the Southern Region small fruit consortium

Small Fruit News

NC State University
Clemson University
The University of Arkansas
The University of Georgia
The University of Tennessee
VA Polytechnic Institute and State University

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In this issue

Special Reports:

Southern Region Small Fruit Consortium Awards $99,434 in Grants for 2010

Tom Monaco, Coordinator, SRSFC

The Steering Committee of the Southern Region Small Fruit Consortium (SRSFC) awarded $99,434 in research and extension grants at their annual meeting held January 2010 in Savannah, GA. Twenty two research proposals and four extension proposals were submitted to the SRSFC. Fifteen research proposals totaling $79,934 were funded and three extension proposals for a total of $15,500 were funded. Also $4,500 was awarded to the extension efforts in updating the IPM/Production Guides.

The IR4 Performance program added a half match to three of the research proposals which added $7,500 in additional funding so the total amount invested in research for 2010is $87,434.

Research projects funded for 2010 include:

SRSFC 2010-01 Postharvest Evaluation of Raspberry and Blackberry selections for use in tunnels in warm production areas. Perkins-Veazie. Fernandez, Ballington, Clark $5,000

SRSFC 2010-02 Survey for grapevine leaf roll-associated viruses in Vitis vinifera in Georgia and North Carolina. Deom, Brannen, Sutton $5,000

SRSFC 2010-03 Identification of Viruses in Blackberry Yellow Vein Disease Complex. Pesic-VanEsbroeck, Tzanetakis $5,000

SRSFC 2010-04 Characterization and detection of Blueberry necrotic ring blotch associated virus, a new pathogen threatening the blueberry production in the Southeast. Tzanetakis, Martin $5,000

SRSFC 2010-05 Effect of soil amendments and solarization on plasticulture strawberry growth and yield and soil borne pathogen communities in Arkansas. Kirkpatrick, Garcia, Johnson, Cox $5,000

SRSFC 2010-06 Survey for grapevine leafroll-associated viruses (GLRaVs) and mealy bugs (Pseudococcus spp.) in Vitis vinifera in North Carolina. Sutton, Burrack $4,996

SRSFC 2010-07 Evaluation of Cultivars and Plug Date for Greenhouse Strawberry Production. Deyton, Kopsell, Sams $5,000

SRSFC 2010-08 Developing Herbicide Programs for Weed Management in Commercial Blackberry Plantings. Mitchem, Jennings $5,000

SRSFC 2010-09 Identification of molecular markers as a means to expedite raspberry breeding for the Southern Region. Fernandez, Ballington, Sosinski $5,000

SRSFC 2010-10 Pollinator diversity and efficiency in southeastern blueberries. Tarpy, Burrack $5,000

SRSFC 2010-11 Alternative management tactics for green June beetles in grape. Johnson $4,938

SRSFC 2010-12 Examination of an integrated approach of using composts, summer cover crops, beneficial mycorrhizal fungi and vermicompost for organic and conventional strawberry production in the

Southeast. Schroeder-Moreno, Fernandez $5,000

SRSFC 2010-13 Evaluation of Apogee for Control of Runner Growth in Annual Plasticulture Strawberries. Straw $5,000

SRSFC 2010-14 Evaluation of ethylene emission and fruit detachment characteristics in rabbiteye blueberry varieties. Malladi, NeSmith $5,000

SRSFC 2010-15 Reducing microbiological safety risk on blueberry through innovative washing technologies. Hung $5,000

Extension projects funded for 2010 include:

2010 E-01 Developing a volunteer monitoring network for a new insect pest of small fruits. Burrack, Pfeiffer, Smith $5,000

2010 E-02 Petiole analysis for bunch grapes in the southeast. Lockwood, Joines, Kissel, Havlin, Spade $5,000

2010 E-03 Use of internet and DVDs to deliver blueberry updates and production information to producers. Brannen, McGriff $5,000

Fruit and Vegetable Weed Management Web Site Launched

Wayne E. Mitchem
Orchard and Vineyard Floor Management
Clemson Univ., N.C. State Univ., and Univ. of Georgia,

In May the Weed Science group in the Department of Horticultural Science at N.C. State University launched Wolfpackweeds.com, a web site dedicated to weed management issues pertaining solely to fruit and vegetable crops. The web address for the site is www.wolfpackweeds.com and was developed in cooperation with Ag Renaissance Software LLC.

