



Berry/Vegetable Times

January 2008



Calendar of Events

Jan. 21

Dow Strawberry/Vegetable Growers Meeting, Strawberry Palace, 6:00-8:30 pm. RSVP by Friday Jan. 18 to Alicia Whidden, 813-744-5519 ext.134. See article and program in newsletter for more info.

Feb. 12 and Mar. 11

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

Dow Strawberry/Vegetable Growers Meeting

Alicia Whidden

Dow will be hosting a dinner meeting for growers at the Strawberry Palace in Plant City on the evening of January 21st. The Strawberry Palace is located at 206 E. Hwy. 60 near the intersection of Highway 39 & 60. Dinner will start at 6:00 pm and the program will start at 6:30. Dow has asked Dr. Joe Funderburk, an entomologist at the North Florida Research & Education Center to speak on controlling western flower thrips.

Normally we do not see many western flower thrips in our area. They have mainly been a concern in north Florida. That is changing; we have had heavy infestations of western flower thrips in two of the most recent four springs. This last spring western flower thrips were a major problem in Palm Beach County. Western flower thrips is more difficult to control than the more familiar *Franklinella bispinosa* flower thrips.

The control measures we use in our strawberry crop also influence what is happening with thrips in our spring

(Continued on page 2)

Did you attend the 2007 Florida Ag Expo at GCREC? We need your comments and suggestions. A follow-up meeting is schedule for Feb. 4th and your input would be greatly appreciated! Email ccooley@ufl.edu or call (813) 634-0000 X3101. Thanks for your continued support.



A University of Florida/IFAS and Florida Cooperative Extension Service newsletter
Hillsborough County, 5339 CR 579,
Seffner, FL 33584
(813) 744-5519 SC 541-5772
Joe Pergola, County Extension Director
Alicia Whidden, Editor
Gulf Coast Research & Education Center
14625 County Road 672, Wimauma, FL 33598
(813) 634-0000 SC514-6890
Christine Cooley, Layout and Design
Craig K. Chandler, Co-Editor
Jack Rechigl, GCREC Center Director
<http://grec.ifas.ufl.edu>

SWFMD Cold Protection Water Use Reports

Remember to report your cold protection water use to the water management district's permits data department in Brooksville. Your report is due within 2 weeks of a freeze event.

The following is from Ron Cohen of the Southwest Florida Water Management District: Besides being a requirement of a water use permit, reporting cold protection pumpage is needed to help resolve potential compliance issues and to ensure that a permittee's conservation credits are calculated correctly. Cold protection amounts are not limited by a permits' annual average allocation. However, the cold protection amounts need to be reported so that they can be

(Continued on page 5)

(Continued from page 1)

vegetable crops. Besides causing physical damage to fruits and vegetables they also can transmit viruses. The most common one is Tomato Spotted Wilt which can affect pepper as well. Come learn from the western flower thrips expert how we should be handling this pest!

Mr. Tony Weiss of DOW AgroScience will give you the latest information on Dow's new insecticide Radiant which is registered for use on strawberry and many vegetables. Mr. Chip Giles, also of DOW, will give you an update on all the company's newest products.

Dinner will be the Strawberry Palace's sell-out pork tenderloin, mashed potatoes and gravy, green beans, bread, drink and strawberry cake or cookie dessert. Dinner is compliments of Chip Giles of Dow Agroscience.

Please RSVP to Alicia Whidden at 813-744-5519, ext. 134 by 5:00 on Friday, Jan. 18 so we will know how many plates to fix. We have applied for pesticide CEUs and CCA credits for this educational program. Come join us for a great meal and great information!

New Florida Minimum Wage

On Jan. 1, 2008 the Florida minimum wage increased to \$6.79 per hour. Our Florida minimum wage is now \$0.94 more than the Federal minimum wage which is \$5.85 per hour. Employers must post the new minimum wage notice where workers can see it. For farmers this is your central posting location for your WPS information. You must have the new Florida minimum wage notice as well as the poster with the federal minimum wage information. The last page of the newsletter will have a copy of the new Florida rate for you to post. Copies can be downloaded in English and Spanish from the

Agency for Workforce Innovation's website-
http://www.floridajobs.org/resources/fl_min_wage.html. If you need a new federal minimum wage poster it is available at the website for the U.S. Department of Labor-
<http://www.dol.gov/esa/regs/compliance/posters/flsa.htm>.

