



# Berry/Vegetable Times

March 2009



## Calendar of Events

April 14 & May 12 Pesticide License Testing. Hillsborough County Extension Office, Seffner. 9 am. For more information call Mary Beth Henry at 813-744-5519 ext. 103.

April 17 Farm Tour - Jordan Farms. See Page 5 for details.

April 21 Agriculture Pesticide Collection Day. Held at EQ Florida, 7202 East 8<sup>th</sup> Ave. Tampa. For more information call Stephen Gran at 813-272-5506.

April 29 Horticulture BMPs for Water Conservation and Treatment, GCREC Balm. See article.

May 1 Developing a Food Safety Program for Vegetable and Berry Growers and Packers. GCREC, Balm. RSVP required. See article.

Aug. 1 & 2 Florida Small Farms Alternative Enterprises Conference, Osceola Heritage Park, Kissimmee, FL. For more information go to <http://smallfarms.ifas.ufl.edu>.

## From Your Agent

### Skin Cancer, the Sun and You!

Now that the weather has warmed up people will be getting even more sun exposure. Sun exposure gives us our primary source of Vitamin D, but we do not need much time in the sun to get the amount we need.

Sunlight contains three types of invisible ultraviolet rays-UVA, UVB, and UVC. UVA causes skin aging and wrinkles and skin cancer. Most of our sun exposure is made up of UVA. UVB rays cause sunburns, cataracts and skin cancer. UVC is the most dangerous but luckily is absorbed by the ozone layer.

Skin cancer is the most common type of cancer in the US and more than 1 million cases are diagnosed each year. 1 in 5 Americans will develop skin cancer in their lifetime. Basal cell carcinoma is the most common type of skin cancer. It can be disfiguring but is rarely fatal. Squamous cell carcinoma is the second most common form of skin cancer. At least 250,000 are diagnosed each year and there will be 2,500 deaths in a year. Of these two types of skin cancer at least 40 to 50% of those who live to be 65 will have at least one incident. Ninety percent of the

*(Continued on page 2)*



**October 28, 2009 is the date for the next Florida Ag Expo at GCREC Balm.**

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## Detecting Signs of Chili Thrips in Strawberries

James F. Price and Curtis A. Nagle, GCREC

The invasive chili thrips (*Scirtothrips dorsalis*) has been a pest for a few years of Hillsborough Co. and much of south Florida's landscape and ornamental nursery plants including rose, Indian hawthorn, and plumbago. In January 2008 the thrips was discovered and controlled on two Plant City area strawberry farms.

Later, during the summer of 2008, chili thrips were found on numerous blueberry farms in central and west central Florida including blueberry farms in the Plant City strawberry production area. During the fall and winter of the 2008 and 2009 strawberry season the thrips was discovered on field-grown then greenhouse-grown strawberry plants on the University of

*(Continued on page 3)*

non-melanoma cancers are associated with exposure to sun UV radiation and 90% of the aging changes we see are attributed to the sun.

The most serious type of skin cancer is melanoma. Melanoma is a cancer that begins in melanocytes which are cells, that make the pigment melanin. It can start in a mole or even in other pigmented tissue such as the eye or intestines. Other common cancer rates are falling but melanoma is rising at a faster rate than that of the 7 most common types of cancer. Around 62,480 cases will be diagnosed in a year and 8,420 will result in death. Melanoma makes up 3% of the skin cancer cases but accounts for more than 75% of skin cancer deaths. One blistering sunburn in childhood or adolescence more than doubles a person's chance of developing melanoma later in life. If you have had 5 or more sunburns at any age the risk for melanoma doubles.

Whether working or playing outside take the time to protect yourself from the sun and the damage it can cause. Don't forget to protect yourself even in the winter. Also wear sunglasses with UV protection to protect your eyes. A factsheet with simple sun protection steps follows this article. In WPS training when you give your workers heat stress training, you can also have someone read the factsheet to them about sun protection.

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## Protecting Yourself from the Harmful Effects of the Sun

Alicia Whidden, Hills. Co. Extension Service  
Fact Sheet 08-01

Sun protection is protecting yourself from the adverse effects of the sun. Sunlight contains invisible ultraviolet (UV) rays. These UV rays can damage skin. There are 3 types: UVA, UVB and UVC. All are dangerous but UVC is blocked by the ozone layer and does

not reach the earth. The two we must be concerned about are UVA and UVB.

Outdoor workers are at high risk for skin cancer, so you need to protect yourself every time you are in the sun. Also, you should routinely check your skin for any spots or lesions that do not heal or look "funny" and seek medical attention right away.

