# Berry/Vegetable Times

## February 2006

UNIVERSITY OF FLORIDA
IFAS EXTENSION

### 2006 Calendar of Events

**March 7** Spring Blueberry Field Day, Florida Blueberry Growers' Association. For more information see flyer in newsletter.

**March 14** Pesticide License Testing. Hillsborough County Extension Office, Seffner. 9 am. For more information call Dave Palmer, 813-744-5519, ext 103.

**March 15** Vegetable Grower Spring Meeting, Popi's IV Restaurant, Ellenton. Lunch at 12:00, Program 12:30-2:00. For more information and to RSVP call Alicia at 813-744-5519, ext. 134. Program on Abacus followed by a Vegetable Disease research update by Dr. Pam Roberts.

**March 18** Small Farms Workshop, Hillsborough County Extension Office, Seffner. 9-3:30, lunch included. Cost $10. For more information or to register call Steffany Dragon at 813-744-5519, ext. 127. More information in newsletter.

**A monthly newsletter of the University of Florida IFAS**
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*From Your Agent*

## Important Changes in WPS Enforcement Policy

Most growers are aware that the Department of Agriculture and Consumer Services (DACS) has increased the number of farm inspections for Worker Protection Standards (WPS). Ten new inspectors have been hired statewide. An article that appeared in the Tampa Tribune on January 24 called for more funding and tougher regulations. Due to increased public pressure the Legislature may propose new legislation on worker safety. Word has just come down for DACS in Tallahassee of new changes in the enforcement policy for WPS. These changes are mainly for vegetable growers and nursery/greenhouse producers. The following is taken directly from the communication from DACS.

**Notice**
**EFFECTIVE February 15, 2006**

**The following violations of the Worker Protection Standard will result in penalty assessment of $250 for first time violators in the following areas:**

**Pesticide safety training, not including isolated errors or omissions;**

**Failure to comply with agricultural worker or handler restricted entry intervals;**

**Failure to post treated areas to prevent entry during a restricted entry interval; or**

**Failure to provide essential personal protective equipment.**

In the past, first time infractions usually would receive a warning letter but now fines will be issued. Our inspectors

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have been very good in working with growers to help them be in compliance; now they will have no choice but to give a grower a fine.

Also note that **The Worker Protection Standard for Agricultural Pesticides-How to Comply Manual** has been updated. The revised 2005 manual now supersedes the 1993 version. Be sure to get the 2005 version to follow the new regulations to stay in compliance. Paper copies or a CD version are available from Gempler or to download a copy or order a paper copy or CD go to http://www.epa.gov/agriculture/htc.html.

## Advances on Irrigation and Nitrogen Rates Studies with Strawberry Varieties

Bielinski M. Santos
GCREC, Weed Science/Horticulture

Current recommendations for nitrogen (N) fertilization and drip irrigation greatly differ from those used by most strawberry growers. For instance, UF-IFAS advises drip-applying 100 gal of water per 100 ft row per week, and between 0.6 and 0.75 lb of liquid-N per acre daily. However, growers often apply as much as 150% more liquid-N fertilizer and drip irrigation during the crop production peaks. Because of this discrepancy, a team of researchers and extension from UF (including Eric Simonne, John Duval and Alicia Whidden) has conducted field studies during the last three years to compare the effect of diverse irrigation and N fertilization rates (see Page 2) on the yield of 'Strawberry Festival', 'Ventana' and 'Winter Dawn' strawberries.

Under the small-plot conditions of these studies, it appears that it is plausible to reduce irrigation and liquid-N rates to the UF-IFAS recommended levels, without significantly affecting fruit quality and weight for each strawberry variety. Beside the obvious environmental benefits of reducing water usage and N leaching, these results might help growers to cut the cost of fuel to pump water in their strawberry fields. For example, changing from 120 gal/100 ft/week (218 min of water pumping) to 80 gal/100 ft/week (145 min) represents an approximately 33% reduction of pumping time, which might translate in substantial savings in diesel fuel.

A contrary argument might indicate that growers will not allow their soil to become "too dry" by reducing the irrigation rates, because later it would be too hard to get enough moisture in the beds. However, these studies have shown that the beds receiving only 60 gal/100 ft/week still retain during the production peak between 13 and 15% moisture at four days after irrigation. To further validate these results, studies for next strawberry season will concentrate on testing irrigation and N-rates in large-plot fields, as well as to calculate the economic feasibility of these recommendations.

