

A monthly newsletter of the University of Florida Institute of Food and Agricultural Sciences, Gulf Coast Research and Education Center, and Florida Cooperative Extension Service.  
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## Dr. Jim Mertely promoted to Head of Strawberry Diagnostic Lab and Coordinator of Strawberry Pathology/Breeding collaborative research projects

Dan Legard

In March, Dr. Jim Mertely was promoted to the Head of the Diagnostic Lab in Dover and will coordinate the joint research projects of the Strawberry Breeding and Plant Pathology programs at Dover. Jim has done an excellent job handling the day to day activities of the diagnostic lab and conducting research studies with the Plant Pathology program at Dover. This promotion was long overdue and is a result of the outstanding job he has done in the 3+ years he has worked at GCREC-Dover. With the creation of this new position, we expect that Jim will be able to improve the services that the diagnostic lab provides the strawberry industry. We also anticipate that Jim's unique abilities will enhance the excellence of the collaborative research conducted at GCREC-Dover.



Dr. Jim Mertely

## End of season reminders for managing strawberry diseases during the summer

Dan Legard

As growers come to the end of another strawberry season, I would like to remind them about some sound management practices for controlling diseases that may oversummer in Florida. The best way to reduce the likelihood that



Field after paraquat application

pathogens will oversummer is to kill the plants and incorporate them into the soil as soon as they are killed. By incorporating plant material into the soil, its breakdown and decomposition is accelerated. As plant material breaks down, the survival of pathogens decline. For *Colletotrichum* spp., research we conducted in Florida found that the pathogens would disappear 60 to 90 days after burial of plant debris (For more information see:



Colletotrichum crown rot

*Oversummer Survival for Potential Inocula of Colletotrichum Crown Rot in Buried Strawberry Crown* at <http://strawberry.ifas.ufl.edu/soilpaperjune12.htm>).

If we have a dry summer, pathogens are likely to survive for longer periods in buried plant material. When growers use their strawberry beds for a second crop of vegetables or cantaloupe, this can delay the incorporation of strawberry plants into the soil by 60 days or more. With such a delay it becomes important that the growers kill the strawberry plants at the end of the season and incorporate the plant debris as soon as the season for the second crop is over. By effectively managing the killing and burial of strawberry plants at the end of the season, growers can reduce or eliminate the risk that pathogens like *Colletotrichum* will oversummer and infect new plantings of strawberry next fall.

## New Acramite<sup>®</sup> 50WS Miticide Now Available Jim Price

Acramite<sup>®</sup> 50WS bifenazate from Uniroyal Chemical Company represents a new class of miticide now registered for twospotted spider mite control on strawberry. Results of experiments at GCREC Dover and Bradenton over the past several years indicate that this miticide will be very effective for Florida strawberry growers to control motile stages of the twospotted spider mite. This new miticide can be applied at 3/4 to 1 pound of product per acre two times during the season. There must be a 21-day wait between applications and each crop of

fruit can have no more than one treatment applied to it.

Acramite® is safe to beneficials, carries a “Caution” precautionary statement, requires only 12 hours restricted entry interval and only 1 day must pass between application and harvest, qualities that enhance the usefulness of the product in strawberry production.

Acramite® is a member of the new carbazate chemical family and acts as a GABA (gamma-aminobutyric acid involved in neural transmission) agonist in insects. The nature of activity is not yet confirmed in mites however. There is no known cross-resistance with current miticides in strawberry.

Uniroyal Chemical Company began to deliver the miticide to local distributors on 22 March. Growers with late-season mite problems may consider applying this product now.

### Correction for March *Berry Times*:

In the article regarding pamera control, neem oil was mentioned as a choice for control. Neem oil does not control pamerases, but other neem products, such as Neemix®, Ecozin®, and Azatin® formulations of neem’s azadirachtin can be effective.

## Strawberries in Miami-Dade County

Craig Chandler

Most strawberries in Florida are grown in west central Florida (primarily eastern Hillsborough County), but there are small plantings of strawberries in other parts of the state. These plantings are generally close to major metropolitan areas (e.g. Miami, Orlando, and Jacksonville) so that the fruit can be sold directly to the consumer through roadside markets or U-pick operations. Recently I made a day-trip to Miami-Dade County and visited briefly with two growers.

Teresa Olczyk, the UF/IFAS commercial vegetable extension agent in Miami-Dade County, knows of six growers of strawberries in the county, with a combined acreage of somewhere between 10 and 20 acres. Several of these growers are quite well known in the area for the strawberry milkshakes they sell at their roadside stands.

Miami-Dade strawberries are planted in October on (slightly) raised beds covered with black, silver, or white colored plastic mulch. Growers use either three or four-row beds. The most popular

cultivars among these growers are ‘Camarosa’, ‘Chandler’, and ‘Sweet Charlie’. Fields are generally harvested until sometime in March.



Strawberry nurseryman David Lankford, and Univ. of Maryland small fruit breeder Dr. Harry Swartz, standing in front of a strawberry field at Knaus Berry Farm in Homestead, Florida.

Growers in Miami-Dade County have to deal with most of the same disease and pest problems that are typical in other areas of Florida, but, in addition, they are faced with winter temperatures and soil pH’s that are not ideal for strawberry production. The average minimum air temperature during the winter at Miami International Airport is 60 ° F (16 ° C), while the average minimum air temperature in the Hillsborough County production area during the winter is close to 50 ° F (10 ° C). Soils in the production area of Miami-Dade County are composed mostly of limestone, which results in soils with a pH of 8 or above. Growers combat the nutritional problems caused by high pH soils by using fertigation to regularly apply essential nutrients directly to the plant’s root system.