The site offers visitors the opportunity to search for weed management recommendations by crop and lists updates specific to label changes and new herbicide uses on the home page. There are plans to add a section under "Recommendations" that outlines specific weed control programs for each crop offering visitors more than a herbicide shopping list. This portion of the site will provide information about tank mix options and application timing that can be shared on a single sheet that tells growers how to use herbicides in a weed management program for a specific crop.

One of the more unique features of the site is the herbicide injury photo library. This portion of the site contains photos of herbicide injury symptoms on fruit and vegetable crops and weeds. The availability of herbicide symptomology information on the web is very limited and the group hopes to use this niche as a means to attract visitors to the site from beyond North Carolina and the Southeast.

There are a number Weed Science and pest management related links that can be accessed from the site along with contact information for the Horticultural Science Weed Science group. If you have opportunity to visit the site please do so. The group is very interested in hearing feed back about on the site and things to add.

Knowing What to Do, When, and How Much

By Barclay Poling, Professor and Extension Specialist (Small Fruits), NCSU

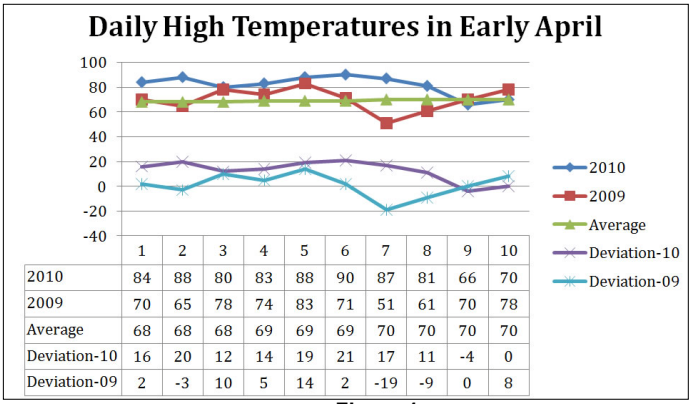
I can tell, from the phone calls I have been receiving over the last two to three weeks, that many strawberry growers across our region are wondering if they could have done something differently to have reached a better outcome for this year's strawberry season? In truth, everyone pretty much did what they were supposed to do – from planting the right varieties at the right time through covering the Camarosa crop with winter blankets to help offset the exceptionally cold winter, etc. And, growers generally carried through on each of the important tasks noted in the March and April issues of The Strawberry Grower newsletter as well! In fact, I know of several growers in the central piedmont who lost a significant amount of blooms to a surprise attack of clippers last year, and boy, was I impressed by how they stepped up their field scouting operations during early bloom this year!

But, I am afraid that something else got our strawberry blooms and many of the flower buds

this season. And, it wasn't an insect or disease. It may have been a weather-related issue, with extreme heat in the pre-bloom and early bloom period during early April causing the short harvest season for many growers.

We all know how cold weather in early April can be a serious problem in our growing region. If you need a reminder, just think back to the April 7-9 Easter freeze of 2007. But, this time around we encountered a bizarre heat wave in the very first week of April 2010. This excessive heat in the first week of April may have reduced what should have been five to seven weeks of good berry picking to what North Carolina strawberry grower Michael Beal called, "Three weeks of good picking, and a fourth week of piddling."

In most years, farmers are concerned about frost damage to flower buds and blooms in late March and early April, but within 24 hours of a March 31, 2010 frost event, North Carolina strawberry farmers were being advised on my extension advisory, Berry-mg, of a potential serious heat event on April 1st. In reality, the heat event continued over a seven-day period (Figure 1), with a new record high temperature being reached in Raleigh, NC, on April 5 (88ºF); the hottest day was April 6 (90ºF). Even higher temperatures in the mid-90s were recorded in the Sandhills of North Carolina during this week.



