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SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

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Cooler temperatures have prevailed across south Florida as typical late fall/winter weather patterns have become established dropping temperatures to more seasonable norms. The arrival of weekly cold fronts accompanied by showers and unsettled conditions have also brought significant rainfall to most of the region over the past few weeks.

Daytime highs were mainly in the 70s with a few days reaching the low 80s. Cooler temperatures at night brought lows into the 40s and 50s. Rainfall was variable across the area with Fort Pierce reporting 3.73 inches and Homestead coming in at the bottom of the list with only 0.31 inches for the period.

Mostly clear weather allowed fieldwork to progress on schedule as south Florida growers continue the recovery effort following Wilma. Growers remain busy cleaning up and replanting fields destroyed or damaged by Wilma in addition to nursing along those crops that survived the storm.

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
Bradenton											
11/10 – 12/6/05											
Ft Lauderdale											
11/10 – 12/6/05	50.1	84.1	2.70	0.0	0.0	0.0	1.6	17.5	9.7	2.0	14.9
Fort Pierce											
11/10 – 12/6/05	42.9	82.2	3.73	0.0	1.3	4.3	13.0	19.9	1.3	13.4	27.7

Homestead											
11/10 – 12/6/05	44.6	84.2	0.31	0.0	0.5	10.2	20.3	39.7	22.2	37.5	17.2
Immokalee											
11/10 – 12/6/05	43.9	84.5	1.48	0.0	3.7	3.1	6.5	30.9	23.8	50.9	27.8

- Note – FAWN system weather info for Bradenton is not available at this time – rainfall total in others is not accurate.

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Fall crop harvesting gained momentum in central and southern Peninsula localities. Tomato picking around Quincy is nearly complete while harvesting in the central and southern Peninsula areas is increasing seasonally. Yields and pack out in the areas affected by Wilma are way off with many growers reporting yields of 1/3 to half the norm.

Cooler temperatures aided strawberry development around Plant City and Dover with the first flat of strawberries being picked in recent days. Producers marketed snap beans, sweet corn, cucumbers, peppers, squash and tomatoes. Light supplies of eggplant and okra were also marketed.

The short-term forecast from the National Weather Service in Miami calls for rainy conditions over the next few days as a cold front becomes stationary over the area. This front is forecast to move south and back north before finally clearing the area by Friday. More unsettled weather will arrive early next week as a low develops over the Gulf bringing more tropical moisture and the chance of rainy weather. For additional information, visit the National Weather Service in Miami website at <http://www.srh.noaa.gov/mfl/newpage/index.html>

Insects

Insect numbers continue to rebound as the season progresses.

Leafminers

Growers and scouts in Southwest Florida report that leafminer numbers have increased and are building rapidly in most locations.

Respondents from the Manatee/Ruskin area indicate that leafminer pressure is up across the area.

Reports from the Homestead area note heavy leafminer pressure in a range of crops including beans, eggplant and tomato.

East Coast growers also report increased leaf miner activity.

With the on-set of cooler weather across the peninsula, growers across the state can expect to see an increase in leafminer pressure. 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) 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. Both products 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

Growers and scouts around Homestead indicate that whiteflies are increasing rapidly in beans, eggplant and tomato and report seeing a big jump in numbers in the past few weeks. Whiteflies are present in squash and growers report increased incidence of silverleaf as whitefly populations take off.

Reports from the Manatee County area indicate that whitefly numbers are increasing with more virus now being found in the tops of some plants. There is a major concern among vegetable specialists that without a freeze, crops will be nursed along all winter with resultant higher whitefly and virus going into spring. Whiteflies are also building up in squash.

Respondents in Palm Beach indicate that whiteflies are heavy on eggplant and tomato in some places and are also present in squash, okra and other items.

Around Immokalee, whitefly numbers remain low in most locations although some reports indicate that they are beginning to build in some places.

States confirmed positive for the Q-biotype include: Alabama, Arizona, California, Connecticut, Florida, Georgia, Indiana, Kentucky, Louisiana, Michigan, New Jersey, New York, Oregon, Pennsylvania, and Vermont.

As fall crops come off, it is important to practice good sanitation to avoid movement of whiteflies into later plantings and a buildup in populations that carry over to the spring crop.

