



UNIVERSITY OF  
FLORIDA

E X T E N S I O N

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# SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

May 7, 2007

**A few widely scattered showers fell across many parts of South Florida over the past few days.** Some of these were accompanied by damaging winds and hail in a few places. While welcome these showers have bought scant relief to drought ravaged south Florida which according to historical records experienced the second driest April since 1895.

**Temperatures have begun to climb over the past few weeks with daytime temperatures' reaching into the upper 80's and low 90's in many places.** Nighttime temps have been in the 50's and 60's. In most areas, pan evaporation has been ranging between 0.15 – 0.18 inches per day.

**Crops are winding down across most of south Florida with the exception of the Manatee/Ruskin area which still has a way to go.**

### FAWN Weather Summary

Date	Air Temp °F		Rainfall (Inches)	Hours Below Certain Temperature (hours)							
	Min	Max		40°F	45°F	50°F	55°F	60°F	65°F	70°F	75°F
<b>Balm</b>											
4/20 – 5/7/2007	53.3	88.8	0.00	0.0	0.0	0.0	5.9	48.3	26.5	95.3	38.7
<b>Ft Lauderdale</b>											
4/20 – 5/7/2007	64.1	89.2	0.66	0.0	0.0	0.0	0.0	0.0	2.0	35.6	21.7
<b>Fort Pierce</b>											
4/20 – 5/7/2007	56.4	88.6	0.58	0.0	0.0	0.0	0.0	5.8	52.9	8.6	66.9
<b>Homestead</b>											
4/20 – 5/7/2007	58.9	89.6	0.43	0.0	0.0	0.0	0.0	5.5	3.1	48.2	88.6
<b>Immokalee</b>											
4/20 – 5/7/2007	51.0	91.8	0.64	0.0	0.0	0.0	7.4	52.3	2.8	99.5	72.9

**Wishing you all the best for a safe and restful summer break.**

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**Dry conditions over an extended period of time have resulted in large rainfall deficits across most of South Florida.** As a result extreme drought conditions which have been present around Lake Okeechobee and far northern Palm Beach County have begun to expand westward into northern Collier County, severe drought conditions remain across southern portions of Palm Beach and Collier counties and moderate drought conditions remain over most of remainder of south Florida. Irrigation restrictions are in place across most of South Florida. See below.

**Crops coming to market include cabbage, celery, cucumbers, eggplant, endive, escarole, lettuce, parsley, peppers, potatoes radishes, snap beans, squash, strawberries, sweet corn, tomatoes, and specialty items.** Okra harvest is picking up around Homestead and watermelon volume is beginning to increase around South Florida.

**The short-term forecast from the National Weather Service in Miami calls for a partly sunny skies and mainly dry conditions following the backdoor cool front that moved across the peninsula today.** The main effect will be lower night time temperatures and a reduced chance of showers for much of the remainder of the week. For additional information, visit the National Weather Service in Miami website at <http://www.srh.noaa.gov/mfl/newpage/index.html>

## **Insects**

### **Whiteflies**

**Around Manatee County, reports indicate that whitefly numbers are beginning to escalate and scouts are beginning to find pupae.** Heavy whitefly pressure is present on some cucurbits like cantaloupe.

**Growers and scouts around Southwest Florida report that whiteflies are widely abundant in a variety of crops and hatching nymphs are providing a continual source of adults.**

**Respondents in Homestead indicate that whitefly pressure is high in okra.**

**East Coast growers report that whitefly populations are reaching seasonal highs in a variety of crops including tomato, squash, cucumbers and pepper.**

**Growers are reminded that the actions they take at the end of the season will influence whitefly numbers and prevalence of TYLCV next season**

**Field hygiene should be a high priority and should be included as an integral part of the overall strategy for managing whitefly populations, TYLCV incidence, and insecticide resistance.** These practices will help reduce the onset of the initial infestation of whitefly, and lower the initial infestation level during the cropping period.

**Establish a minimum two-month crop free period during the summer, preferably from at least mid-June to mid-August.**

**Use a correct crop destruction technique, which includes destruction of existing whitefly populations in addition to the physical destruction of the crop.**

**Promptly and efficiently destroy all vegetable crops within 5 days of final harvest to maximally decrease whitefly numbers and sources of plant begomoviruses like TYLCV.**

**Use a contact desiccant (“burn down”) herbicide in conjunction with a heavy application of oil (not less than 3 % emulsion) and a non-ionic adjuvant to destroy crop plants and to quickly kill whiteflies.**

**Destroy crops block by block as harvest is completed rather than waiting and destroying the entire field at one time.**

**Monitor cull piles and fields for volunteers and presence of whiteflies and/or virus.**

### **Pepper Weevil**

**Around Southwest Florida, reports indicate that pepper weevils abundant in nearly all pepper fields.**

**Reports from the East Coast indicate that weevils are “bad” and nearly everywhere**

### **Worms**

**Reports from Manatee County indicate that worms of all kinds including pinworm, loopers, fruitworms, and southern armyworm and beet armyworm are increasing as the season progresses.**