	1	2	3	4	5	6	7	8	9	10
2010	84	88	80	83	88	90	87	81	66	70
2009	70	65	78	74	83	71	51	61	70	78
Average	68	68	68	69	69	69	70	70	70	70
Deviation-10	16	20	12	14	19	21	17	11	-4	0
Deviation-09	2	-3	10	5	14	2	-19	-9	0	8

Figure 1

Though we have no prior experience with heat waves in the first week of April, the NC strawberry industry has some familiarity with effects of damaging heat waves during the peak strawberry bloom period that occurs in mid-April. In 2002, the whole Southeast experienced a blistering heat wave April 11-17 that coincided with the crop's peak bloom, and the strawberry season that year ended quite abruptly in mid-May (exactly one month following the heat exposure in mid-April).

There did not seem to be cultivar-specific effects observed with the 2002 heat wave, but as we continue to assess the damaging effects of the early April 2010 heat wave, it has come to our attention that although the strawberry season ended for Camarosa in the first week of May (Figs. 2a and 2b), the Chandler crop continued to pick quite well into the third and even fourth weeks of May 2010.

Figures 2a and 2b. Despite record consumer demand for local strawberries in spring 2010, most growers who relied on the Camarosa strawberry this year experienced a very truncated harvest of as little as 2 ½ - 3 weeks, with a serious loss of income. Figure 2a shows an entire field of Camarosa in Guilford County on May 19th that was closed soon after Mother's Day weekend (May 8-9). Normally, Camarosa is harvested in this growing area from the end of April through early June (7 weeks), and should be in peak production in mid-May. Fig. 2b shows a barren Camarosa plant from this field.

Should we experience another heat wave of this kind in the pre-bloom/early bloom period, it would be nice to have some research information that would tell farmers what exactly are the critical upper temperature "limits" of plasticulture strawberry varieties during this growth stage in the season when we can see some open flower blossoms, but we also know that there are many more flower buds "back in that crown." Can these perhaps be damaged by temperatures of 87-88 F, or higher? We just don't know, and we surely don't know much about the possible difference in the heat-

tolerance of different varieties. Could it be that Chandler flower buds are more heat tolerant than Camarosa?

I have recently submitted a research proposal to the NCDA & CS Specialty Crops Block Grant program, "Managing Heat Extremes in Camarosa Strawberry," in the hope of being able to devote some quality research time to investigating how warm/hot spells in late March/early April may negatively influence strawberry bud and blossom development.
The first phase of this project would investigate the critical upper temperature limits for Camarosa in a controlled environment (NCSU Phytotron). Then, under field conditions, the second phase of project would investigate the benefits of several different evaporative cooling (EC) approaches (using low volume impact sprinklers for frost protection, microsprayers and fogging nozzles) for keeping Camarosa flower buds and blossoms below their high temperature limits.

I definitely appreciated the letters of support few received for this project from the NCSA as well as NCSU's Market Ready Program. Please "talk it up" in the weeks and months ahead. North Carolina is the 3rd largest strawberry plasticulture state in the US (after CA and FL), and we cannot afford to lose the Camarosa variety. A recently retired Extension Agent in Duplin County, Whit Jones, has said, this is the "researchable moment." Fortunately, through grower contacts of Whit Jones in eastern NC, and David Dycus, Regional Agronomist in the Sandhills, we have identified 3 farm operations where evaporative cooling was tried in April 2010, and in each case the results were very positive (see Figs. 3a and 3b).

My goal is to develop sound, research-based information that regional strawberry growers need to guide their strategies to prevent Camarosa and Chandler flower buds and blooms from being damaged by unusual heat spikes in the early spring, and thus provide growers a better chance of achieving a full five to seven weeks of harvest every season.