Growers are urged to continue to practice the following recommendations
Nicotinoid Resistance Management Recommendations

- Reduce overall whitefly populations by strictly adhering to cultural practices including:
 - Plant whitefly-free transplants
 - Delay planting new crops as long as possible and destroy old crops immediately after harvest to create or lengthen a tomato free period
 - Do not plant new crops near or adjacent to infested weeds or crops, abandoned fields awaiting destruction or areas with volunteer plants
 - Use UV-reflective (aluminum) plastic soil mulch
 - Control weeds on field edges if scouting indicates whiteflies are present and natural enemies are absent
 - Manage weeds within crops to minimize interference with spraying;
 - Avoid u-pick or pin-hooking operations unless effective control measures are continued
- Do not use a nicotinoid like Admire on transplants or apply only once 7-10 days before transplanting; use other products in other chemical classes, including Fulfill, before this time;
- Apply a nicotinoid like Admire (16 ozs/acre) or Platinum (8ozs/acre) at transplanting and use products of other chemical classes (such as the insect growth regulators Courier® or Knack® as the control with the nicotinoid diminishes. Note: Courier and Applaud are the same active: buprofezin. Courier is labeled for whitefly on tomato and snap bean. The mode of action is chitinase inhibitor. Dimilin and Knack are juvenile hormone mimics labeled for whitefly control on fruiting vegetables.
- Never follow an application (soil or foliar) of a nicotinoid with another application (soil or foliar) of the same or different nicotinoid on the same crop or in the same field within the same

season (i.e. do not treat a double crop with a nicotinoid if the main crop had been treated previously);

- Save applications of nicotinoids for crops threatened by whitefly-transmitted plant viruses or whitefly-inflicted disorders (i.e. tomato, beans or squash) and consider the use of chemicals of other classes for whitefly control on other crops.

Worms

Scouts in Homestead report problems with a fairly large fall armyworm hatch over the past week or so, and note that they are still seeing occasional problems with wireworm, cutworm, and lesser corn stalk borer on young corn. A range of worms including beet armyworm, southern armyworm and tomato fruit worm are present in eggplant, pepper and tomato and growers report problems with melon worms and pickleworms on cucumbers and squash.

Growers and scouts in the Glades indicate that fall armyworm pressure is high in recent days. Reports indicate hatch-outs of up to 80% on young corn, with many surrounding blocks near the same age ranging anywhere from 30-65% infestation.

Reports from Manatee County indicate that worms still around in moderate numbers and note some problems with diamondback moths in cabbage.

Around southwest Florida, growers and scouts indicate that pressure is starting to pickup with mainly beet and southern armyworms. Melonworms are reported to moderate to heavy in cucurbits in some places.

Respondents on the east Coast report that worms are beginning to rebound in a number of locations.

Broad mites

Around Southwest Florida, broad mites have flared up in pepper and to a lesser extent in pepper in several locations.

Growers in Palm Beach continue to report problems with broad mites in peppers and eggplant.

Respondents in the Manatee/Ruskin area indicate that broadmite activity picking up in peppers.

Reports from Homestead indicate that broad mites are present in low numbers in eggplant but expectations are that numbers will begin to increase.

Thrips

Over the past few weeks, chili thrips have been identified on ornamentals in at least 7 counties ranging from Palm Beach to Marion. At a meeting held this week in Apopka, experts from around the state agreed that it was almost a given that this pest is now (unofficially) established in Florida.

Adult thrips are small about 0.5 – 1.2 mm long. It is difficult to recognize this thrips with the naked eye, and definitive identification is best accomplished at approximately 40 to 80 x magnification. Eggs are about 0.075 mm long and 0.070 mm wide, and are inserted inside plant tissue. The egg stage lasts for 6-8 days, which is followed by has two larval stages (1st and 2nd instars) that last for 6-

7 days. The prepupal period is short (~ 24 h) and the pupal period lasts 2-3 days. The larvae are off-white. The adults are pale grayish-white with incomplete dark stripes on the dorsal surface of each abdominal segment. The life cycle is completed in 14-20 days. The chili thrips female oviposits 60 to 200 eggs in her lifetime at the rate of 2-4 eggs per day.

Chili thrips attacks all above ground parts of its host plants, and prefers the young leaves, buds and fruits. It has been reported to attack a wide range of plants with more than 100 recorded hosts from 40 different families including beans, melons, peppers, strawberries, and tomato as well as wide range of ornamentals and fruits including citrus. Heavy feeding damage turns tender leaves, buds, and fruits bronze to black in color. Damage leaves curls upward and appear distorted. Infested plants become stunted or dwarfed, and leaves with petioles detach from the stem. The abundance of chili thrips is low in the rainy season, but becomes high during the dry season.

It is important to check plants with abnormal growth. At the initial stage of infestation, the underside surfaces of the leaves become shiny. These leaves soon become discolored and curly. Collect 5-20 leaves from the symptomatic plants and place them in a ziplock bag to prevent adults from escaping. Send these samples to an expert for further processing to establish or confirm their identity.

Go to <http://www.doacs.state.fl.us/pi/enpp/ento/chillithrips.html> and <http://www.mrec.ifas.ufl.edu/LSO/thripslinks.htm> for more information on this pest.