This research is being funded by the Hillsborough River and Alafia BASING Boards and Southwest Florida Water Management District

| Irrigation rate | Water running time | Liquid-N rate |
|---|---|---|
| **gal/100 ft/week** | min/100 ft/week | lb/acre/day |
| 60 | **109 (1 h 49 min)** | **0.4** |
| 80 | **145 (2 h 25 min)** | **0.6*** |
| 100* | **182 (3 h 2 min)** | **0.8** |
| 120 | **218 (3 h 38 min)** | |

*UF-IFAS recommendation (drip tape maximum: 0.58 gal/100 ft/min)

# Label Plant Back Restrictions and Resistance Management Considerations in Double Cropped Strawberry

James F. Price and Curtis Nagle

Intercropping and double cropping spring and summer vegetables with a concluding strawberry crop offers means to enhance a season's profitability. There are arthropod management implications related to this practice and this article discusses the most important points of interest to Florida strawberry growers.

Likely second crops to follow strawberry include various cucurbits (such as summer squash, zucchini, cucumbers, cantaloupes, other melons), pepper and eggplant. All of these, especially eggplant, can be damaged by strawberry's perennial pest, the twospotted spider mite. Spider mites easily can infest the second crop if transplants or weeds from strawberry remain at the time of establishing the second crop. Other arthropods such as sap beetles, fruit flies (vinegar gnats), or pameras, may be numerous at the end of the strawberry crop, but pose little threat to these second crops. Episodes of aphids, armyworms and thrips likely would be ended in strawberry by that period, but scouts must watch for them.

A farmer's successful transition to the new crop requires that spider mites from strawberries be controlled, even on weed hosts such as Carolina geranium, a difficult task in the warm, dry spring. The best approach would be to have the spider mites under biological control with an agent such as the *Phytoseiulus persimilis* predatory mite before the new crop is established. The predator can transfer to the new crop along with the few spider mites that survived this hunter earlier. Extended benefits of the predator would depend on pesticides to be applied and other factors.

If chemical control was relied on for the strawberry crop and is to be used again, then care should be taken to scout the new crop weekly and treat when spider mites threaten. Some product labels limit applications to a crop to reduce resistance among the target mites. If the maximum applications have been made to strawberry, then it would be unwise to apply the permitted amount to the same mite population. This dilemma reduces the number of miticide applications available to the second crop.

Table 1 presents popular second crops that could be affected by observing miticide application limits to a mite population that started on strawberry then relocated to the second crop. Strawberry growers intending to produce a second crop that would be infested by spider mites from the strawberry should consider managing strawberry with predator mites, Acramite® or Savey® (or other miticide not available to the cucurbits, eggplant, or pepper), practice good weed management and destroy strawberry transplants before introducing the second crop. Some Agri-Mek® applications should be withheld from strawberry and reserved for use on the cucurbit, eggplant or pepper second crop and likewise, some Vendex® applications should be withheld for use on eggplant.

Plant-back restrictions apply to some pesticides and must be carefully considered in strawberry if double cropping is planned. Plant-back restrictions prohibit the planting of certain crops within a stated period if certain pesticides are applied to the strawberry crop.

Some strawberry pesticide plant-back restrictions include:

1. Acramite: Do not plant another crop within 30 days of the last application of Acramite. (Acramite is permitted on cucurbits, eggplant and pepper).
2. Brigade: Crops for which bifenthrin tolerances exist may be rotated at any time

*(Continued on page 4)*

3. Oberon: Immediate plant back for fruiting vegetables (including eggplant and pepper), cucurbits, tuber vegetables and strawberries. For all other vegetable crops, 12 months must elapse before planting.
4. Savey: Do not plant rotational crops other than those on the label within 120 days of application (cucurbits, eggplant, and pepper and are not on the label).

Good insect and mite control in the second crop depends a lot on how the arthropods were managed in strawberry. Early planning and careful attention to management details can produce important payoffs in intercrop or double crop culture.

**Table 1.** Miticides possessing labels that restrict numbers of applications to spider mites on strawberry and are permitted on cucurbits, eggplant, and pepper.

| | Second Crop | | |
|---|---|---|---|
| Strawberry/Vegetable | Eggplant | Cucurbits | Pepper |
| Miticide[1] | | | |
| Acramite® | X | X | X |
| Agri-Mek® | X | X | X |
| Capture® (=Brigade ®) | | X | |
| Danitol® | | X | |
| Kelthane® | | X | X |
| Oberon® | X | X | X |
| Vendex® | X | | |

1 Miticides include those registered and likely to be used on strawberry, possess label restrictions on numbers of applications, and also are registered on eggplant, cucurbits, or pepper. Additional, unaffected miticides are available. Applications on the second crop beyond those allowed on strawberry may enhance resistance in the spider mite population that developed on strawberry and relocated to the second crop.