## Strawberry Varieties and Disease Resistance

J. Mertely, D. Legard, & C. Chandler

Knowing how resistant strawberry varieties are to plant disease is important to both researchers and commercial growers. This season, eleven varieties and advanced selections (cultigens) were compared in replicated experiments at the University of Florida Experiment Station in Dover. Ten cultigens were from our own breeding program, while one California variety (‘Camarosa’) was included for comparison. Our objective was to determine resistance to anthracnose fruit rot (black

spot) and Botrytis fruit rot (gray mold). We have just finished

harvesting, and preliminary data are available for both experiments.

As expected, 'Camarosa' is relatively resistant to



'Camarosa'

Botrytis, but highly susceptible to anthracnose. 'Sweet Charlie' had the opposite reaction, being highly resistant to anthracnose but highly susceptible to Botrytis. This susceptibility to a fungus that grows at cold room temperatures is one reason for Sweet Charlie's short shelf life. 'Earlibrite' is similar to 'Sweet Charlie' being susceptible to Botrytis, but moderately resistant to anthracnose. 'Strawberry Festival' is moderately resistant to both diseases, as is 95-256, an advanced selection being considered for release. Selection 97-51 was highly resistant to both diseases. Although this selection may lack some qualities necessary for commercial acceptance, it may be a valuable parent in the breeding program. These experiments will be continued next season in order to provide more information for informed variety selection.

## Watermark sensors for soil moisture monitoring

John R Duval

Efficient use of water is becoming increasingly important as agriculture and urban population centers compete for the same resources. Proper irrigation scheduling and applying proper volumes of water for optimal crop growth is essential for profitable crop production.

During the last 50 years, many improvements in irrigation technology have reduced the amount of water necessary to produce horticultural crops. The advent of plastic mulch and trickle irrigation has greatly decreased the amounts of water needed to produce a crop. However, irrigation management remains one of the most misunderstood aspects of crop production. Over- and under-watering can lead to reduced crop yields, mineral nutrient problems and increased pumping costs. When determining irrigation schedules, it is important to take into consideration things such as wet and dry areas and different soil types found throughout a field. If at all possible, differing areas

should be on separate irrigation systems so that over watering does not occur. If that is not possible, irrigation should be scheduled based on crop water needs on the driest part of the field.

A simple moisture sensing device is the watermark sensor. A watermark sensor is a block of



Sensor

porous material with electrical probes embedded in it. When a measuring device is attached to the sensor, via wire leads from the buried

sensor, a numeric value is given indicating soil water

tension based on the resistance of an electric current passed through the sensor. Numerical data given by this sensor indicate soil water tension or put simply

how much force (measured in centibars) is needed by the plant to remove moisture from the soil. Therefore, the lower the number, the wetter the soil. For strawberries it is recommended that this value never



Reader

exceed 10-12 (centibars). These sensors can be buried at any depth, only limited by the length of the wire lead to the soil surface. Advantages of resistive sensors are low cost, high level of precision when soil salt concentration is low, do not require routine maintenance like tensiometers, are not easily damaged by equipment or workers once placed in the field, and function in the entire range of soil moisture. The main disadvantage of water sensors is the in-ground sensors have a limited life and must be replaced after one or two seasons.

## Center Update Christine Manley



Watch for a new look to our website - <http://strawberry.ifas.ufl.edu>. We will be working on redesigning the home page as well as other main pages throughout the site to improve the way that we provide information. We will also be working to provide our website visitors with easier navigation to get them the information they need least amount of "clicks".

Dan Legard will be traveling on business to Europe in April to visit with strawberry growers and researchers in Southern Spain and give a seminar on Botrytis fruit rot. Dan will also be presenting a poster at the 6<sup>th</sup> European Conference on Fungal Genetics in Italy and presenting a seminar for Syngenta in Switzerland. While in Europe, Dan will be working with other researchers to develop collaborative projects to benefit the Florida strawberry industry. The majority of Spain's strawberry exports go to markets in Germany, France and Italy. Fresh strawberries are also exported to Switzerland. The most important market for Italian strawberries is Germany, which imports almost two thirds of the total Italian fresh exports, followed by Austria, Switzerland, and other northern European countries. The trip should provide some valuable information for Dr. Legard's program.

We were proud to host several groups this past month including visitors from the Danish Agricultural Advisory Centre, Korea and Louisiana State University. However, one of our favorites was a group of 27 2<sup>nd</sup> and 3<sup>rd</sup> graders from St. Clements School in Plant City. The group consisted of children from local strawberry growing families as well as migrant workers, so they already had an appreciation of some of the aspects of the strawberry industry. It was Sister Denise LaRock's goal to expose them to the other career fields involved in the strawberry industry and agriculture in general, and that is where our research center came in to help. The group was very enthusiastic as they viewed through microscopes and helped themselves to a basket of berries to take home. We welcome all types of groups to tour our facility, but we do ask that tour groups notify us early enough to allow for proper planning. For information call (813) 744-6630 X60, or email [cmanley@ufl.edu](mailto:cmanley@ufl.edu).



*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.*

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