Pepper Weevils

Reports from Manatee County indicate that pepper weevils are still present in peppers.

Pepper weevils are beginning to show in fields around Southwest Florida. In some areas they have been persistent on a period of weeks.

A few weevils are being found around Homestead.

Aphids

Respondents in Homestead report a big jump in aphids over the past few weeks on beans, eggplant pepper, strawberries and squash and note a in increase in squash mosaic as well.

Growers and scouts around Immokalee reports moderate numbers of winged aphids beginning to show up on susceptible crops.

Diseases

Bacterial Leaf Spot

Around Southwest Florida growers and scouts report that bacterial spot has flared up in a number of places while in other locations reports indicate that pressure is beginning to abate.

Respondents in Homestead report very active bacterial spot on tomato, especially on low quality transplants that came in with several diseases as well as virus.

Growers and scouts on the East Coast indicate that bacterial spot is widely present in surviving fields and is severe in places.

Reports from Manatee County indicate that bacterial spot is still a problem on tomato in a number of locations and is reportedly increasing in pepper.

Phytophthora

Growers and scouts on the East Coast report that phytophthora has become a major problem on pepper and cucurbits in a number of locations.

Around Immokalee, reports indicate that phytophthora seems to have run its course and incidence is beginning to decline.

Some phytophthora is being reported on watermelon in the Manatee Ruskin area.

Target Spot

Reports from the Bradenton area indicates that target spot is still a problem on tomato around the area.

Target spot is also being reported around Southwest Florida. Incidence and occurrence is increasing and some fruit lesions have been noted.

Dr. Pam Roberts indicates that target spot has been diagnosed on tomatoes at the UF/IFAS Plant Disease Clinic in Immokalee. Target spot often appears as plants approach maturity and develop large canopies. Remember that tank-mix sprays of copper fungicides and maneb do not provide acceptable levels of target spot control. Recommended fungicides include various chlorothalnil formulations (Bravo, Echo, Bravo Ultrex, Bravo Weather Stik and Ridomil Gold/Bravo).

Downy Mildew

Downy mildew is present on cucumbers and squash in several locations around Immokalee.

Respondents in Homestead report a noticeable increase in downy mildew on squash and cukes in recent days.

Cucumber producers in the Ruskin area report problems with downy mildew and note that it is not responding to traditional controls.

Powdery mildew

Respondents on the East Coast are reporting unusually high pressure from powdery mildew on squash for so early in the season.

Producers in the Bradenton area continue to report problems with powdery mildew on squash.

Pythium

Several South Florida production areas continue to report some problems with pythium in scattered locations.

Phytophthora

Growers and scouts around south Florida are reporting problems with Phytophthora especially on pepper that survived the storm. In some cases plants that looked relatively good following the hurricane have shown a severe decline as a result.

Tomato Yellow Leaf Curl Virus

Tomato yellow leaf curl virus is present at mostly low levels in most south Florida production areas. Incidence is low but is slowly increasing in a number of areas.

Growers in Homestead report a 1- 3% infection rate in some fields.

Scouts around Immokalee indicate that TYLCV remains low but note some infections on transplants.

Sclerotinia

Dr Rick Raid, Plant Pathologist at UF/IFAS EREC in Belle Glade reminds growers that as we start to move into the cooler months, bean and leaf growers may want to be thinking of Sclerotinia control, particularly if they are growing on land previously cropped to susceptible vegetables. Depending on the crop, iprodione (Rovral) or thiophanate methyl (Topsin) are usually among the most efficacious compounds for Sclerotinia-induced diseases.

Watermelon Vine decline

Scattered cases of vine decline are being reported in the Manatee County Area.

Tomato Little Leaf

Tomato little leaf has been reported in a number of locations around Immokalee over the past few weeks following Hurricane Wilma. Incidence and occurrence ranges from mostly low to moderate in most places to several severe cases which scouts report are as bad as they have ever seen and affects up to 75% of the plants across large areas in the worst case scenarios.

Tomato little leaf first presented itself in the fall of 1986 when growers in the Quincy area of Florida encountered plants in their fields with unusual growth characteristics. Since that time, the condition has shown up repeatedly in widely scattered tomato producing areas of Florida including Southwest Florida, East Coast production areas from St Lucie County to Palm Beach County, Manatee County and other areas.

Tomato little leaf is a non-parasitic disease of tomatoes that causes virus-like symptoms in tomato. A similar disorder affects other crops and has been referred to as frenching in tobacco. Symptoms of this condition are characterized by unusual growth consisting of interveinal chlorosis in young leaves. Subsequent growth becomes severely distorted with leaflets along the mid-rib failing to expand properly resulting in a "little leaf" appearance. Leaflets are twisted and distorted. In addition, failure of blooms to set fruit and fruit distortion consisting of radial cracks extending from the calyx to the blossom scar is often seen. Overall the appearance is reminiscent of viral or phenoxy herbicide symptoms.