**East Coast growers and scouts report high pinworm numbers in eggplant and tomato in some places. A few loopers and southern armyworms are being found in tomato along with beet armyworms mainly in pepper.**

**Around Southwest Florida, reports indicate that worms are making a comeback in some places with mostly beet armyworm and fruitworms being reported. Rindworm activity has been noted in melons in some places.**

**Reports from the Glades indicate that worms continue to increase in sweet corn around the EAA. Silkworm is also widely present and causing problems for growers.**

### **Leafminer**

**Growers and scouts in the Manatee/Ruskin area report that leafminers are still active and requiring treatment in some areas.**

### **Thrips**

**Respondents on the East Coast continue to battle western flower thrips (*Frankliniella occidentalis*) in numerous locations from Fort Pierce to Boca Raton.**

**Growers and scouts are reporting problems with heavy infestations on beans, pepper, eggplant, tomato, cucurbits and specialty items like basil and cilantro. One scout indicated that watermelon seems to be the only crop they don't like. Damage includes etching and russetting of fruit and foliage.**

**Around Immokalee, thrips are increasing in several crops and scouts are reporting finding a few western flower thrips (*Frankliniella occidentalis*) mixed in with mainly Florida flower thrips (*Frankliniella bispinosa*).**

### **Mites**

**Respondents in Southwest Florida area report that spidermites are building in melons and eggplant and also in some tomato**

**Around Manatee County both two spotted and russet mites are present in tomato.**

## **Diseases**

### **Watermelon Vine Decline**

**Only a few scattered cases of watermelon vine decline have been reported around Southwest Florida following initial finds around Immokalee reported in the last South Florida Pest and Disease Hotline.** At present, incidence and occurrence appears to be much lower than in past years and spread reduced.

**Symptoms of vine decline include a slight internal yellowing of stem tissue in the crown area, wilting of the vines, scorched and brown leaves, defoliation, and rapid mature vine collapse.** Frequently, fruit are observed with greasy necrosis (brown) on the interior portion of the rind that rendered the fruit non-marketable. Fruit quality is greatly reduced.

### **TYLCV**

**Around Southwest Florida, tomato yellow leaf curl has reached very high levels in many tomato fields with many fields finishing in the 100% infection range.** Impact on yield has been severe in a number of locations.

**Growers and scouts in Manatee County report that TYLCV incidence is variable depending on location with most fields in the 5 -30% infection range.**

**Respondents on the East Coast report TYLCV is increasing everywhere but is of little concern at this time as the crop nears termination.**

### **Powdery Mildew**

**Reports indicate that powdery mildew is also widely present on cucurbits on the east Coast.** Reports of indicate that powdery mildew is heavy on pepper in several locations and is causing defoliation in some places especially in older planting where growers have reduced fungicide applications.

**Respondents in the Manatee/Ruskin area are reporting light powdery mildew pressure in melons.** There has also been one report of powdery mildew on tomato.

**Reports indicate that powdery mildew is present on winter melon in the Homestead area.**

**Growers and scouts around Southwest Florida are reporting widespread problems with powdery mildew on a number of crops including beans, cucumbers, melons pepper, tomatoes and squash.** Incidence and severity is high in some older fields.

**Powdery mildew has been a major problem this spring on watermelons around South Florida of watermelon.** Powdery mildew of watermelons is caused by the fungus *Sphaerotheca fulginea*) or, occasionally, *Erysiphe cichoracearum*. These fungi also affect other species of cucurbits as well.

**Powdery mildew of squash, cucumber, cantaloupe, pumpkin, and other cucurbits other than watermelon has been a common problem nearly every season for decades in Florida and the southeastern United States and beyond.**

**Powdery mildew of watermelon is a fairly recent phenomenon in Florida.** Within the last decade, powdery mildew of watermelon began to increase in the northern and central portions of Florida. Although a complete understanding of this shift in pathogenicity is not available, it may be due in part to the fact that much of the states watermelon acreage is now produced on drip irrigation which maintains dry foliage compared to other

types of irrigation as well as a series of extremely dry spring seasons. Historically, powdery mildews tend to be more severe on plants grown in drier climates

**Powdery mildew develops rapidly under favorable conditions.** Symptoms of powdery mildew of watermelon appear as yellow blotches on the oldest leaves first. If untreated the fungus quickly spreads to completely affect the entire leaf. As the disease progresses these blotches become bronzed and turn dark brown or purple. Eventually the leaf dies and has a crisp texture.

**White masses of sporulation that are frequently seen with other powdery mildews are not commonly seen with the powdery mildew of watermelon.** In some cases affected leaves may display the typical yellowing, bronzing, and a fair amount of white powdery fungal growth. In other cases microscopy may be necessary to find a limited amount of the powdery mildew fungus in the yellowed areas.

**Crop rotation and many other cultural practices have limited effect on the incidence and development of powdery mildew.** Selecting a site with good air circulation and low humidity may help reduce infections. New plantings should be separate from old plantings to avoid the spread of inoculum. Control of cucurbit weeds and other weeds may also be helpful.

**In general, healthy, vigorous leaves and stems are less prone to infection.** Plants under nutritional stress in most cases will develop powdery mildew much sooner than plants the same age grown under a good nutritional program.