## Vegetable Grower Spring Meeting

Tuesday evening, **March 14**
**SWFREC, Immokalee**
Dinner at **6 PM**
Program: 6:30 – 8:00
RSVP to 863-674-4092

Wednesday noon, **March 15**
**Popi's IV Restaurant**, Ellenton
Lunch at **12 noon**
Program: 12:30 – 2:00
RSVP to 941-722-4524

These meetings are being sponsored by Rotam International to introduce their new product, Abacus (abamectin) and to provide growers with an update on research and recent results on a medley of pest topics.A total of 1.5 CEUs (both RUP and CCA) have been requested. Please RSVP to your respective county Extension Offices (see numbers above) or call for additional information.

# Current Goals of the GCREC Strawberry Breeding Program

*Strengths and Weaknesses of the Program's Most Promising Selections*

Craig Chandler

The number one goal of the program is to develop an early fruiting cultivar that produces fruit that are more flavorful and have a better shelf life and more uniform shape than 'Winter Dawn'. A second goal is to develop a high quality mid to late season cultivar. There may be future opportunities, with rising fuel prices, for the west central Florida industry to return to the days when the industry (profitably) harvested fruit well into April. A third goal is to incorporate easy harvestability, and at least moderate rain and fruit rot resistance into any new cultivar we release.

| Selection number | Strengths | Weaknesses | Plans for the Future |
|---|---|---|---|
| FL 01-116 | Higher early season yield than 'Festival'; better flavor and shape than 'Winter Dawn'; resistant to rain damage. | Northern latitude transplants produced some misshapen fruit on the second hand during 2005-06 season. | Large size grower trials during 2006-07 season. |
| FL 00-51 | Steady, moderate production of large, flavorful fruit; plant easy to harvest. | Susceptible to rain damage. | Medium size grower trials during 2006-07 season. |
| FL 99-164 | Produces firm, glossy fruit; flavor equal to 'Festival' in Feb. taste panel. | Plants produced some misshapen fruit on second hand during 2005-06 season. | Medium size grower trials planned for 2006-07 season. |
| FL 95-269 | From the same cross that produced 'Festival'; conically shaped fruit on long stems. | Not as early or as firm-fruited as 'Festival'; orange-red color. | Will be trialing this selection in some foreign production areas where fruit firmness is not as much of an issue. |
| FL 02-45 | Produces fruit that are firm, glossy, and flavorful. | Low early season yields – but produces high quality fruit late into the season. | Small size grower trials during the 2006-07 season. |
| FL 99-117 | Uniformly shaped fruit; low susceptibility to Botrytis fruit rot. | Produces many medium to small fruit; fruit are orange-red in color; susceptible to rain damage. | Small size grower trials during the 2006-07 season. |

## Angular Leaf Spot Research Trials

Natalia Peres

Angular leaf spot, caused by *Xanthomonas fragariae*, is a bacterial disease that is important on winter strawberry production worldwide. The first symptoms of the disease begin as small, water soaked lesions on the undersurface of the leaves. As the disease develops, the lesions enlarge to form reddish-brown spots that later become necrotic. A practical way to recognize the disease is to place the leaves against a source of light where the translucent spots can be seen (Fig.1). Disease development is favored by moderate to low temperatures (65-70º F), cold nights, and high relative humidity. Its spread is facilitated by rainfall, overhead irrigation, and harvest operations.

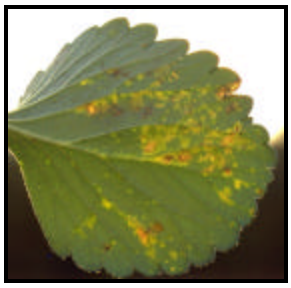

**Fig.1. Translucent spots of Angular Leaf Spot**

ALS is ideally controlled by the use of pathogen-free transplants. However, studies in Florida have shown that the bacteria can survive on dry infested leaves and tissue buried in the soil for up to 1 year. Little is known regarding the effects of ALS on yield and control measures are limited once the disease appears in the field. Thus, we are currently investigating the effect of the disease on yield of 'Strawberry Festival'. We are also testing a wide variety of products, including traditional and new formulations of copper fungicides, for the control of the disease. Because some of these products are new to strawberry, phytotoxicity effects, plant growth, and yield are also being evaluated.

The severity of ALS in our research farm at the GCREC – Wimauma has been moderate to severe or grave this season. Thus, we have been also evaluating the level of resistance to ALS of different commercial cultivars and advanced selections from the breeding program as well as of a germplasm collection of wild strawberry. Sources of resistance can potentially be used in the breeding program to develop cultivars with higher levels of resistance to ALS. In addition, we are working on the characterization of strains of the bacteria from different strawberry fields in Florida. Growers who have been experiencing severe problems with this disease are encouraged to submit samples to our disease diagnostic clinic to be included in this study. Forms and instructions for the sending samples are available at the GCREC website (http://gcrec.ifas.ufl.edu).