The problem typically occurs on wet soils and is apparently caused by the release of amino acid analogs by soil microorganisms under wet conditions.

The current hypothesis is that one or more amino acid analogs are synthesized by certain soil microorganisms and released into the rhizosphere. These compounds are structurally similar to the amino acid leucine. They are taken up by the plant and cause morphological changes and stunting in susceptible plants at very low concentrations.

Currently, three soil microorganisms have been implicated as the causal agent. The first organism implicated was the bacterium *Bacillus cereus*. In controlled experiments, symptoms of frencing have been obtained from diffusion of a compound produce by *B. cereus* into small tobacco plants. *B. cereus* is a ubiquitous soil inhabitant and has been observed in large numbers in the root zone of tobacco plants with frencing symptoms. Another organism that has been implicated is the fungus *Aspergillus wentii*. This organism has been shown to produce a compound, which is a potent antagonist of leucine. In the lab minute quantities can produce symptoms on tobacco similar to frencing and can similarly affect the growth of other crops such as bean, tomato, sunflower and chrysanthemum.

Control consists largely of managing soil moisture to avoid water logging. Maintaining soil pH below 6.3 or less can also reduce development of the problem however changing soil pH should be approached carefully to avoid problems that might accompany reduced lime utilization in tomato. Affected plants generally resume normal growth once soil moisture levels become more favorable. Go to <http://edis.ifas.ufl.edu/CV278> for photos and more information on little leaf

News You Can Use

CHILI THRIPS MANAGEMENT GUIDELINES

Studies were conducted recently on St. Vincent to evaluate various insecticides in controlling chili thrips in pepper. The insecticides listed in the tables below were found to suppress the chili thrips. For detailed information about the effectiveness of these insecticides, consult manuscript titled '*Comparative effectiveness of chemical insecticides against the chili thrips, Scirtothrips dorsalis Hood (Thysanoptera: Thripidae), on pepper and their compatibility with natural enemies*' at <http://cta.ufl.edu/thrips.htm>

Federal and Florida laws require that all pesticides must be handled and applied in strict accordance with the label and worker protection standards (re-entry times, protective clothing, etc.). For complete information pertaining to use of any insecticide, follow the label. Mention of trade names or commercial products in this article is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the U.S. Department of Agriculture or the University of Florida.

Note: there is currently a discussion among UF/IFAS Entomologists in Florida about recommendations that will minimize the risk of the development of pest resistance due to reliance and possible overuse of insecticides for control of chili thrips. GM

Table 1. Insecticides for controlling the chili thrips on ornamentals.

Active ingredient	Trade name	Pesticide class	Signal word	Application
Novaluron	Pedestal SC	Benzoylphenyl urea	Caution	Foliar spray
¹ Chlorofenapyr	Pylon	Pyrrole		Foliar spray
Imidacloprid	Marathon 1%G, 60 WP	Neonicotinoid	Caution	Foliar spray

Spinosyn A + B	Conserve SC	Spinosyn	Caution	Foliar spray
Abamectin	Avid 0.15EC	Avermectin	Warning	Foliar spray
Cyfluthrin	Tempo 2	Pyrethroid	Warning	Foliar spray
Azadirachtin	Azatin XL	Botanical	Caution	Foliar spray
Azadirachtin	Ornazin 3EC	Botanical	Warning	Foliar spray

¹Use restricted to greenhouses

Table 2. Insecticides for controlling the chili thrips on fruits and vegetables.

Active ingredient	Trade name	Pesticide class	Signal word	Application
Novaluron	Ramon 0.83EC	Benzoylphenyl urea	Caution	Foliar spray
¹ Chlorofenapyr	Pylon	Pyrrole		Foliar spray
Imidacloprid	Provado	Neonicotinoid	Caution	Foliar spray
Spinosyn A + B	SpinTor 2SC SC	Spinosyn	Caution	Foliar spray
Abamectin	Agrimek0.15EC	Avermectin	Warning	Foliar spray
Cyfluthrin	Baythroid 2	Pyrethroid	Danger	Foliar spray
Azadirachtin	Neemix 4.5	Botanical		

¹Use restricted to greenhouses

Source: D. R. Seal

University of Florida-IFAS, Tropical Research and Education Center, Homestead, FL 33031., M. Ciomperlik, USDA APHIS PPQ CPHST, Pest Detection Diagnostics and Management Laboratory, Edinburg, TX 78541 and W. Klassen

Update on Watermelon Vine Decline

In October 2003, UF/IFAS Hillsborough County Vegetable Extension Agent Alicia Whidden and Dr Susan Webb, UF/IFAS Department of Entomology were collecting samples of virus infected squash as part of a statewide survey of insect transmitted viruses in cucurbit crops. One of the 40 samples from one of the fields contained a virus new to Florida squash. Testing for over 20 possible viruses gave negative results. No clues could be found to its identity except that it was not aphid-transmitted and that it seemed to be limited to summer and winter squashes and pumpkin in greenhouse tests. About 18 months later Whidden and Webb enlisted the help of FLDACS plant virologist Dr. Carlye Baker, DPI Gainesville and USDA plant virologist Dr. Scott Adkins USDA/ARS Fort Pierce to further study the virus.