**This disease is favored by high humidity, but not free water on leaves.** The fungus is best controlled with fungicide applications when symptoms are first observed. Since it tends to occur on older leaves and often appears late in the growing season, control may not be warranted.

**Powdery mildew can cause fruit to be smaller in size, fewer in number, less able to be successfully stored, sun scalded, incompletely ripe, and have a poor flavor.** Control of powdery mildew of watermelon can be achieved with chlorothalonil, the high rates of mancozeb, the strobilurin fungicides such as Amistar, Cabrio, Flint and others, and sterol inhibitors like Nova. New materials like Acrobat, Curzate and Pristine have also shown efficacy.

**Resistance management involving the rotation of fungicides of differing modes of action is especially important in combating powdery mildew as this disease has historically proven quite adept at developing resistance to fungicides with a specific mode of action such as benomyl, triadimefon and the strobilurins.** Growers should be sure to follow labeled instructions regarding the number of applications per season and rotate between different fungicide classes.

**Sulfur, potassium bicarbonate and copper products may provide some control for organic producers.** Micronized sulfur can be quite effective but is likely to burn foliage under the high temperatures experienced in the late spring in south Florida.

### **Downy Mildew**

**Around Immokalee downy mildew continues to be a problem in cucurbits and incidence continues to increase.** In addition to cantaloupes, cucumbers, and squash, downy mildew is widely present in a number of scattered locations in watermelon where the incidence is reported to be high in places.

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

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

Downy mildew is a very destructive disease and progresses rapidly under favorable conditions. Fungicides are much more effective when applied well before symptoms are visible. Initiating a downy mildew control program after symptoms have been detected is much more likely to fail.

The most effective spray programs in trials performed by Dr Gerald Holmes, Plant Pathologist at NCSU included the fungicides Tanos, Previcur Flex, and Gavel, tank mixed or alternated with Curzate, Manzate and/or Bravo.

Product & Formulation	Pre-harvest Interval (days)	Fungicide Group
Tanos 50WG	3	11+27
Previcur Flex 6F	2	28
Ranman 400SC	0	21
Gavel 75DF	5	22+M
Curzate 60DF	3	27
Manzate 75WG	5	M
Bravo 6SC	0	M

In designing a fungicide program growers should also observe pre-harvest intervals and practice resistance management by alternating products belonging to different fungicide groups.

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

Beginning near harvest and based on the frequency of harvest, use a product(s) with the appropriate pre-harvest interval.

### Downy Mildew of Lettuce

Dr Rick Raid notes that downy mildew has maintained itself at low levels right up until the end of the season. This year, mildew did not become a major economic problem due to industry-wide use of phosphonic fungicides in a program with maneb and/or other fungicides that have demonstrated mildew efficacy. Growers must remain mindful of incorporating old debris soon after harvesting so as not to enhance inoculum production.

In several trials conducted by Dr Raid around Palm Beach County, Forum F (Dimethomorph) BASF, Reason (Fenamidone) Bayer, Revus (Mandipropamid) Syngenta and Previcur (Propamocarb) Bayer all showed good efficacy on downy mildew.

### Late Blight

Reports indicate that some late blight activity is still present in a few scattered locations around Southwest Florida and in Manatee County.

## **Bacterial Spot**

**Growers and scouts on the East Coast indicate that bacterial spot is still active on pepper and tomato and has been increasing in recent days in response to scattered showers. . Younger crops especially tomato are still being affected.**

**Around Immokalee, some new bacterial spot has also been noted**

**Around Manatee County reports also indicate some increase in bacterial spot.**

## **Corn Rust and Northern Corn Leaf Blight**

**Dr Rick Raid, Pathologist UF/IFAS EREC writes that rust and northern corn leaf blight have definitely picked up in recent days, with scattered showers and higher inoculum levels favoring infection.** Fungicide trials at the EREC have demonstrated the continued high efficacy of strobilurin fungicides in controlling these diseases, particularly when used in a program with the broad spectrum protectants and/or a sterol inhibiting fungicide. Applications should be applied before the diseases reach high levels.

## **Bean Rust**

**Dr Raid reports that bean rust has been low to moderate this spring in most areas due primarily to rust resistant varieties.** It has also been hindered by dry conditions and low humidity. However, on susceptible varieties, it has still thrived, demonstrating the importance of cultivar selection.

## **Bean Red Node**

**Dr. Raid reports bean red node has reared its head around Belle Glade in recent weeks.** Red node is caused by Tobacco Streak Virus and is thought to be thrip-associated. He notes while his advice may not help with this year's crop, growers should remember to avoid planting early fall and late spring snap bean in fields that have a large field edge to acreage ratio. Red node is harbored in weeds that border fields, moving in from the edges.