Remember to put the new state minimum wage notice up on your central posting today!

Alicia Whidden

813-744-5519, ext. 134
awhidden@ufl.edu

Well Flow Meter Accuracy Testing Required

Ron Cohen, P.E., Agricultural and Irrigation Engineer, Regulations Performance Management Department Southwest Florida Water Management District, 1-800-423-1476 ext 4300
RCohen@watermatters.org

In January 2003, the Southern Water Use Caution Area (SWUCA) rules went into effect and several permit conditions were added or changed. One of those conditions changed the reporting of flow meter accuracy testing from every two to every five years. Many water use permits will have this condition due by January 31, 2008, and there is a list of companies that can perform this test on the District's web page at: <http://www.watermatters.org/permits/consultants/>.

It has come to the District's attention that, due to the number of meters to be tested, these companies might not be able to schedule all the tests by the end of January. The District would like to work with the permittees to help them satisfy this permit condition. Therefore, if there is a problem scheduling the accuracy test before the due date, the District will modify the condition's due date to coincide with the scheduled

(Continued on page 3)

(Continued from page 2)

testing date.

The permittees will need to contact the District's Regulation Performance Management PMD Section staff (1-800-423-1476) in the Brooksville office, with the date the meters are scheduled to be tested. Staff will arrange to have the permit condition's due date changed to accommodate the meter testing date. An informational letter describing this process has been sent to permit holders.

Accurate flow meter data provides important information that helps both the permittee and the District. In addition to ensuring that they are applying sufficient irrigation to their crop, thus saving water and fuel, accurate flow meter data also ensures that a permittee is not washing fertilizer out of the root zone. Accurate meter data will also help permittees on a FDACS BMP program document their irrigation practices. The District uses the information to document permit compliance and record a permittee's water needs. In addition, the information is used to calculate conservation credits in the SWUCA.

A New Tomato Disorder in the Manatee-Palmetto-Ruskin Area

Gary E. Vallad and Bielinski M. Santos

A new disorder of tomato has been observed in several fields in Hillsborough and Manatee counties since 2006. Symptoms begin about 4 weeks after transplanting and consist of an interveinal purpling of the upper leaf surface of leaf veins that gradually spreads to the entire leaf blade (Figs. 1 and 2). Often, when two leaves partially overlap, the tomato purple leaf disorder (TPLD) only develops on the surfaces exposed to sunlight with the shaded leaf tissues remaining green (Fig. 3). No deformation or bronzing of the leaf has been observed, but afflicted leaves do

appear to decline and senesce prematurely (Fig. 4). Based on grower observations, TPLD appears to affect grape tomatoes more than other types, although this requires further testing.

How TPLD develops within the field remains unclear. Based on preliminary observations, symptoms of TPLD appear to develop sporadically on individual plants throughout the field, and then increase in incidence and intensity with time. However, these observations are anecdotal at best, emphasizing the need for more rigorous observations. The effect of TPLD on marketable yield or post-harvest quality is also unclear.

The cause of TPLD is unknown. The relatively localized nature of the disorder suggests that a virus or other biological agent may be the cause of TPLD. However, the symptoms of TPLD, especially the photosensitive nature of the disorder, are uncharacteristic of any known virus on tomato. All testing to date have failed to detect any known virus. However, TPLD could be caused by a novel virus or other microorganism, or due to an interaction among microorganisms.

It is also possible that TPLD is linked to crop management, the application of pesticides and surfactants or other environmental factors; or due to an interaction between these factors. On the affected farms, the crop was routinely sprayed twice or three times per week with a variety of products (up to 5 products at a given time) mixed in a single tank. Pesticide labels only contain basic cautions/restrictions pertaining to the most likely interactions among pesticides and surfactants. However, all possible interactions, especially when four or five formulations are tank-mixed, are not tested by the manufacturers, possibly resulting in overlooked harmful interactions.