These studies included purification and partial sequencing of the virus and further host range testing. The discovery of unusual viral inclusions by Baker and the results of electron microscopy by Diann Achor at the UF IFAS CREC in Lake Alfred led to the conclusion that this virus might be a new whitefly transmitted virus.

Experiments in Webb's lab confirmed that the virus is transmitted by silverleaf whitefly. The virus appears to be related to, but not the same as cucumber vein yellowing virus (CVYV).

Cucumber vein yellowing virus has been a problem in the Middle East for many years and has recently been found in Spain and Portugal. It is not related to the whitefly-transmitted viruses in tomato and snap bean in Florida but is more closely related to the aphid-transmitted viruses in squash.

At the same time, Adkins and Baker were also working on a virus that appeared to be involved in watermelon vine decline, a devastating disease of watermelon affecting southwest and south central Florida for the past few years. Adkins' lab discovered that the squash virus from Hillsborough County also caused severe necrosis and death of watermelon seedlings and Baker found the same unusual viral inclusions in tissue infected with the squash virus as she found in Adkins' watermelon vine decline isolates from the field.

Using a PCR-based detection method, Adkins lab has since found some additional evidence that the virus from squash may be the same virus as the virus that appears to be involved in watermelon vine decline.

Although more work needs to be done to confirm this finding, the researchers involved suggest that watermelon growers manage whitefly populations much more carefully than has been recommended in the past.

Pam Roberts and co-workers at the UF/IFAS Southwest Florida Research and Education Center are planning field tests to verify the involvement of the new virus. Phyllis Gilreath and Gene McAvoy, vegetable extension agents in Manatee and Hendry Counties continue to be involved in field surveys for the disease.

Some growers in SW Florida have indicated they initiated a program aimed at controlling sucking insects last season which they felt helped reduce vine decline incidence in their fields they have also indicated they felt there was a benefit of reducing stress on the plants by either by maintaining the water table and pushing plants as fast as possible with lots of nutrition resulting in less decline.

Excerpted from article by Dr Susan Webb: Hillsborough Extension Vegetable Berry Times, Nov. 2005 and personal communications.

Changes at UF/IFAS Plant Disease Clinic

As of January 01, 2006, in accordance with University guidelines, an invoice will be attached to the completed reports you receive from the Plant Disease Clinic-SWFREC. The charge for each sample submitted is \$20.00. The Florida Extension Plant Disease Clinic (FEPDC) is a fee-based service provided by the University of Florida and SWFREC Plant Pathology program. Please see UF-IFAS publication RF-SR007 for more information regarding the fees. These funds are used to support the clinic operations. Your help is appreciated with this matter.

Florida Tomato Growers Adopt IPM Practices

The General Accounting Office (GAO) audit of the U.S. Department of Agriculture's (USDA) IPM program during 2000-2001 was conducted to determine whether USDA appropriately met the stated goal of the 1994 IPM Initiative, which was to foster adoption of IPM practices on 75% of U.S. planted crop land by the year 2000.

From 1994 through 2000, adoption of IPM practices increased from around 40% to nearly 70%, yet pesticide use (in terms of weight per unit of area) increased slightly.

The following data demonstrates that Florida fresh market tomato growers are committed to IPM principles and practices. USDA has collected and published pesticide use data on select Florida crops every other year from 1992 through 2004. Fresh market tomatoes have been enumerated each of these years, for a total of seven data sets. Data for all eight active ingredients examined in this analysis are available for even-numbered years. The total pounds of each active ingredient used in Florida fresh market tomato were divided by the amount of Florida tomato acreage (between 40,000 and 50,000 acres) each year. The values from 2004 were compared to peak years of use (either 1992 or 1994 for the eight active ingredients).

Year	Total Insecticide Use (Pounds)*	Tomato Acreage	Pounds/Acre
1992	227,300	49,400	4.6
1994	385,100	47,900	8.0
1996	129,100	40,000	3.2
1998	85,400	40,600	2.1
2000	69,800	42,000	1.7
2002	77,400	45,000	1.7
2004	84,400	42,400	2.0

*Pounds of endosulfan, esfenvalerate, methamidophos, methomyl, and permethrin combined.