### Sun Protection Steps

- ◆ Use a good sunscreen. At least SPF 15 or higher -look for one that protects against UVA & UVB.
- ◆ Apply liberally - don't skimp on the sunscreen.
- ◆ Apply 30 minutes before going out in the sun so it can soak into skin and form a barrier.
- ◆ Reapply every couple of hours - very important!!!!
- ◆ Use waterproof types.
- ◆ Don't forget to wear lip sunscreen.
- ◆ Don't forget to put sunscreen on ears.
- ◆ Cover up with clothing to protect exposed skin.
- ◆ Loose fitting long sleeve shirt and pants with a tight weave are best.
- ◆ Wear a hat with a wide brim (at least 3inches) to give your eyes, ears, face and the back of your neck additional protection.
- ◆ Wear sunglasses.
- ◆ Choose ones that provide 100% UV protection.
- ◆ Shades that wrap around will block more light from entering from the sides.
- ◆ Wearing the correct sunglasses can protect your eyes from cataracts.
- ◆ If possible, seek shade during the middle of the day when UV rays are the strongest. Even on cloudy days, UV light can burn you through the cloud cover.



(Continued from page 1)

Florida GCREC in Wimauma. It is likely that this pest was present but undetected or unreported on other Plant City area strawberry farms.

The episode on the University of Florida GCREC field strawberries was detected only by careful vigilance and trained eyes, was never widespread, and largely disappeared either as a result of a Radiant™ SC spinetoram application or a combination of that insecticide and little-understood environmental factors. In any case, the episode seems to have ended by mid-March 2009 without significant fruit losses.

First apparent sign of chili thrips infestation on GCREC strawberries was a change in texture and color of leaf petioles from the crown to the leaf blades and continuing on into the bases of the mid-veins (Fig. 1). Affected petioles were without the normal smooth texture but possessed a slightly rough and sandpapery texture. Affected petioles also were tea-colored rather than light green. The leaflet blades associated with chili thrips were dark green on the upper side and possessed very dark streaks especially near their bases (Fig 2).

Tea-color and rough texture of affected petioles were readily apparent to observers who pushed leaf blades to a side and exposed their underlying petioles (Fig. 3). This action may be an effective method to scout for chili thrips infestations in strawberries.

Growers and scouts should become familiar with the appearance of leaves and petioles under chili thrips conditions. Through understanding these signs, episodes of chili thrips can be addressed early with least economic impact.

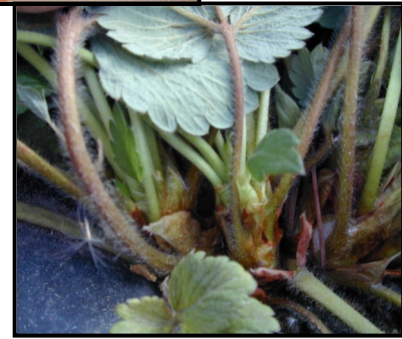


Fig. 1. Underside aspect of rough, tea-colored petiole of chili thrips affected strawberry leaf (right) and unaffected leaf (left).



Fig. 2. Dark green and blackened upper side of leaflet blade and rough, tea-colored petiole (left) of chili thrips affected strawberry leaflet and unaffected leaflet (right).

Fig. 3. Late-season condition of rough, tea-colored petioles of strawberry plant affected by chili thrips in the early season and smooth and green petioles that developed after chili thrips activity.



## Angular Leaf Spot, a Bacterial Disease of Strawberry

Jim Mertely and Natalia Peres, GCREC

The most important bacterial disease on strawberry is angular leaf spot (ALS), caused by *Xanthomonas fragariae*. This bacterium normally spots and blights the leaves (Photos 1 & 2), but the berry cap (calyx) can also be infected (Photo 3). During serious outbreaks, the cap may turn brown, leading to rejection of fruit shipments. This season, weather conditions and other factors combined to produce a serious epidemic of ALS in Florida strawberries. Why did the epidemic occur and what could have been done to control it?

ALS was first found in Minnesota in 1960, and has since been spread by infected transplants to many areas where strawberries are grown. ALS commonly occurs in strawberry nurseries, but does not appear every year in every nursery. Working at the University of Florida, Dr. Pam Roberts detected ALS lesions on transplants purchased from Canadian nurseries as early as 1993. This



pattern continues today, since the disease is at least as difficult to control in the nursery as it is in the production field. ALS on transplants may begin with the purchase of infected transplants by the nursery operator. In addition, plant debris in the field and plants over-wintered at the nursery may harbor the pathogen and serve to infect newly planted spring crops. Subsequent disease development depends on weather conditions as the runner plants develop over the summer.