(Continued on page 4)

(Continued from page 3)

Therefore, the possibility of this occurrence needs to be tested under controlled conditions.

As spring draws near, growers and scouts are asked to report any fields suspected of having TPLD to their local county agent or directly to Gary Vallad (gvallad@ufl.edu) or Bielinski Santos (bmsantos@ufl.edu).



Fig 1. Initial interveinal purpling of tomato leaf.



Fig 2. Severe interveinal purpling of tomato leaf.



Fig 3. A leaf blade that was partially shaded by the developing fruit. Note that the shaded region remained green.



Fig 4. Apparent decline and premature senescence of affected tomato leaf.

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 names 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.

(Continued from page 1)

subtracted from the submitted pumpage quantity. If a permittee does not report the use of irrigation for cold protection this could make it appear that the permittee overpumped the permitted quantity and cause the District's computer system to flag the reported high water use as a permit violation.

Reporting cold protection water use also ensures that a permittee receives all the SWUCA conservation credits they have earned. The cold protection pumpage report is used by the District to ensure that conservation credits are not deducted for this important use of irrigation for cold protection.

Protecting Strawberry Fields from Freeze Damage*

Craig Chandler

While strawberry crown tissue isn't usually injured until it reaches a temperature of about 20°F (-6.7 °C), damage to flowers and fruit can start to occur when tissue temperature reaches 30°F (-1.1 °C). A period of very warm weather followed by a freeze may raise the freeze damage threshold temperature of flowers to near 32 °F, and, conversely, a period of cold weather can lower the threshold.

Most of the freeze events in Hillsborough and Manatee County (where the main strawberry production area is located) are radiation freezes (little or no wind), with air temperature typically bottoming out in the low 30s or high 20s. In this type of freeze, growers will generally wait to turn on their sprinkler irrigation system until the air temperature just above the plastic mulch, in an area open to the sky, is 31°F.

When an advective (windy) freeze is expected, and temperatures are predicted to drop into the low to mid 20s, it is common practice to use 1 1/64-inch nozzles (to provide the additional water needed for protection)**

and turn the sprinkler system on when the air temperature reaches 34°F. However, if wind speeds are 10 mph or greater, at least some flower and fruit damage is likely to occur. Wind greatly reduces the effectiveness of overhead irrigation for freeze protection. It reduces the uniformity of water application; it moves the warmed air out of the field and replaces it with colder, drier air; and it increases evaporation of the applied water, which cools the field.



Growers need accurate temperature, wind speed, relative humidity, and dew point information in order to make the best decisions concerning freeze protection. This information is available for various locations throughout Florida from the Florida Automated Weather Network (FAWN) at <http://fawn.ifas.ufl.edu>.

If there is little wind, the dew point will probably remain relatively constant between noon and the following sunrise, except in frost pockets, where frost formation may reduce the dew point by several degrees after dew and frost begin to form during the night. If there is significant wind from the north or northwest, drier air may be moving in, and the dew point may fall substantially during the night. This is particularly true within 48 hours after passage of a cold front. If the dew point is above 32 °F and drier air

(Continued on page 6)

(Continued from page 5)

is not moving in, a damaging freeze is unlikely, except possibly in the worst frost pockets. If the dew point is below 10 °F and the forecast minimum temperature is below 26 °F, freeze protection with water will be difficult if there is significant wind.

The relative humidity at the time the temperature falls to 32 °F is important because it indicates how much evaporation will occur when the irrigation system is turned on. If the humidity is predicted to be quite low at the time the temperature reaches 32 °F, the sprinkler system should be turned on before the temperature falls to 32 °F. On the other hand, if the humidity is above 90%, it is probably safe to let the temperature fall to 32 °F before turning on the system.

Normally on a radiation-freeze night, the temperature falls rapidly until it is within several degrees of the dew point. When the relative humidity reaches 96%, further temperature fall is likely to be slow, because of the heat released as water vapor condenses into dew or frost.