From the table, it is apparent that use reductions of between 74 and 79% (in comparison to the peak year of 1994) have occurred since 1998, with the last year of data (2004) reflecting a 75% reduction in restricted or “Danger”-labeled insecticide use in Florida tomato production.

A similar but less dramatic reduction has occurred in fumigant use in Florida fresh market tomato production. In this case, the impetus for reduction in use has come mainly from the methyl bromide phaseout that is occurring under the Montreal Protocol on Substances that Deplete the Ozone Layer.

Year	Total Fumigant Use (Pounds)*	Tomato Acreage	Pounds/Acre
1992	9,053,400	49,400	183
1994	10,109,500	47,900	211
1996	7,187,800	40,000	180
1998	6,844,300	40,600	169
2000	8,922,900	42,000	212
2002	7,077,100	45,000	157
2004	7,518,300	42,400	177

*Pounds of methyl bromide and chloropicrin combined.

Use reductions of between 17 and 26% (in comparison to the peak year of 2000) have occurred since 2002. The use of methyl bromide will continue to shrink, until it is completely phased out as an agricultural pesticide. However, its use may well be supplanted by methyl iodide, which would likely carry the restricted use status and “Danger” labeling.

Use of the only restricted herbicide (paraquat) in Florida-grown fresh market tomatoes has also decreased from the historic highs. In this case, use reduction is cost and IPM related. Glyphosate pricing was easing during the decade of the 90's, and paraquat-resistant weeds (such as American black nightshade and goosegrass) were noted in several areas of the state.

Year	Total Paraquat Use (Pounds)	Tomato Acreage	Pounds/Acre
1992	33,000	49,400	0.67
1994	20,600	47,900	0.43
1996	22,900	40,000	0.57
1998	12,600	40,600	0.31
2000	10,000	42,000	0.24
2002	4,200	45,000	0.09
2004	19,400	42,400	0.46

Use reductions of paraquat between 31 and 87% (in comparison to the peak year of 1992) have occurred since 1998 in Florida fresh market tomato production.

This reduction in use of restricted and “Danger”-labeled pesticides decreases potential hazards for mixer/loader and application personnel, as well as harvest crews. It also reduces potential hazards for associated wildlife and watersheds. Unfortunately, data that would document these trends do not exist. However, data are available for pesticide residues in vegetables, including fresh market tomato. The USDA’s Pesticide Data Program has reported residues of pesticides in fresh market tomato yearly from 1996.

Reduced spraying of restricted pesticides is reflected in a 50% decrease in methamidophos residues (from 0.016 PPM to 0.008 PPM) in fresh market tomato from the period 1997-1998 to 2003. These values are far from the 1.0 PPM tolerance in tomato for methamidophos, demonstrating proper use of the insecticide when employed for pest control.

Another manner to measure IPM adoption is use of “reduced risk” pesticides, which are generally more selective than restricted or “Danger”-labeled pesticides. Insecticides such as spinosad and imidacloprid have been adopted by Florida fresh market tomato growers as early as the mid to late 90's, and 2004 data have revealed use of other such materials including indoxacarb, pymetrozine, and pyriproxyfen. None of these insecticides are restricted or “Danger”-labeled when purchased individually in Florida.

It is important to note that these “reduced risk” products are always more expensive than older, off-patent materials. UF/IFAS Extension agents and professionals have been essential in educating Florida tomato growers, so that costs using “reduced risk” materials are commensurate with previous costs.

Chemically Speaking, Oct 2005

Mexicans Getting Hot over Chinese Chili Peppers

MEXICO CITY - It is one of Mexico's most emblematic foods, the spicy ingredient in everything from salsa to enchiladas. But in Mexico, the red-hot chile pepper is under attack from abroad.

China and other countries have flooded Mexico with dried peppers for three years and now account for one-third of all such peppers consumed in Mexico, the National Council of Chile Producers says. "The Chinese are winning at everything. Now they're beating us at chile peppers, too," said Miguel Ángel Romo, a seller of dried peppers at Mexico City's Central de Abastos market.

For Mexico, which is particularly proud of all things Mexican, from its pyramids to petroleum, it's the latest humiliation at the hands of China. The country has lured away factories and undercut local manufacturers by flooding the country with cheap shoes and other goods.

Members of Congress are urging protection for pepper growers, and the country's customs service is ratcheting up inspections to keep out "low-quality" imports. When a newspaper did a taste test and found the Chinese peppers were better, the results were front-page news.

"If we don't pay attention, the cultivation of this crop could disappear in just a few years," said Antonio Mejía Haro, a representative from Zacatecas state, during a congressional forum on the pepper industry in September.

Wholesalers say they're importing the foreign peppers simply because they're cheaper.