*X. fragariae* infects the leaves through tiny pores (stomata) that enable the leaf to take in carbon dioxide and give off oxygen. Infection is most likely to occur when the stomata are open (during the day), and when water from rain, dew, fog, or overhead irrigation is present on the leaves. The frequent use of overhead irrigation for freeze protection this season helped to spread *X. fragariae* across our berry fields, just like hurricanes helped to spread the citrus canker bacterium across Florida in recent years. Interestingly, the use of some spray oils and spray adjuvants (e.g., penetrants, spreader stickers, and wetting agents) also aids bacterial penetration into the leaf and



Photo 1. ALS leaf spotting.

increases disease severity.

The occurrence and spread of ALS is suppressed by several cultural practices. The best practice would be to obtain resistant or disease-free transplants. Since this is often not possible, growers should try to minimize overhead irrigation, both for establishment and frost protection. *X. fragariae* is also spread by pickers. Therefore, harvesting operations should be avoided as much as possible when the plants are wet. When ALS is of concern, overuse of the previously mentioned spray adjuvants should also be avoided.



Photo 2. ALS leaf blighting.

A number of copper “fungicides” are labeled for ALS control on strawberry. These products contain a variety of copper compounds including copper hydroxide, copper oxychloride, copper sulfate, and others. During a normal season with light to moderate disease pressure, researchers are hard pressed to detect differences among these products. During this season (when disease pressure was unusually high), we found that certain copper products performed better than others. However, more research is needed to confirm that the suppression of ALS by copper sprays meaningfully improves yield and/or fruit quality. In addition, little information is available on application scheduling. Should coppers be applied regularly or only before or after rains and overhead irrigation? Growers should be aware that over use of copper fungicides reduces plant growth and may lead to phytotoxicity. Therefore, when a range of rates is given on the label, the lower rate probably should be used.



Photo 3. ALS spotting of fruit cap (calyx).

Actigard is a plant resistance promoter that Florida growers have used to control bacterial spot disease on tomatoes. It is not currently registered for use on strawberry, but preliminary results from strawberry trials at GCREC have shown that low rates of Actigard suppress ALS as well as most copper products.

## New Marketing Opportunity for Growers

The Elder Farmers' Market Nutrition Program (EFMNP) is a federally funded program that supports small regional farmers and low-income elders. Eligible elders are given coupon books that can be used to purchase fresh locally grown produce from authorized farmers at farmers markets within the county. In addition to improving the nutritional wellbeing of the elders, this program benefits the farmers and their communities by promoting direct purchase of local produce. This both allows the farmers to keep a greater share of the food dollar and increase the customer base at the local farmers' markets.

This program is being expanded from northern counties and is seeking to identify and contact local growers who might be interested in participating in the EFMNP. Involved farmers would have to agree to:

- ◆ Be a verifiable grower of the majority of the produce they sell.
- ◆ Attend a brief training session to learn about program rules and be authorized to participate.
- ◆ Follow the guidelines of the program, including specific methods for accepting and redeeming coupons.
- ◆ Sign a program contract.
- ◆ Permit inspection of their farm for verification of facilities and acreage under cultivation.

If you are interested, contact Kate Raines, the program coordinator, at 850-414-2169 or [rainesk@elderaffairs.org](mailto:rainesk@elderaffairs.org).

## FOG and Jordan Farms to Host Organic Farming Demonstration day April 17 in Dover

Gainesville, FL—Florida Organic Growers (FOG) will team up with certified organic producers Cherri and Ron Clark for an organic

farming demonstration day 9 a.m. to noon April 17 at Jordan Farms in Dover. The field day is an opportunity for commercial growers interested in transitioning to organic production or reducing pesticide use to gain first-hand experience with organic soil management, cropping, and pest and disease control at a farm that grows strawberries and vegetable crops.

Jordan Farms is located on 22 acres in Dover off I-4 in Hillsborough County. The Clarks have farmed organically since before adoption of the USDA National Organic Program (NOP) and have been certified to NOP standards since their implementation in 2002.

The field day is part of FOG's Organic Transition and Pesticide Reduction program that offers farmers free technical assistance to transition to organic production by pairing growers with an experienced organic production crop advisor. Through the expertise of crop advisors, FOG staff and allied professionals, commercial growers who would like to transition a portion of their operation to organic production can hone their skills and access information to assist with challenges that may arise during the transition period.

Growers who transition to organic production gain access to the organic foods marketplace, which has grown in the U.S. from \$1 billion in sales in 1990 to an estimated \$23 billion in 2008.

"The organic marketplace continues to expand and Florida growers may want to seriously consider the market opportunities," FOG Executive Director Marty Mesh said. For more information and to RSVP contact Matt Vargas at 352.377.6345 or email [matt@foginfo.org](mailto:matt@foginfo.org).