## **Alternaria**

**Growers and scouts in Palm Beach and Manatee Counties report an increase in the incidence of early blight in tomato over the past few weeks.**

## **Target Spot**

**Respondents indicate that the incidence of target spot in tomato is increasing in a number of locations around South Florida**

## **Gummy Stem Blight**

**Gummy stem blight is present on watermelon around Southwest Florida but is not a major problem at this time.**

**Gummy stem blight has also been reported on melons in Manatee County.**

## **Blossom End Rot**

**Growers across South Florida are reporting widespread problems with Blossom End Rot (BER).**

**BER is caused by a lack of calcium in the developing fruit that is often due to stress on the roots that impedes water uptake.** Since calcium moves in the transpiration stream, anything that slows or impedes transpiration slows calcium uptake. Some common causes include excess soluble salts in the soil, too wet or too dry soil conditions, or some other stress on the root system, including nematodes or soil borne pathogens. Dry, persistent winds and low humidity can also contribute to water stress and cause problems. BER can also be triggered under conditions of cool, overcast weather, when plants are not transpiring enough to supply sufficient calcium to young, developing fruit.

**Before spraying calcium, which are usually too little/too late, growers should look at their water management practices or other factors such as weather events earlier in the season or soil characteristics or previous topography prior to cropping.**

### Cucurbit leaf crumple virus

The following information on cucurbit crumple leaf is taken from the UF/IFAS EDIS FACT Sheet **Whitefly-Transmitted Cucurbit Leaf Crumple Virus in Florida** by S. E. Webb, F. Akad, T. Nyoike, O. E. Liburd, and J. E. Polston. See <http://edis.ifas.ufl.edu/IN716> for full document and photos.

**In November 2006, Cucurbit leaf crumple virus (CuLCrV), a virus new to Florida, was found in squash (*Cucurbita pepo* L.) fields in north central and northeast Florida.** Leaves of yellow straightneck squash and zucchini were thickened and distorted, as well as curled and crumpled. The symptoms on infected yellow straightneck squash were slightly different from those on zucchini. The leaves of yellow straightneck squash plants were rounded on the edges while leaves of zucchini plants were not. Zucchini fruit did not show obvious symptoms, but the fruit from infected yellow straightneck squash were streaked with green, making them unmarketable. Feeding by whitefly nymphs causes silvering of leaves of squash and blanching of yellow-fruited squash and yellow blotchiness of green-fruited squashes. The whitefly induced leaf silvering is distinct from cucurbit leaf crumple disease and should not be confused with it.

**The symptoms are "somewhat different on zucchini and yellow summer squash.** The virus caused the leaves to be thickened and distorted on both types of squash, however, as well as curled and crumpled. Yellow squash leaves became rounded on the edges. The zucchini fruit did not show obvious symptoms but yellow squash was streaked with green virus." Reports indicate that symptoms look different than other virus symptoms seen in cucurbits in Florida.

**Cucurbit leaf crumple virus is a begomovirus reported from the western United States (Arizona, Texas and California) and northern Mexico (Brown et al., 2000, Brown et al., 2002) (*Cucurbit leaf crumple virus* has been known in some locations as *Cucurbit leaf curl virus*).** *Cucurbit leaf crumple virus* is able to infect most cucurbits including cucumber, muskmelon, squash, pumpkin, and watermelon, and has been reported to infect bean. Honeydew, Crenshaw, and casaba melons appear to be immune (Natwick, 2003). As with other begomoviruses, this virus is transmitted in a persistent manner by various biotypes of the whitefly, *Bemisia tabaci* (Genn.), including the silverleaf whitefly (*B. tabaci* biotype B = *B. argentifolii* Bellows & Perring). The adult whitefly must feed for a minimum of 30 minutes on the infected plant and can only transmit the virus after a delay of 6-8 hours. Once the whitefly is able to transmit the virus, it can continue to do so for days. The virus cannot be transmitted mechanically and is unlikely to be transmitted through seed.

**Whitefly populations were exceptionally high in fall 2006 in north central and northeast Florida, possibly because of the drought conditions during the summer.** Heavy summer rains can reduce populations under normal conditions, but whiteflies may also have become concentrated on irrigated crop plants when weed hosts wilted. These high populations may be responsible for the high incidences of *Cucurbit leaf crumple virus*-infected plants in both locations.



**Management of this new virus will not be much different than management of other begomoviruses in vegetable crops such as *Tomato yellow leaf curl virus* in tomato (Schuster and Polston, 1999, Momol et al., 2001).** Virus- and whitefly-free transplants should be used, and transplants produced in states where this virus is known to be a problem (Texas, Arizona, California) should not be planted in Florida. Where whiteflies are a problem, a soil-applied neonicotinoid insecticide such as imidacloprid (Admire<sup>®</sup>), thiamethoxam (Platinum<sup>®</sup>), or dinotefuran (Venom<sup>®</sup>) should be used at planting. If a foliar application of dinotefuran is used instead of a soil application, it is best to apply it in the first 30 days of the crop, before flowering. In addition to protecting bees, it also will help limit the exposure of the whitefly population to neonicotinoids during the latter part of the crop cycle. The crop should be monitored regularly for the presence of adult whiteflies. An application of pymetrozine (Fulfill<sup>®</sup>) will reduce the number of adults and nymphs and can help slow virus spread into and within the crop. Other materials that can be used to reduce adult populations include endosulfan or a combination of bifenthrin and endosulfan. A new product, spiromesifen (Oberon<sup>®</sup>), is effective against immature stages of the whitefly as is buprofezin (Courier<sup>®</sup>), an insect growth regulator. Although spiromesifen and buprofezin affect only reproduction and survival of immatures, they can help reduce secondary spread within and between fields by slowing the increase of the whitefly population. Because of concerns about insecticide resistance in whiteflies, it is critically important to observe the restrictions on the number of applications, to rotate insecticide applications among chemicals in different classes, and never follow a soil application of any neonicotinoid with a foliar application of another neonicotinoid.