At Romo's store at the massive Central de Abastos, two 200-pound sacks bulged with bright red *chiles de arbol*. The thin, hot peppers are a key ingredient in salsa.

On the left were Chinese peppers, selling at \$1.06 a pound. On the right were Mexican ones, selling for \$1.27. "In a week, I'll sell 30 bags of the imported and 15 of the domestic ones," Romo said. "I don't think the Chinese ones are as good, but people don't care. All they care about is the price."

Chile peppers, known to scientists as the capsicum family of plants, are actually native to Central and South America, but they've been grown in Mexico for centuries. Spanish and Portuguese traders spread them around the world, and the spicy vegetables now flavor everything from Indian curry to Hungarian goulash.

Mexico still grows more than 90 percent of its own fresh peppers, about 1.8 million tons a year. But dried peppers are a kitchen staple, either sliced up, stewed, made into fillings or ground into chili powder and mole sauce.

The first *chiles de arbol* began arriving from China in the mid-1990s, said Edmundo Bonilla, a wholesaler at the Central de Abastos. The Chinese peppers were hot, but they lacked the flavor of the Mexican ones, Bonilla said. They also expanded less when stewed.

"It took some years before customers started accepting them, because you can definitely tell the difference," he said. "But people have gotten used to them now, and they're cheap. Fifteen years ago, we had no idea the (Chinese) could export so aggressively."

The Mexican and Chinese peppers look identical. Many retailers are now selling them without telling shoppers they're imported, Romo said. Now other varieties of dried peppers are starting to arrive from China: the big *chile ancho*, the mid-size *guajillo* and the dark *chile mulato*, used to make mole. Peru and Chile have also joined in, offering a slightly less flavorful version of the *guajillo* called the *guajón*.

Imports of dried peppers rose 23 percent from 2003 to 2004, to about 34,000 tons, said Octavio Pozo

Campotonico, a board member of the Chile Producers Council. They're expected to surpass that this year, he said.

Mainland China and the Chinese territory of Hong Kong accounted for 11,600 tons in 2004. Chile accounted for 2,300 tons, and Peru and India sold 2,000 tons each.

The United States sold 8,000 tons of dried peppers to Mexico last year. But many of those were actually Chinese, imported through the United States to avoid tariffs, wholesalers say. Arizona and New Mexico are big chile pepper producers, but most of their crops stay in the United States.

Meanwhile, Mexico's own production has remained flat, at 70,000 to 80,000 tons a year.

At the Congressional forum in September, lawmakers called on President Vicente Fox's government to do more to protect the pepper market. Soon afterward, Mexican customs agents stepped up inspections of shipments, saying they were trying to weed out low-quality peppers.

They also began checking labels more carefully, to make sure that *guajones* were not being passed off as *guajillos*, for example, Pozo said.

Pepper sellers insist the Mexican peppers still taste better, and charge up to 20 percent more for them. But some Mexicans aren't so sure they're worth it.

In September, Reforma newspaper assembled a gourmet chef, a taco cook and a housewife to test identical salsas made from Chinese and Mexican *chiles de arbol*. Only the housewife preferred the Mexican ones.

"If I were buying them to cook at home, I would probably buy the Mexican ones," said taco stand owner Eugenia Lazos, as she stuffed dried Chinese peppers into a plastic bag at the Central de Abastos. "But the price is important, and these are pretty good."

Local beekeepers looking to provide pollination services to watermelon producers. Contact Heidi or Steve Eisele, PO Box 610, Felda, phone 941-661-5038.

Job Opportunities

Southwest Florida packer/shipper has immediate openings for the following positions:

Sales Assistant – Entry sales assistant needed. At least one year of industry related experience preferred. Responsibilities include assisting current sales staff with workload, servicing current accounts and establishing new accounts.

Shipping Supervisor – must have knowledge of computers and produce business. Industry related experience required.

Truck driver – fulltime truck driver needed. Class A CDL drivers license is required. Must be willing to travel to Georgia for six weeks in spring and fall, remainder of the year is local driving in southwest Florida.

For inquiries, contact Rita at 239-657-2227 or fax resume to 239-657-6037.

Up Coming Meetings

Manatee County

December 8, 2005 **Cucurbit Production Workshop** 1:30 PM – 4:30 P.
GulfCoast Research and Education Center, Wimauma.

For more information, contact Phyllis Gilreath at 941-722-4524 or
prgilreath@ifas.ufl.edu or Alicia Whidden at 813-744-5776 or
AJWhidden@ifas.ufl.edu

December 13, 2005 **CORE/Private Applicator Ag Pesticide Training and Testing** 9:00
AM

Manatee County Extension Service
1303 17th Street West
Palmetto, Florida 2 CORE CEUs

For more information, contact Phyllis Gilreath at 941-722-4524 or
prgilreath@ifas.ufl.edu.