Directions to Jordan Farms: Take I-4 to Exit 14. South on McIntosh Rd. to Dr. Martin Luther King Jr. Blvd. East on Dr. Martin Luther King Jr. Blvd. to Mott Rd. North on Mott Rd. to 3243 Mott Rd. Jordan Farms is located at 3243 Mott Rd., Dover, FL 33527

Media Contact: Matt Vargas, 352-377-6345; [matt@foginfo.org](mailto:matt@foginfo.org)

## Developing a Food Safety Program for Vegetable and Fruit Growers and Packers

A food safety workshop for growers and packers of tomatoes, melons, leafy greens, strawberries and blueberries will be held May 1, 2009 at the Gulf Coast Research and Education Center in Balm located at 14625 County Road 672. Registration will begin at 8:30 with the workshop starting at 9:00 and going till 4:30. There will be a \$20 fee. Lunch and snacks will be provided. The workshop will cover food safety issues for producers and packers. A certificate of attendance will be given after completion of the program. Attendees will receive handouts and educational material that can be used for training workers on food safety. Food safety training is mandatory for tomato growers and packers and is highly recommended for personnel working with other commodities. Please use the registration form on this page. Registration closes April 29 at noon. If you have questions about the program call Alicia Whidden at the Hillsborough County Extension Office, 813-744-5519 ext. 134. Workshop is sponsored by IFAS, Hillsborough and Manatee County Extension.



## Developing a Food Safety Program for Vegetable and Fruit Growers and Packers

Registration Form  
Pre-Registration is Required

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone #: \_\_\_\_\_

A Registration Fee of \$20 is required.

Method of Payment (Cash & Check Only):

\_\_\_\_\_ (Cash) \_\_\_\_\_ (Check)

\_\_\_\_\_ (Official Use)

Please Make Check Payable To:  
**Hillsborough County Vegetable  
Advisory Committee**

Choose Type of Lunch Box (circle one):  
**Ham Classic Turkey Classic**  
**Prime Roast Beef Veggie Delight**

Mail Form To:  
**Hillsborough County  
Extension Service**  
Attention: Lacey Marsden  
5339 County Road 579  
Seffner, FL 33584  
(813) 744-5519 x128

**or Fax To: (813) 744-5776**

### *Please remember...*

The use of trade names in this publication is solely for the purpose of providing specific information. It is not a guarantee or warranty of the products named and does not signify that they are approved to the exclusion of others of suitable composition.

Use pesticides safely. Read and follow directions on the manufacturer's label.

## Revus Top, Tanos and Actigard for the Management of Early Blight and Target Spot on Tomato

Gary Vallad, GCREC

Early blight and target spot are a constant management challenge for tomato growers. Both are caused by fungal pathogens that under ideal conditions can defoliate plants and damage fruit causing significant yield losses. Chemical control is the primary means by which growers manage both diseases and several fungicides are available. However, there is a need to monitor both pathogens for resistance by periodically reassessing the efficacy of fungicides in the field, and evaluating new products for activity.

In 2008, field trials were conducted to test the effectiveness of several commercial and experimental fungicides for the management of early blight and target spot. Fungicide treatments were integrated into a standard weekly spray program consisting of copper (Cuprofix Ultra 40D, UPI; or Kocide 3000, DuPont), mixed either with mancozeb (Penncozeb 75DF, UPI) or chlorothalonil (Bravo Weatherstik, Syngenta). Applications were made to single bed, 24 ft plots with a CO<sub>2</sub> backpack sprayer calibrated at 40 psi for 60 or 90 gal/A. Trials were inoculated 6-8 weeks after transplanting with a spore suspension of *Alternaria solani* and monitored for disease.

Spray programs that included Revus Top (Syngenta) combined with Endura (BASF) or Tanos (DuPont) alone or combined with Endura, controlled early blight and target spot

better than the standard spray program. Endura alone or Quadris (Syngenta) gave moderate levels of control that were similar or slightly better than the standard, copper-mancozeb/chlorothalonil program (see table on page 8). Several experimental materials from Syngenta, DuPont, and Bayer, also gave superior control (data not presented).

For proper resistance management, it is important to take notice of the FRAC codes based on the mode of action to help growers rotate fungicides. For example, Tanos contains the active ingredients famoxadone (FRAC 11) and cymoxanil (FRAC 27) that inhibit fungal respiration by targeting different regions of the cytochrome bc<sub>1</sub> complex. Therefore, none of the other FRAC 11 compounds, including all strobilurins, would be appropriate rotational partners with Tanos. Revus Top contains the active ingredients difenoconazole (FRAC 3), a sterol inhibitor, and a new compound mandipropamid (FRAC 40) that interferes with spore germination and cell wall deposition by inhibiting phospholipid biosynthesis. Both Tanos and Revus Top contain active ingredients that are also effective against late blight.

