it would take the rest of her life to pay off all of it.

Finally she looked, and something caught her attention on the side of the bill. She read these words!.. "Paid in full with one glass of milk"

(Signed) Dr. Howard Kelly.

Tears of joy flooded her eyes as her happy heart prayed: "Than k You, God that your love has spread broad through human hearts and hands."

There's a saying which goes something like this: Bread cast on the waters comes back to you. The good deed you do today may benefit you or someone you love at the least expected time. If you never see the deed again at least you will have made the world a better place - And, after all, isn't that what life is all about?

The Mayonnaise Jar and 2 Cups of Coffee

When things in your life seem almost too much to handle, when 24 hours in a day are not enough, remember the mayonnaise jar and the 2 cups of coffee.

A professor stood before his philosophy class and had some items in front of him. When the class began, he wordlessly picked up a very large and empty mayonnaise jar and proceeded to fill it with golf balls. He then asked the students if the jar was full. They agreed that it was.

The professor then picked up a box of pebbles and poured them into the jar. He shook the jar lightly. The pebbles rolled into the open areas between the golf balls. He then asked the students again if the jar was full. They agreed it was.

The professor next picked u up a box of sand and poured it into the jar. Of course, the sand filled up everything else. He asked once more if the jar was full. The students responded with an unanimous 'yes.'

The professor then produced two cups of coffee from under the table and poured the entire contents into the jar effectively filling the empty space between the sand. The students laughed.

'Now,' said the professor as the laughter subsided, 'I want you to recognize that this jar represents your life. The golf balls are the important things---God, your family, your children, your health, your friends and your favorite passions---and if everything else was lost and only they remained, your life would still be full.

The pebbles are the other things that matter like your job, your house and your car.

The sand is everything else---the small stuff. 'If you put the sand into the jar first,' he continued, 'there is no room for the pebbles or the golf balls. The same goes for life. If you spend all your time and energy on the small

stuff you will never have room for the things that are important to you.

'Pay attention to the things that are critical to your happiness. Play with your children. Spend time with your parents. Visit with grandparents. Take time to get medical checkups. Take your spouse out to dinner. Play another 18. There will always be time to clean the house and fix the disposal. Take care of the golf balls first---the things that really matter. Set your priorities. The rest is just sand.'

One of the students raised her hand and inquired what the coffee represented. The professor smiled. 'I'm glad you asked. It just goes to show you that no matter how full your life may seem, there's always room for a couple of cups of coffee with a friend.'

Wishing all the best to all of you all for a Merry and Blessed Christmas and a Happy and Prosperous New Year

Note: The hotline is available by email. Get the latest pest and disease updates and news in a timely fashion -the e-version is automatically sent to you as soon as it is published. If you want to switch over just drop me an email and help save a tree.

Contributors include: Joel Allingham/AgriCare, Inc, Bruce Corbitt/West Coast Tomato Growers, 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, 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, Dr.Gregg Nuessly/EREC Chuck Obern/C&B Farm, Teresa Olczyk/ Miami-Dade County Extension, Dr. Aaron Palmateer/TREC, Dr. Ken Pernezny/EREC, Dr. Rick Raid/ EREC, Dr Ron Rice/Palm Beach County Extension, 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, , 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.

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