December 14-15, 05 **Spanish Pesticide License Training and Testing** 8:30 am – 5
pm

Manatee County Extension Service
1303 17th Street West
Palmetto, Florida

Instructor: Cesar Asuaje. Cost is \$10 per day. CEUs offered for those who already have a pesticide license. Participants can earn 3 CEUs each day for the morning sessions only or 4 CEUs for the morning session and afternoon review. Those seeking a private pesticide applicator license must attend both days.

For registration information, please contact Phyllis Gilreath at 941-722-4524.

January 11, 2005 **Frost/freeze Protection Workshop** 9 am – 2 pm.

Manatee County Extension Service
1303 17th Street West
Palmetto, Florida

This workshop is applicable to nursery, blueberry and some vegetable crops.
For more information, contact Sylvia or Phyllis at 941-722-4524. RSVP
requested.

Other Meetings

December 15-18, 2005 **Entomological Society of America Annual Meeting**

Fort Lauderdale, FL.
Go to <http://www.entsoc.org/> for details

February 4-8, 2006 **American Society of Horticultural Science
Southern Region Annual Meeting**

Wyndham Orlando Resort
Orlando, Florida

For more information, go to <http://ashs.org/regional/index.html>

May 21-23, 2006 18th International Pepper Conference

Palm Springs, California

Go to <http://www.internationalpepper.com/> for details

Websites

A wealth of UF/IFAS tomato disease research/extension publications and few related publications from other southern states are listed at this site <http://nfrec.ifas.ufl.edu/tomatohealth.htm>

If you missed the multi-state Symposium on Tomato Diseases on Oct 18-19, 2005 you can locate all the power point presentations at this site <http://nfrec.ifas.ufl.edu/tomatohealth.htm>

Quotable Quotes

The reason a dog has so many friends is that he wags his tail instead of his tongue. - Anonymous

If there are no dogs in Heaven, then when I die I want to go where they went. - Will Rogers

Dogs love their friends and bite their enemies, quite unlike people, who are incapable of pure love and always have to mix love and hate. - Sigmund Freud

There is no psychiatrist in the world like a puppy licking your face. - Ben Williams

Women and cats will do as they please, and men and dogs should relax and get used to the idea. - Robert A. Heinlein

If you pick up a starving dog and make him prosperous, he will not bite you; that is the principal difference between a dog and a man. - Mark Twain

On the Lighter Side

Mad Wife Disease

A guy was sitting quietly reading his paper when his wife walked up behind him and whacked him on the head with a magazine. "What was that for?" he asked. "That was for the piece of paper in your pants pocket with the name Laura Lou written on it," she replied.

"Two weeks ago when I went to the races, Laura Lou was the name of one of the horses I bet on," he explained. "Oh honey, I'm sorry," she said. "I should have known there was a good explanation.

Three days later he was watching a ballgame on TV when she walked up and hit him in the head again, this time with the iron skillet, which knocked him out cold. When he came to, he asked, "What was that for?"

She replied, . . . Your horse called."

Philosophy 101

Try the following quiz...

1. Name the five wealthiest people in the world.
2. Name the last five Heisman trophy winners.
3. Name the last five winners of the Miss America.
4. Name ten people who have won the Nobel or Pulitzer Prize.
5. Name the last half dozen Academy Award winners for best actor and actress.
6. Name the last decade's worth of World Series winners.

How did you do? Not too good? The point is, none of us remember the headliners of yesterday. These are no second-rate achievers. They are the best in their fields. But the applause dies. Awards tarnish. Achievements are forgotten. Accolades and certificates are buried with their owners.

Here's another quiz. See how you do on this one:

1. List a few teachers who aided your journey through school.
2. Name three friends who have helped you through a difficult time.
3. Name five people who have taught you something worthwhile.
4. Think of a few people who have made you feel appreciated and special.
5. Think of five people you enjoy spending time with.

Easier? The lesson: The people who make a difference in your life are not the ones with the most credentials, the most money, or the most awards. They are the ones that care.

Contributors include: Joel Allingham/AgriCare, Inc, Karen Armbruster/SWFREC, Kathy Smith/Agricultural Pest Management, Jim Connor/SWFREC, Bruce Corbitt/West Coast Tomato Growers, Dr. Kent Cushman/SWFREC, Dr. Phyllis Gilreath/Manatee County Extension, 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, Gene McAvoy/Hendry County Extension, Alice McGhee/Thomas Produce, Jimmy Morales/Pro Source One, Tim Nychk/Nychk Bros. Farm, Chuck Obern/C&B Farm, Teresa Olczyk/ Miami-Dade County Extension, 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, 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

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