Actigard (Syngenta) also controlled early blight and target spot (see table). The active ingredient in Actigard, acibenzolar-S-methyl, has no direct effect on either pathogen, but stimulates plant defenses in a non-specific manner. Actigard has been shown to confer protection on numerous crops, including tomato, to a broad array of pathogens. Actigard is labeled for the control of bacterial



Figure 1. Leaves exhibiting symptoms typical of target spot (A) and early blight (B), and plots treated with a spray program that included Actigard (C) or were left as a non-treated control (D).

leaf spot on tomato. These results make Actigard an attractive tool for the integrated management of foliar diseases common to tomato production in Florida. As with all pesticides, growers are reminded to read and follow the label instructions.

**Table 1. Partial summary of 2008 early blight and target spot trials on tomato at UF/IFAS, GCREC, Wimauma, FL.**

Treatments in amts/A	% foliage with disease	Marketable Yield (25 lb cartons/Acre)	
	(95% CI)	Total (95% CI)	Extra Large (95 CI)
<b>Trial 1 - Spring 2008</b>			
Actigard (0.75 oz; 8 apps) + STD	56.3 (47.2 - 65.3)	2598 (1779 - 3416)	542 (415 - 669)
Quadris Flowable (5.4 fl oz; 3 apps) + STD	67.3 (58.2 - 76.3)	2973 (2154 - 3791)	522 (394 - 649)
Standard (STD): Cuprofix Ultra 40D (3 lbs) + Penncozeb 75DF (2 lbs) or Bravo Weatherstik (2 pts)	72.0 (62.9 - 81.1)	2262 (1443 - 3081)	647 (519 - 774)
Non-treated Control	81.5 (72.4 - 90.6)	1419 (600 - 2237)	277 (149 - 404)
<b>Trial 2 - Spring 2008</b>			
STD; alt. with 4 apps. of Revus Top 4.17SC (6 floz) + Bravo Weather Stik 720SC (2pt) + Endura 70WG (3oz)	7.9 (4.5 - 11.3)	1802 (1359 - 2246)	1108 (708 - 1507)
STD; alt. with 4 apps. of Revus Top 4.17SC (7floz) + Bravo Weather Stik 720SC (2pt) + Endura 70WG (3oz)	7.9 (4.5 - 11.3)	2113 (1607 - 2619)	1218 (759 - 1676)
Kocide 3000 (1.3 lb); alt. with Kocide 3000 (1.3 lb) + Tanos 50WG (8 oz)	13.8 (10.4 - 17.1)	2231 (1788 - 2675)	1358 (958 - 1758)
Kocide 3000 (1.3 lb) + Endura 70WG (2.5 oz); alt. with Kocide 3000 (1.3 lb) + Tanos 50WG (8 oz)	10.3 (6.9 - 13.6)	2517 (2074 - 2960)	1705 (1305 - 2105)
Endura 70WG (3oz) + Cuprofix Ultra 40D (3 lb)	23.3 (19.9 - 26.6)	1955 (1511 - 2398)	1204 (804 - 1604)
Standard (STD): Cuprofix Ultra 40D (3 lbs) + Penncozeb 75DF (2 lbs) or Bravo Weatherstik (2 pts)	37.5 (34.1 - 40.9)	1922 (1478 - 2365)	1195 (796 - 1595)
Non-treated Control	23.2 (19.9 - 26.6)	2117 (1674 - 2561)	1342 (942 - 1741)
<b>Trial 3 - Fall 2008</b>			
Actigard (0.75 oz; 8 apps) + STD	37.5 (27.3 - 47.7)	1783 (1552 - 2013)	686 (579 - 793)
Standard (STD): Cuprofix Ultra 40D (3 lbs) + Penncozeb 75DF (2 lbs) or Bravo Weatherstik (2 pts)	67.3 (57.0 - 77.5)	1731 (1500 - 1961)	711 (604 - 818)
Non-treated Control	94.4 (84.2 - 104.6)	1734 (1503 - 1964)	688 (581 - 794)



## Visit the 'Tasti-Lee' Website

[www.tastilee.com](http://www.tastilee.com)

GCREC's latest variety release is ready for



market! The tomato breeding program is pleased to present 'Tasti-Lee'<sup>TM</sup> tomato. This fresh market tomato hybrid is now available for the premium tomato market. It has high lycopene content and an attractive, deep red color due to the crimson gene. 'Tasti-Lee'<sup>TM</sup> has been extensively tested in seven sensory panels where it has always been the most preferred group for overall flavor. 'Tasti-Lee' is resistant to Fusarium wilt races 1, 2 and 3, Verticillium wilt race and gray leaf spot. For information visit the 'Tasti-Lee'<sup>TM</sup> website or contact the Florida Seed Foundation (352) 392-9446.