**Further information on management of both begomoviruses and resistance to neonicotinoids can be found on the Whitefly MoA poster at the IRAC (Insecticide Resistance Action Committee) Website - <http://www.irc-online.org>**

**In addition to starting with virus- and whitefly-free transplants, other effective cultural controls include avoiding planting next to older, whitefly-infested crops (virus and whitefly hosts such as beans and other cucurbits, but also whitefly hosts such as cabbage, collards, peanuts, tomato, cotton, and soybeans).** Use UV-reflective mulches, which repel migrating whiteflies in the first few weeks of the crop (until canopy closure), thus delaying the introduction of virus. These mulches also repel aphids and will give additional benefits by reducing early spread of aphid-transmitted viruses. Remove weeds from fields, as they can be hosts for whiteflies, and can interfere with thorough coverage with insecticides applied for whitefly control.

**We do not know if it has established in the state, but UF/IFAS scientist are working on this and hope to find out soon.** We also do not know the distribution within the state but hope to address this soon as well.

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

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

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

**Prompt crop destruction at the end of the season will immediately end the production of disease inoculum and insects and eliminate the spread of diseases and pests to any other host plants in the vicinity.** Downy and powdery mildew on melons can spread via wind from older, diseased plants to plants in surrounding fields that are still maturing. These diseases are obligate parasites. This means that they can only grow and multiply on living host tissue. Some plant pathogens, such as the bacterium that causes bacterial spot of tomato and

pepper, are unable to survive for extended periods of time outside of the host tissue. Plowing or disking under infected plant debris helps not only by covering up the inoculum but also speeds up the disintegration of plant tissue and kills the pathogen. Good sanitation will help control a number of important vegetable pathogens.

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

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

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

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

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

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

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

**Chemical fallowing is a twist on the traditional method of fallowing that depends on disking fields through out the summer period to reduce weed pressure in subsequent crops.** One approach uses Roundup to kill weeds during the crop free period.

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

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

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

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

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

**Be a good neighbor and clean up!**

## **News You Can Use**

### **Soil Fumigant Pesticides; Notice of Public Meetings**

**SUMMARY: The Environmental Protection Agency's (EPA) Office of Pesticide Programs (OPP) is planning to hold two stakeholder meetings to obtain public input on risk management options for the soil fumigant pesticides chloropicrin, dazomet, metam sodium, metam potassium, and methyl bromide.**

Reregistration for 1,3-dichloropropene (1,3-D or Telone) was completed in 1998, but it is included in the review for comparative purposes. The public meetings will be held in the states of Washington and Florida in late May and early June 2007. The purpose of the meetings is for the Agency to obtain first-hand comments on possible human health risk mitigation options from stakeholders who are most affected by soil fumigant use, including growers, professional fumigant applicators, farm workers, neighbors and community members, local officials, and others.

EPA also plans to participate in a stakeholder meeting focusing on risk mitigation options for the soil fumigants metam sodium and metam potassium, held by the California Department of Pesticide Regulation in late May 2007. California and EPA have been working together on soil fumigant issues during the last several years, and use similar approaches to reduce exposure.

Stakeholders' comments at these meetings will help inform EPA's decision later this year on the reregistration eligibility of several soil fumigant pesticides. Through the reregistration program, EPA is ensuring that all pesticides meet current health and safety standards.

**DATES:** The meeting in Richland, Washington will be held on May 22, 2007 from 9 a.m. to 5 p.m. **The meeting in Ft. Myers, Florida will be held on June 6, 2007 from 9 a.m. to 5 p.m.**

To request accommodation of a disability, please contact the person listed under FOR FURTHER INFORMATION CONTACT, preferably at least 10 days prior to the meeting, to give EPA as much time as possible to process your request. Spanish language translation will be available at both meetings.

**ADDRESSES:** The Washington meeting will be held at the Federal Building, 825 Jadwin Avenue, Richland, Washington 99352. **The Florida meeting will be held at the Harborside Event Center, 1375 Monroe Street, Ft. Myers, Florida 33901.**

**FOR FURTHER INFORMATION CONTACT:** For Washington meeting information contact. Veronique LaCapra, Special Review and Reregistration Division (7508P), Office of Pesticide Programs, Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001; telephone

number: (703) 605-1525; fax number: (703) 308-8090; e-mail address: [lapra.veronique@epa.gov](mailto:lapra.veronique@epa.gov).