## Small Farms Conference

The "South-Central Florida Small Farms Conference" is part of UF/IFAS Extension's state-wide initiative to provide education to small-scale producers who represent 90% of all farms in the state.

**Date:** Saturday, 3/18/06
**Time:** 9:00AM-3:30PM
**Subject: "South-Central Florida Small Farms Conference"**

**Topics:** Marketing, regulations, financing, green-belt classification, grant opportunities, hydroponics, blueberry production, grape production, bee keeping, organic certification, pasture management for livestock, ornamental aquaculture, and community supported agriculture

**Place:** Hillsborough Co. Extension Office in Seffner, FL

**Contact:** Lacey Marsden or Steffany Dragon at (813) 744-5519 to register* or for more information!

**Lunch and all materials will be included with a pre-registration fee of $10, due by March 10th. Thank you!*

# 2006 Spring Blueberry Field Day Pre-registration

**Where: Brookdale Farms, 4806 Bugg Rd., Plant City, Fla.**

**When: Tuesday, March 7, 2006.**

**Pre-register now for the Annual FBGA Spring Field Day. Pre-registrations must be post-marked by February 27, 2006 to guarantee a meal.**

**About the Field Day -** On-site registration (meal not included) will begin at 9:45 a.m. The program will begin with the FBGA Annual Business Meeting at about 10:15 a.m. Presentations will be followed by lunch and an afternoon tour of area farms. We are planning to offer Florida CEU credits for this meeting.

**Location of the Field Day –** The Field Day will be held at Brookdale Farms (Mr. Chad Dumke) in Hillsborough County. The address is 4608 Bugg Rd., Plant City, FL 33567. .

**Directions to the Field Day** –

If traveling west on Hwy 60, continue across the intersection with Hwy 39, turn right onto Bugg Rd. This is the first right after the Hwy 60/39 intersection (about ¾ miles past Hwy 39). Look for a large cell tower on the left side of the road for a landmark. Follow Bugg Rd around a curve to the left and Brookdale Farms will be on your right soon after the curve.

If traveling from north Florida, take I-75 south to Hwy 60 in Branden. Go east on Hwy 60 towards Plant City. Turn left on Bugg Rd (about 2 miles after the Turkey Creek Rd. traffic light. Look for a large cell tower on the right side of Hwy 60 for a landmark. Follow Bugg Rd around a curve to the left and Brookdale farms will be on your right soon after the curve.

**Florida Blueberry Growers' Association**
**P.O. Box 163**
**Island Grove, FL 32654**

Thank you for your continued support of the Florida Blueberry Growers' Association!

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Please cut here and return to above address.

**Name(s) attending the Short Course** _____
_____
_____
_____

## Spring Blueberry Field Day

Tuesday, March 7, 2006
Brookdale Farms, Chat Dumke
4608 Bugg Rd., Plant City, 33567
Hillsborough County

**9:45 a.m.** **On-site Registration -** Meal not included

**10:15 a.m.** **Annual Business Meeting** - Mr. Joe Keel, president, presiding.

**10:30 a.m.** **Update on Dormex and other blueberry production research -** Dr. Jeff Williamson, horticulturist, Horticultural Sciences Dept., IFAS, University of Florida, Gainesville, Fla.

**10:50 a.m.** **Management of key insect pests and mites in blueberries using conventional and reduced-risk insecticides -** Dr. Oscar Liburd, entomologist, Dept. of Entomology and Nematology, IFAS, University of Florida, Gainesville, Fla.

**11:10 a.m.** **Pathology research update -** Dr. Phil Harmon, Department of Plant Pathology, IFAS, University of Florida, Gainesville, Fla.

**11:30 a.m.** **Overview of blueberry varieties for Florida growers - -** Dr. Paul Lyrene, blueberry breeder, Horticultural Sciences Dept., IFAS, University of Florida, Gainesville, Fla.

**11:45 a.m.** **Lunch** - provided by the following sponsors: **Dormex USA, Fresh Harvest International, Koppert Biological Systems, Inc., and United Agricultural Services of America.**

**12:30 p.m.** **Begin field tours**

**Location of the Field Day –** The Field Day will be held at Brookdale Farms (Mr. Chad Dumke in Hillsborough County. The address is 4608 Bugg Rd., Plant City, FL 33567.

**Directions to the Field Day** –

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