## How Much Chill have We Accumulated this year?

Clyde Fraisse and Alicia Whidden

How many times have you asked this question and was left wondering about it or trying to estimate based on temperature observations? Now you can easily have this information thanks to a new chill accumulation tool available on AgroClimate.org (<http://agroclimate.org/tools/ChillAccum/>).

Most temperate plants including orchard crops and deciduous trees enter a dormant period during late fall and winter characterized as a state of reduced or stopped metabolic activity of above ground parts. This dormant condition is a mechanism which enables plants to survive cold. The development of dormancy and cold hardiness is a gradual process which begins in late fall or early winter in Florida. Once dormant, plants require accumulated exposure to cool temperatures during winter dormancy for budbreak and the resumption of normal growth

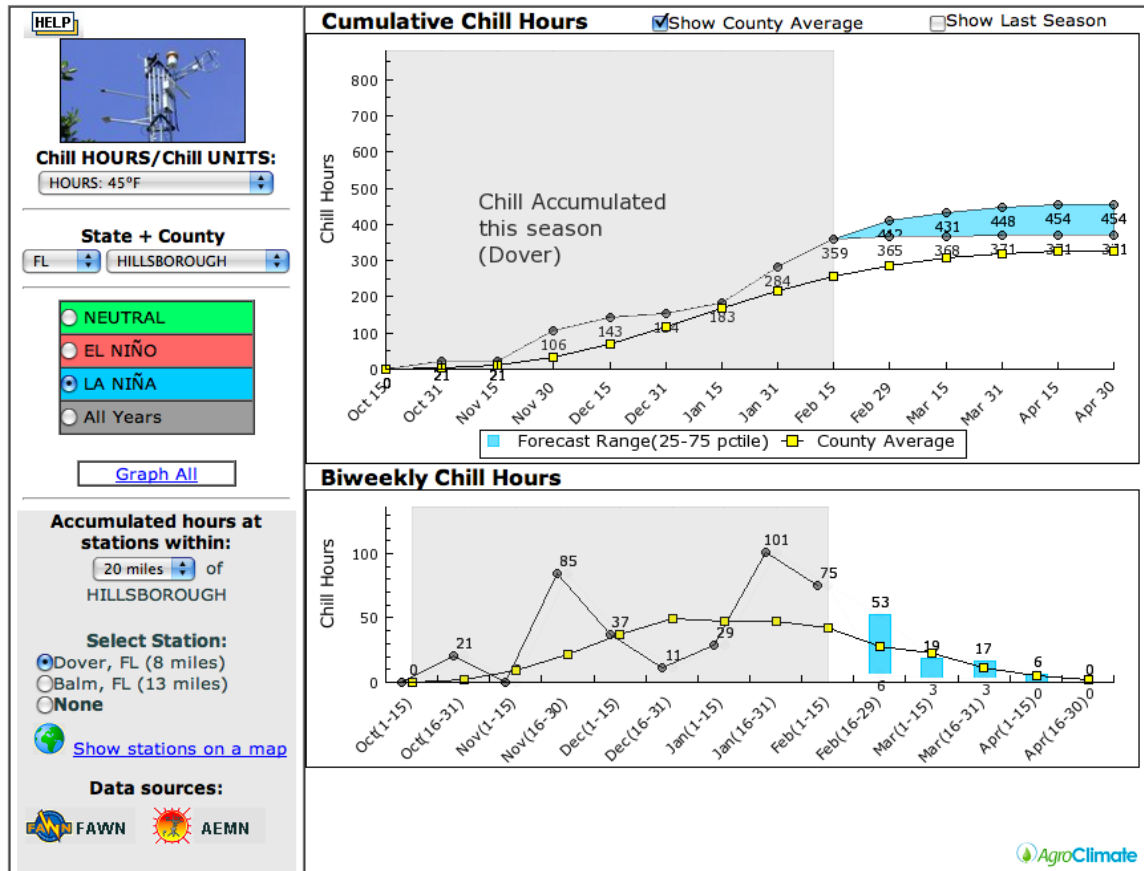
in the spring. This minimum amount of accumulated cool temperature exposure for normal growth, which varies by species and cultivar, is referred to as *chilling requirement*.