**For Florida meeting information contact. Nathan Mottl, Special Review and Reregistration Division (7508P), Office of Pesticide Programs, Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001; telephone number: (703) 305-0208; fax number: (703) 308-7070; e-mail address: mottl.nathan@epa.gov.**

For general information contact. John Leahy, Special Review and Reregistration Division (7508P), Office of Pesticide Programs, Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001; telephone number: (703) 305-6703; fax number: (703) 308-8090; e-mail address: leahy.john@epa.gov.

### **No quick end to drought in sight - Lake Okeechobee keeps dropping as South Florida Water Management District works to stretch limited water supply**

Mussel shells seem out of place alongside desert-like cracks in a dry landscape, but the mismatched combination is what's found on Lake Okeechobee shores as drought grips South Florida.

"Statewide, Florida is experiencing one of its driest seasons on record since 1895, and it's possible that the summer rainy season won't bring enough water to end the drought," said Ben Nelson, state meteorologist with the Florida Division of Emergency Management.

"Our main concern is that we'll have a La Niña develop this summer in the equatorial Pacific," Nelson said. "La Niña typically means drought in Florida."

Nelson issued the weather warning at a press conference held with South Florida Water Management District officials at Jaycee Park Pier in the Lake Okeechobee Recreation Area on Tuesday.

With the drought already one year old, a La Niña system could prolong it through the end of 2007. A La Niña occurs when cooler than average waters are recorded in equatorial Pacific waters. This shifts the jet stream northward, preventing storm systems and rain from impacting Florida in the fall, winter and spring, said Nelson.

Even if Florida receives average rainfall this summer, that won't be enough to break the drought if the wet months are followed by unseasonably dry weather. In the last 18 months, South Florida has received just 49.31 inches of rain, almost 17 inches less than the 30-year average of expected rainfall.

"It is critical that South Floridians follow the water restrictions so that enough of the limited natural resource is available for drinking water and environmental needs," said Chip Merriam, Deputy Executive Director at the South Florida Water Management District.

Florida last experienced a multi-year drought in 1999-2001. Lake Okeechobee water levels dropped to a record low of 8.97 feet in May 2001. Tuesday, the lake level was 9.66, less than one foot from that record low.

The current drought is hitting South Florida harder than 1999-2001 drought, because rainfall has been scant statewide. During the last drought, rainfall in Central Florida was enough to carry South Florida through the lean times. Water flowing from the Kissimmee River Valley helped to recharge water supplies in Lake Okeechobee.

With statewide rainfall shortages for much of 2006, there isn't enough water in Central Florida to help alleviate drought here. The result is a strain on water supplies from surface sources like Lake Okeechobee, rivers and canals, and South Florida's shallow aquifer.

Lake Okeechobee is low enough that the U.S. Army Corps of Engineers hasn't ordered major water releases

since January 2006. The most recent pulse environmental releases ran from only December 2006 to February 2007.

On Friday, April 27, four navigation locks on the north shore of Lake Okeechobee were closed to navigation due to safety hazards caused by low water levels in the lake. These navigation locks, which are operated by the District, will remain closed until water levels in Lake Okeechobee have returned to safe operating levels.

Effects of the drought are most visible around Lake Okeechobee, from vibrant green grass growing in canals where water once flowed, to channel markers that appear to have sprouted on land. The district has also closed four navigation locks to boaters because the low water levels are a hazard.

"There is a silver lining in the drought for Lake Okeechobee's wildlife and vegetation," said Susan Gray, Deputy Department Director for Watershed Management. "Low lake levels are giving beneficial submerged and emergent plant species a chance to re-grow, and water managers may now have the opportunity to remove some of the phosphorus-laden muck from the lake bed."

### **Area Water Restrictions**

**Everglades Agricultural Area** - Modified Phase Three or extreme water shortage conditions have been declared for Everglades Agricultural Area farmers who rely on Lake Okeechobee for irrigation water. This requires a 45 percent cutback in their weekly allocations.

**Lake Okeechobee Service Area** - (Includes portions of Hendry, Glades, Lee, Okeechobee, Palm Beach, Martin counties) Phase Two restrictions remain in place for other Lake Okeechobee Service Area water users. This requires a 30 percent reduction for agricultural and other District permitted users and limits lawn watering to no more than two days a week for residents and businesses using surface water sources.

**Lower East Coast** - (Includes eastern Miami-Dade, Broward, Palm Beach and Monroe counties, as well as residents and business in Martin County served by the Tequesta Water Utility) Phase Two restrictions require a 30 percent reduction for agricultural and other District permitted users and limits lawn watering to no more than two days a week for residents and businesses using surface water sources. These restrictions apply to all traditional surface and groundwater sources – including water from public utilities, private wells, lakes, canals and ponds.

**Lower West Coast** - (Includes Hendry, Glades, Lee and Collier counties and a portion of Charlotte County) Phase Two restrictions require a 30 percent reduction for agricultural and other District permitted users and limits lawn watering to no more than two days a week for residents and businesses using surface water sources. These restrictions apply to all traditional surface and groundwater sources – including water from public utilities, private wells, lakes, canals and ponds.