Another consideration makes dew point temperature important in protecting strawberry flowers from a radiation freeze. On clear nights with no wind, flowers and fruit not hidden inside the bush become colder than the air. If the humidity is 90% or greater, frost or dew keeps plant parts from becoming more than 3 °F colder than the air. However, if there is not wind, dew, or frost, flowers and fruit can become as much as 9 °F colder than the air. If the dew point is below 26 °F on a calm night when a radiation freeze is expected, sprinklers should be turned on before the air temperature at canopy height falls below 34 °F.

Once the sprinkler system has been turned on, it should remain on until the wet bulb temperature has risen above 32 °F. Current wet bulb temperatures for various locations throughout Florida can be obtained

at http://fawn.ifas.ufl.edu/tools/irrigation_cutoff/.

* Parts of this article were adapted from a paper written by Dr. Paul Lyrene, Professor of Horticultural Sciences at the University of Florida, and published in the 1996 Proceedings of the Florida State Horticultural Society (Vol. 109; pgs. 215-220).

** Despite what is commonly communicated by mass media, strawberry plants are not protected by a blanket of ice. If that were the case, growers could just run their sprinkler systems until the plants were covered with ice and then turn the systems off. What protects strawberry flowers and developing fruit is heat that is released as water changes from a liquid to a solid. This heat, which is referred to as the heat of fusion, amounts to 1200 BTUs per gallon of water applied. It can keep plants at 32 °F if it is applied continuously and in sufficient quantities.

Serious Crown Rot Losses

Natália A. Peres. James C. Mertely, Craig K. Chandler

Crown rot losses have been much greater this season than in previous years, and some growers have lost as many as 30% of their plants. Normally, perhaps 1 to 5% of the plants die as a result of crown rot and the disease has a rather minor impact on total yield. But, this season, crown rot has been more extensive and developed earlier than in past years. Samples began arriving at the disease clinic at GCREC in late October and 15 had already been diagnosed by mid-November. What has happened? Why have losses been so great this year?

Crown rot is caused by the fungus *Colletotrichum gloeosporioides*, affectionately known as *Cg* in our lab. This fungus can reach strawberry fields in Florida in two ways – on transplants arriving from other states and from local native vegetation. Historically, transplants were produced in Florida, but crown rot became such a serious problem that a solution had to be found. *Cg*

(Continued on page 7)

(Continued from page 6)

is a high temperature pathogen and reproduces very well under Florida conditions, especially in summer. It was infecting most of the “home-grown” transplants, many of which subsequently died before producing fruit. So, growers started obtaining their transplants from California, Canada, or the northern U.S., where the cooler summer weather does not favor disease development. Therefore transplants from northern latitude nurseries do not become contaminated by *Cg* during propagation and usually arrive in Florida virtually free of the fungus. However, the same fungus that causes crown rot can persist on native vegetation, such as oak trees and wild grapes, which is often in close proximity to strawberry fruiting fields. Spores from this source of inoculum can move to strawberry fields early in the season, eventually resulting in some plant mortality. Losses from this source are usually low and tolerable.



This season, most of the strawberry fields with serious crown rot losses used transplants from North Carolina, and we suspect that these transplants arrived contaminated with *Cg*. *Cg* is indigenous to North Carolina (at least at low elevations), as it is throughout the Southeastern U.S. With the high temperatures this fall in Florida, plants began to collapse shortly after the irrigation establishment period and have

continued to decline and die. Transplants obtained from Canada and established in the same areas as North Carolina transplants have not generally had a serious problem with crown rot.

Transplant producers in North Carolina may have to adjust their production practices and move their operations to cooler, mountainous areas to avoid the fungus. Researchers from North Carolina State University are currently trying to determine the inoculum hosts in NC, so hopefully this problem can be resolved in the future. Cooler weather in the fall in future seasons and hopefully cooler weather during the next couple of months may slow the development of the disease as well. Application of fungicides such as Captan, Topsin M and Abound may slow the spread of the disease to other plants or fields but may only have limited affect in controlling the disease on transplants that are already infected.