The new AgroClimate chill accumulation tool lets you compare current chill accumulation based on measurements made at a FAWN station located within 20 to 70 miles from the center of a selected county with the long-term average and/or last year's accumulation. It also forecasts the range of expected accumulation by the end of the season based on the current El Nino Southern Oscillation (ENSO) phase. The top graph in the figure on Page 10 shows that the number of hours below 45°F accumulated at the Dover FAWN station since October 1, 2008 amounts to 359 until February 15 (the number of chill hours are updated every two weeks). The bottom graph shows the total amount accumulated during each biweekly period. Both graphs also show the long-term average accumulation (line with yellow squares) for Hillsborough County (selected in this example). It can be observed that the amount of chill accumulated this year (359) is above the long-term average (257). If you click on either graph it expands and show more details including a table with values. Higher accumulation this year was mainly due to three periods of colder than normal temperatures: the second half of November, the second half of January, and the first half of February.

Each species and cultivar has specific chilling requirements that are related either to the accumulated hours below a chilling temperature threshold or to cumulative chill units, which are hours that are weighted for temperature effects at breaking dormancy. The tool also allows you to calculate chill accumulation based on the number of hours with air temperature between 45°F and 32°F and chill units (CU). In the case of chill units the hours are weighted for the effectiveness of satisfying chilling requirements depending on the temperature. For more information contact your local extension agent or Clyde Fraisse at [cfraisse@ufl.edu](mailto:cfraisse@ufl.edu).

# Chill Accumulation

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## Free Agriculture Pesticide Collection Day Scheduled

Mark your calendars! Hillsborough County is again offering local agricultural operations a chance to dispose of pesticides no longer used for **FREE** on Tuesday, April 21. The Agriculture Pesticide Collection Day will take place from 8 a.m. - 2 p.m. at EQ Florida, 7202 E. 8th Ave. in Tampa. You should enter at 8th Ave. and Orient Road.

Hillsborough County's Agriculture Industry Development Program is organizing the collection in partnership with the Hillsborough County Solid Waste Management Department, the Cooperative Extension Service, and the Environmental Protection Commission of Hillsborough County. Funding for the collection has been made available through the Environmental Protection Commission Pollution Recovery Fund. This funding is limited; therefore once it is exhausted the collection will be closed.

The purpose of the program is to eliminate potential public health and environmental hazards from stored pesticides that are out-of-date, suspended or unusable. The program also further educates agricultural pesticide users on proper handling, storage, and management practices.

The Agriculture Pesticide Collection Day is intended to provide a free pesticide disposal service for Hillsborough County agricultural operations. Pesticide manufacturers and distributors, homeowners, universities and government institutions, including state, county and local government pesticide users, are not eligible to participate.

**For more information, contact Stephen Gran, Agriculture Industry Development Program Manager, Hillsborough County Economic Development Department, at (813) 272-5506.**

## Complication the Methyl Bromide Alternatives Picture with Shortages of Telone

J.W. Noling, CREC and A.J. Whidden, Hills. Co. Ext.

Over a decade of university research and grower field demonstration trials has been conducted to identify and evaluate alternatives to methyl bromide soil fumigation for use in Florida fruit and vegetable crops. A summary of this research clearly demonstrates that the next best alternative system will require a coapplication of different soil fumigants, possibly in combination with other soil applied herbicide products. In this coapplication approach, chloropicrin has repeatedly been shown to be the integral, foundation component of any alternative chemical approach to replace methyl bromide for disease control. In general, chloropicrin has performed poorly as a nematocide or herbicide in Florida trials. In some trials, chloropicrin was actually demonstrated to enhance weed seed or tuber germination and growth. Much of the current field research continues to focus on evaluations of chloropicrin coapplied with other fumigants to expand its spectrum of pest control efficacy, particularly with 1,3-dichloropropene (Telone) for nematode control, and either metam sodium or potassium for weed control. Of the chloropicrin combinations, Telone C-35, a combination of 1,3-dichloropropene and 35 percent chloropicrin, or Telone II applied prebed in advance of a separate chloropicrin application continues to be extensively evaluated and commercially readied for use as a methyl bromide alternative treatment. More recently the methyl bromide alternatives research picture has changed even further to include field evaluations of methyl iodide (Midas) and dimethyl disulfide (DMDS), both of which are formulated with chloropicrin to broaden pest control efficacy.