3a

3b

Figures. 3a and 3b. It was possible for strawberry growers to harvest large Camarosa berries throughout May this year, but they had to be proactive in cooling their crop during the April 1-8 heat wave to preserve the flower buds. Mr. C.V. Pilson relied on airblast spraying of clear water every hour in Cameron, NC (Fig. 3a). Another farmer in Richmond County used continuous sprinkling from overhead irrigation from noon until 2:30 pm (Fig. 3b). Both of these photos were taken by Dr. Poling on his 5/20/10 visit to the Sandhills region.

Which Muscadine Should I Plant?

Connie Fisk,
Extension Associate-Muscadine Grapes
NC State University

So you want to plant a muscadine vine or two? Great! Muscadines are an excellent source of antioxidants and fiber and are so resistant to native insects and diseases that they can be grown with minimal pesticide sprays.

So which cultivar do you want to plant? That depends on what you want to do with them and if you prefer black or bronze fruit.

If the vines are for your backyard the choice is yours, but if you plan to sell the fruit then you need to explore markets and talk with potential buyers before you plant – they will tell you which cultivars to grow.

If you want muscadines for eating fresh we've narrowed down the list for you; the top five recommended fresh cultivars for North Carolina are Nesbitt, Summit (Figure 1), Supreme, Tara, and Triumph. Nesbitt and Supreme are black and Summit, Tara, and Triumph are bronze. Another important detail is that Summit and Supreme are female vines, meaning that you will need to plant a pollinator (self fertile vine such as Nesbitt, Tara, or Triumph) within 25 feet to get sufficient fruit production. All five of these cultivars are easy to grow, disease resistant, and produce fruit with a dry stem scar (important if you're interested in selling your muscadines in clamshell containers through a retail store)

Figure 1: Summit

If your goal is to produce wine you can certainly use the cultivars listed above, but you'll get better juice yield using the bronze cultivars Carlos(Figure 2), Doreen, Magnolia, or Welder or the black cultivar Noble(Figure 3). All five of these wine cultivars are self-fertile and would pollinate the female fresh market cultivars discussed above.

Figure 2: Carlos

Figure 3: Noble

Now (May-June) is the time to place your order for vines to plant next spring. Most nurseries collect cuttings to propagate new vines when the existing vines are actively growing in the early summer. Ordering now will ensure that you get the cultivar you want next spring. Of course, if you only need a vine or two, local nurseries may have what you're looking for in stock.

If you want to try your hand at propagating vines yourself, perhaps from cuttings taken from a neighbor's vine or a vine at a family homestead, check out the step-by-step propagation guide at

http://www.ces.ncsu.edu/muscadines/muscadine/propagating_muscadines.pdf

For more information on growing muscadine grapes in North Carolina please visit http://www.ces.ncsu.edu/muscadines - click on the "Cultivars" tab for details on each of the cultivars discussed above, ripening time, and where to buy vines.

NC Small Fruit Field Day a Success!

Hannah Burrack, Assistant Professor
Department of Entomology, NC State University

The 4th NCSU/NCDA & CS Small Fruit Field Day was held June 22nd at the Sandhills Research Station in Jackson Springs, NC. Although temperatures were in the 90s at the start of the event, there was an excellent turn out. About 175 growers, master gardeners, cooperative extension agents, research station personnel, and others came to learn about cultural, disease, weed, and insect management in blackberries, blueberries, and grapes. Following remarks by NCSU CALS Research Director David Smith, Assistant NCDA & CS Commissioner Richard Reich, and station superintendent Jeff Chandler, attendees were loaded onto tractor trailers and cycled through presentations by NCSU extension specialists.

Figure 1: Katie Jennings, weed control specialist in the Horticultural Science Department, sharing information with a group of attendees.

Gina Fernandez, NC State Horticulture Department, fresh off sabbatical in South Africa, discussed blackberry and raspberry variety selection and cultural management. Bill Cline, NC State Plant Pathology, covered blueberry disease management. Connie Fisk demonstrated proper muscadine grape training, and Katie Jennings shared information on weed management in small fruits. Both Connie and Katie are also in the NC State Horticulture Department. Roger Batts, from the IR-4 Program, who conducts much of his work at the Sandhills Station, explained IR-4's mission (more here) and detailed the new pesticides that will be soon available due to their work. Hannah Burrack presented 2 of the projects she is working on at the station, a spider mite management trial and a Japanese and green June beetle trial.