Radiant Insecticide Registered

J. F. Price and C. A. Nagle

Dow AgriSciences has registered Radiant[®] insecticide to control armyworms (excluding the yellowstriped armyworm), leafrollers, and thrips in strawberries. The product also is registered for various caterpillars, dipterous leafminers, thrips and other pests of vegetables.

The active ingredient of Radiant[®] is spinetoram, of a toxin group derived from the fermentation products of a soil micro-organism, *Saccharopolyspora spinosa*. Label restrictions for strawberries are compatible with our customary culture. For instance there is a “Caution” precautionary statement, 4 hour re-entry interval, a 1 day pre-harvest interval (PHI), and provision for five applications per year. Required personal protective equipment for applicators and handlers are long-sleeved shirt, long pants,

shoes, and socks. The PHI for most west central Florida’s vegetables is the same as for strawberries, except the PHI for succulent beans is 3 days.

Only labeled crops can be rotated on fields treated with Radiant® within 12 months. However, Radiant® is registered for most of the vegetables grown in Florida. Radiant® is not a restricted use pesticide and no license is required to purchase.

Spinetoram is an IRAC group 5 mode of action compound as is its related compound, spinosad (SpinTor®) and the two should not be rotated. This means that growers should choose between the two and not use the other within a season.

Folks from Dow AgriSciences indicate Radiant® produces a quicker pest knockdown and longer residual control than SpinTor® and provides excellent control of western flower thrips. Its wet sprays are hazardous to some beneficials including *Phytoseiulus persimilis* predatory mites, honey bees, and bumble bees but its overall impact on naturally occurring predators and parasites is minimal.

Radiant® should contribute additional stability to the production systems of strawberries and vegetables produced in Florida.

related businesses participated. Workshop topics ranged from GPS technology to ethanol to alternative crops for Florida. In addition, part of the proceeds collected for vendor space will go towards the GCREC Scholarship Fund. An omelet breakfast started off the event prepared by members of the Florida Strawberry Growers Association and also sponsored by the Florida Poultry Federation.. GCREC thanks everyone who participated in making this year’s expo a huge success and mark your calendar for the 2008 Florida Ag Expo scheduled for December 4-5. Details will be noted on the expo’s website <http://flagexpo.ifas.ufl.edu>.



2007 Florida Ag Expo Highlights Christine Cooley

The 2007 Florida Ag Expo was another great success for UF/IFAS Gulf Coast Research and Education Center with over 800 participants over the 2-day event. Vendors were treated to an upgraded exhibit area as well as a hospitality suite, and over 70 ag-

2008 Florida Ag Expo
December 4-5

<http://flagexpo.ifas.ufl.edu>
For future updates and details

NOTICE TO EMPLOYEES

FLORIDA MINIMUM WAGE

The Florida minimum wage is \$6.79 per hour, with a minimum wage of at least \$3.77 per hour for tipped employees, in addition to tips, for January 1, 2008, through December 31, 2008.

The rate of the minimum wage is recalculated yearly on September 30, based on the Consumer Price Index. Every year on January 1, the new Florida minimum wage takes effect.

An employer may not retaliate against an employee for exercising his or her right to receive the minimum wage. Rights protected by the State Constitution include the right to:

1. File a complaint about an employer's alleged noncompliance with lawful minimum-wage requirements.
2. Inform any person about an employer's alleged noncompliance with lawful minimum-wage requirements.
3. Inform any person of his or her potential rights under Section 24, Article X of the State Constitution and to assist him or her in asserting such rights.

An employee who has not received the lawful minimum wage after notifying his or her employer and giving the employer 15 days to resolve any claims for unpaid wages may bring a civil action in a court of law against an employer to recover back wages plus damages and attorney's fees.

An employer found liable for intentionally violating minimum-wage requirements is subject to a fine of \$1,000 per violation, payable to the state.

The Attorney General or other official designated by the Legislature may bring a civil action to enforce the minimum wage.

For details, see Section 24, Article X of the State Constitution and Section 448.110, Florida Statutes.