As growers are aware, methyl bromide is currently only being made available through the international approval process of a Critical Use Exemptions (CUE). With each new year of CUE submission, the amount of methyl bromide awarded or allowed is significantly less than the

amount of methyl bromide awarded the previous year and of the amount formally requested. With high levels of existing supplies, methyl bromide users have been buffered from shortages in supply and volatile pricing. This is however expected to soon change. Because existing stocks of pre 2005 produced methyl bromide are thought to be finally nearing exhaustion, high prices and supply shortages are forecast to begin Fall 2009. Interestingly, I do not believe that EPA has yet to publish a final rule for allocation of 2009 new production of methyl bromide. It appears that EPA will provide the final rule in May. This is significant because the rule can affect when MeBr will actually be produced and CUE materials distributed during 2009. It is my understanding that EPA has granted production authority to manufacturers but it is not clear whether any 2009 new product has actually been produced yet.

The CUE picture for 2010 and thereafter doesn't look particularly good either, given that higher proportions of CUE stocks are expected to derive from existing supplies, and significantly reduced quantities of new production are expected in some crops like Florida strawberry where because EPA believes the availability of the newly registered fumigant methyl iodide represents an acceptable and effective alternative to methyl bromide. With diminishing supplies and expected scarcities, we have been counseling growers to begin planning accordingly, to begin the transition to alternatives. For planning purposes, considerations are first to efficiently distribute what available methyl bromide supply growers can afford or acquire, and secondly, to then utilize appropriate alternatives to the extent possible.

It was our hope and expectation to see a more graduated transition to alternatives such as Telone and Chloropicrin during the period of declining market supply and increasing price of methyl bromide. Unfortunately, what was to suppose to be an

easy and orderly transition to alternatives is now being driven not only by reduced market supply of methyl bromide but also by reduced market supply of Telone (1,3-d). It is ironic that after such a long research cycle to develop and fine tune the alternatives, and at the very time you need the alternative in the hands of growers to replace methyl bromide, it is not available.

Why the Telone shortage at such a critical time. It is a relatively long story beginning with Hurricane Ike in August. In preparation for the hurricane moving on shore, Dow AgroScience closed their coastal Telone production facility near Galveston, Texas. At the plant, Telone is produced as a down stream byproduct of the manufacturing of a fiberglass resin used extensively in the auto industry. After incurring shutdowns for the hurricane and afterwards for plant maintenance, the collapse in the auto industry seriously reduced demand for the fiberglass resin. If Telone flows from the plant, it is my understanding that it currently flows as a trickle of its former stream. Based on conversations with distributors, the situation of reduced production and scarcity in market supply is expected to continue through 2009 and into 2010, a time when the economy and auto industry is expected to rebound. Distributors have been forewarned not to expect more than 50-60% of their previous three year average sales of Telone. Earlier in February, one Plant City fumigant distributor only had 660 gallons of Telone EC which was quickly purchased for spring use. Other distributors are demanding sales of formulations with chloropicrin until short supplies of Telone that they do have are exhausted. We have not been able to determine whether even a trickle of market supply from the Galveston plant will satisfy supplies needed for sufficient production of Telone EC or formulations with chloropicrin (eg., C35, InLine, PicChlor 60). Currently, North Carolina tobacco and sweet potato growers, Georgia vegetable growers, and Florida strawberry and caladium growers are all competing for any and all Telone products produced and shipped into the southeast.

Given the scarcity, what are the alternatives growers will be forced to explore for spring 2009 and possibly into the fall of 2009? Methyl bromide is in short supply, will likely only be formulated as 50/50, and currently is priced in the neighborhood of \$5.60 to 5.75 per pound. We are concerned that there will not be enough in available supply to satisfy aggregate needs, particularly if a scenario of 50% reduced Telone availability is the reality for the fall. If methyl bromide supply cannot be relied upon to help fill the void created by Telone scarcity, then Telone C35, Telone C17, or PIC Chlor 60 (formulated with available supply until exhausted), Chloropicrin alone or Chloropicrin EC coupled with Vapam or Kpam, or Midas 50/50 will have to be relied upon for soilborne pest and disease control. In Florida and other SE locations with deep, sandy soils, use of any drip formulation of these compounds will likely be challenged by 1 drip tape per bed delivery. For example, last spring we were able to demonstrate the limited vapor phase movement of Vapam and Kpam into the bed shoulder when applied with a single tape down the the middle of the bed. This work is continuing this spring, and are looking for nematode infested fields to evaluate drip fumigation performance. All in all, in the absence or scarcity of Telone, it appears we will have to rely on higher levels of chloropicrin use, (which in itself is not a particularly effective nematicide). It would seem that without Telone, we will be forced to rely on compounds and formulations which have never been recommended as preferred options for nematode control. It is easy to envision how it could evolve into a rough time farming a sting nematode infested field next year with so many considering double cropping berries after berries. It will surely be breaking some new ground. More on this topic in our next newsletter.