**Upper East Coast** - (Includes Martin and St. Lucie counties) Phase 1 or moderate restrictions are now in effect for residents and businesses in Martin and St. Lucie counties, except those as residents and business in Martin County served by the Tequesta Water Utility who are under Phase Two restrictions. Lawn watering is allowed up to three-days-a-week and, again, these restrictions apply to all traditional surface and groundwater sources.

**Other Areas** - Agricultural users in the Lake Istokpoga area and in St. Lucie and Martin counties continue to have limits on withdrawals from area canals.

## Up Coming Meetings

### Manatee County

**May 10, 2007**                      **MBr Alternative Grower Lunch and Meeting**                      12:00 Noon – 1:30 PM

Popi's Restaurant  
Hwy 301  
Ellenton, Florida

For more information, contact Phyllis Gilreath at 941-722-4524

**June 12, 2007**                      **Private Pesticide Applicator Training and Testing.**                      9:00 AM.

Manatee County Extension Service  
Palmetto, Florida

2 CORE CEUs offered for those who have a current license.

Note: Testing for all categories is by appointment.  
Please call Linda Means at 941-722-4524 to schedule an exam.

### Miami Dade County

**May 23, 2007**                      **Drought Impacts on Agriculture in Miami-Dade County**                      1:00 PM

John D Campbell Agricultural Center  
18710 SW 288th Street  
Homestead, FL 32030

Contact Mary Lamberts for details at 305-248-3311

### Palm Beach County

**May 9, 2007**                      **Methyl Bromide Alternative Workshop**                      10:30 AM - 12:30 PM

Duffy's Sports Grill  
Corn Boynton Beach Blvd and Jog Road  
Boynton Beach, Florida

Contact Darrin Parmenter at 561-233-1712.

**May 17, 2007**                      **WPS Overview and Train the Trainer Workshop**                      9:00 AM - 3:30 PM

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

Contact Darrin Parmenter at 561-233-1712. Cost is \$20.00

**June 4, 2007**                      **General Standards/Core Test Review**                      8:00 AM – 10:00 AM  
**Aquatic Weed Control Test Review (2 CEUs)**                      1:00 – 3:00 PM

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

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

**June 6, 2007**                      **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.

## Southwest Florida

**May 9, 2006**                      **Methyl Bromide Alternatives Workshop** 6:00 - 8:00 PM

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

Contact Gene McAvoy at 863-674-4092 for details

**June 2, 2007**                      **Annual Farm Safety Day**                      8:00 AM – 2:00 PM

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

Contact Mongi Zekri at 863-674-4092 for details

## Other Meetings

**June 3 –5, 2007**                      **Florida State Horticultural Society Annual Meeting**

PGA National Resort & Spa  
Palm Beach Gardens, FL.

Go to <http://www.fshs.org/default.htm> for details and registration

## Websites

**Google Earth** - Fly to your house. Just type in an address, press Search, and you'll zoom right in Google Earth combines the power of Google Search with satellite imagery, maps, terrain and 3D buildings to put the world's geographic information at your fingertips. It is free – just go to <http://earth.google.com/>

**Climate Change and Sea Level** – This University of Arizona website presents a range of information on climate change including maps depicting the effects of varying amounts of sea level rise from 1 to 6 meters on the state of Florida. Looks like Immokalee could potentially be an island paradise of the coast of Florida if this pans out! - Check it out at [http://www.geo.arizona.edu/dgesl/research/other/climate\\_change\\_and\\_sea\\_level/sea\\_level\\_rise/florida/images/l\\_g/slr\\_usafl\\_6meter\\_lg.htm](http://www.geo.arizona.edu/dgesl/research/other/climate_change_and_sea_level/sea_level_rise/florida/images/l_g/slr_usafl_6meter_lg.htm)

## **Quotable Quotes**

United we stand, divided we fall. - Aesop

We hang the petty thieves and appoint the great ones to public office. - Aesop

In critical moments even the very powerful have need of the weakest. - Aesop

Injuries may be forgiven, but not forgotten. - Aesop

It is easy to be brave from a safe distance. - Aesop

It is with our passions, as it is with fire and water; they are good servants but bad masters. - Aesop

Better be wise by the misfortunes of others than by your own. -Aesop

## **On the Lighter Side**

### **The Irishman Who Orders Three Beers**

An Irishman by the name of Paul McLean moves into a tiny hamlet in County Kerry, walks into the pub and promptly orders three beers. The bartender raises his eyebrows, but serves the man three beers, which he drinks quietly at a table, alone. An hour later, the man has finished the three beers and orders three more. This happens yet again. The next evening the man again orders and drinks three beers at a time, several times. Soon the entire town is whispering about the Man Who Orders Three Beers.

Finally, a week later, the bartender broaches the subject on behalf of the town. "I don't mean to pry, but folks around here are wondering why you always order three beers."

"'Tis odd, isn't it?" the man replies. "You see, I have two brothers, and one went to America, and the other to Australia. We promised each other that we would always order an extra two beers whenever we drank as a way of keeping up the family bond."

The bartender and the whole town was pleased with this answer, and soon the Man Who Orders Three Beers became a local celebrity and source of pride to the hamlet, even to the extent that out-of-towners would come to watch him drink.

Then, one day, the man comes in and orders only two beers. The bartender pours them with a heavy heart. This continues for the rest of the evening -- he orders only two beers. Word flies around town. Prayers are offered for the soul of one of the brothers.

The next day, the bartender says to the man, "Folks around here, me first of all, want to offer condolences to you for the death of your brother. You know -- the two beers and all..."



The man ponders this for a moment, then replies, "You'll be happy to hear that my two brothers are alive and well. It's just that I, meself, have decided to give up drinking for Lent."

## **Bar Stool Economics**

Suppose that every day, ten men go out for beer and the bill for all ten comes to \$100. If they paid their bill the way we pay our taxes, it would go something like this:

The first four men (the poorest) would pay nothing.

The fifth would pay \$1.

The sixth would pay \$3.

The seventh would pay \$7.

The eighth would pay \$12.

The ninth would pay \$18.

The tenth man (the richest) would pay \$59.

So, that's what they decided to do.

The ten men drank in the bar every day and seemed quite happy with the arrangement, until on day, the owner threw them a curve. "Since you are all such good customers," he said, "I'm going to reduce the cost of your daily beer by \$20." Drinks for the ten now cost just \$80.

The group still wanted to pay their bill the way we pay our taxes so the first four men were unaffected. They would still drink for free. But what about the other six men - the paying customers? How could they divide the \$20 windfall so that everyone would get his 'fair share?' They realized that \$20 divided by six is \$3.33. But if they subtracted that from everybody's share, then the fifth man and the sixth man would each end up being paid to drink his beer. So, the bar owner suggested that it would be fair to reduce each man's bill by roughly the same amount, and he proceeded to work out the amounts each should pay.

And so:

The fifth man, like the first four, now paid nothing (100% savings).

The sixth now paid \$2 instead of \$3 (33% savings).

The seventh now pay \$5 instead of \$7 (28% savings).

The eighth now paid \$9 instead of \$12 (25% savings).

The ninth now paid \$14 instead of \$18 (22% savings).

The tenth now paid \$49 instead of \$59 (16% savings).

Each of the six was better off than before. And the first four continued to drink for free. But once outside the restaurant, the men began to compare their savings.

"I only got a dollar out of the \$20," declared the sixth man. He pointed to the tenth man, "but he got \$10!"

"Yeah, that's right," exclaimed the fifth man. "I only saved a dollar, too. It's unfair that he got ten times more than I!"

"That's true!!" shouted the seventh man. "Why should he get \$10 back when I got only two? The wealthy get all the breaks!"

"Wait a minute," yelled the first four men in unison. "We didn't get anything at all. The system exploits the poor!"

The nine men surrounded the tenth and beat him up.

The next night the tenth man didn't show up for drinks, so the nine sat down and had beers without him. But when it came time to pay the bill, they discovered something important. They didn't have enough money between all of them for even half of the bill!

And that, boys and girls, journalists and college professors, is how our tax system works. The people who pay the highest taxes get the most benefit from a tax reduction. Tax them too much, attack them for being wealthy, and they just may not show up anymore. In fact, they might start drinking overseas where the atmosphere is somewhat friendlier.

For those who understand, no explanation is needed. For those who do not understand, no explanation is possible.

**This will be the last regular Pest and Disease Hotline issued for this season.** Publication will resume with the start of the 2007 –2008 vegetable season. I would like to acknowledge and extend my sincerest thanks to all of the many contributors who graciously shared valuable information, which has made the hotline so successful and also for the generous support of all our sponsors with out which publication of the hotline would not be possible.

**Hope that you all have a great summer and get some well-deserved rest and relaxation.**

**Contributors** include: Joel Allingham/AgriCare, Inc, Karen Armbruster/SWFREC, 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, Keith Jackson/SWFREC, Bruce Johnson/General Crop Management, Dr. Mary Lamberts/Miami-Dade County Extension, Leon Lucas/Glades Crop Care, Bob Mathews, Glades Crop Care, Mark Mossler/UF/IFAS Pesticide Information Office, Gene McAvoy/Hendry County Extension, Alice McGhee/Thomas Produce, Jimmy Morales/Pro Source One, Chuck Obern/C&B Farm, Teresa Olczyk/ Miami-Dade County Extension, Dr. Aaron Palmateer/TREC, Darrin Parmenter/Palm Beach County Extension, Dr. Ken Pernezny/EREC, Dr. Pam Roberts/SWFREC, Dr. Nancy Roe/Farming Systems Research, Wes Roan/6 L's, Dr. Dak Seal/ TREC, Kevin Seitzinger/Gargiulo, Jay Shivler/ C&B Farm, Ken Shuler/Stephen's Produce, Ed Skvarch/St Lucie County Extension, John Stanford/Thomas Produce, Mike Stanford/MED Farms, Dr. Phil Stansly/SWFREC, Eugene Tolar/Bright Star Farms, Mark Verbeck/GulfCoast Ag, and Alicia Whidden/Hillsborough County Extension.

The **South Florida Pest and Disease Hotline** is compiled by **Gene McAvoy** and is issued on a biweekly basis by the **Hendry County Cooperative Extension Office** as a service to the vegetable industry.

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