Figure 2: Half of the attendees traveling to blackberry plots

The field day was sponsored by FMC, DuPont, SunnyRidge, Valent, the North Carolina Commercial Blackberry and Raspberry Growers Association, and the North American Rasberry and Blackberry Association. Thanks to these sponsors for their generous support!

Rely Formulation Changes Again

W.E. Mitchem
Orchard and Vineyard Floor Management
Extension Specialist

Fruit growers that use Rely need to be aware there are several formulations in the market place. Rely 200 was introduced a few years ago and it contains 1.67 lbs of glufosinate per gallon. Recently, Bayer introduced another formulation called Rely 280 which contains 2.34 lbs of glufosinate per gallon thus changing the application rate relative to the Rely 200 formulation. Failure to alter the use rate can result in crop injury. Rely 280 may be applied at rates ranging from 48 to 82 fl. oz per acre. The low end of the use rate will provide good control of annual broadleaf weeds 3" tall and smaller. Tillering grasses and perennial weeds as well as weeds >6" tall require the higher use rates.

The use of a surfactant with Rely 280 is NOT necessary since one is contained in the formulation.

One significant change on the Rely 280 label is the absence of a use for controlling apple and grape suckers. This is a significant change from the Rely 200 label. The PHI for apple, blueberry, and grape is still 14 days.

Bramble (Caneberry) Seasonal Checklist

Gina Fernandez, Small Fruit Specialist
North Carolina State University

This checklist was originally developed for blackberry growers in North Carolina. Many of the items apply to raspberry production as well. You may have to adjust your work activities either earlier or later depending on your location. For more detailed information, check the Southern Region Integrated Bramble Management Guide and the Southeast Regional Bramble Production Guide at: http://www.smallfruits.org/SmallFruitsRegGuide/index.htm

Summer

Plant growth and development

- √ Fruit development
- √ Rapid primocane growth
- √ Floricanes senesce
- √ Primocane fruiting types produce fruit

Pruning and Trellising

Erect types:

- √ Hedge (tip) the new primocanes when they are about 6-12" below the top wire of the trellis to encourage lateral branching
- √ Continue hedging at monthly intervals to maintain desired branching and height of canopy (laterals should reach top wire)
- √ Prune out spent floricanes after they have produced fruit, do not thin out primocanes until mid-to late winter.
- √ Train primocanes to trellis to minimize interference with harvest. Shift trellises or V trellises make this relatively easy Trailing types
- √ Train new primocanes to middle of trellis, on ground in a weed free area or temporarily to trellis outside of fruiting area (depends on trellis type)
- √ Cut back side shoots to 18"
- √ Remove spent floricanes after harvest

Weed management

- √ Mow along side of row to maintain the width of the bed to 3-4 ft.
- √ Weed growth can be very vigorous at the same time as the bramble crop peaks.
- √ Weed control is best done earlier in the season before harvest commences.
- √ Mow middles regularly to allow pickers to move thorugh rows easily

Insect and disease scouting

Check the Southern Regional Bramble integrated Management Guide for recommendations. www.smallfruits.org

Insects

- √ Raspberry crown borer (canes girdled and wilt)
- √ Psyllid
- √ Two spotted spider mite
- √ June beetle

Disease

- √ Botrytis
- √ Late rust
- √ Sooty blotch
- √ Orange rust
- √ Powdery mildew

Water management

- √ Bramble plants need about 1"-2" water/week, and this is amount is especially critical during harvest.
- √ Consider installing an overhead system for evaporative cooling to reduce sunscald. Turn on once or twice a day from 10 am to 3 pm for short periods of time (approx. 15 minutes).

√ Give plants a deep irrigation after harvest

Nutrient management

√ Take leaf samples after harvest and send to a clinic for nutrient analysis. For information on how to sample and where to send samples in NC go to: http://www.ncagr.com/agronomi/pwshome.htm

Harvest and marketing

√ Blackberries are fully ripe when they are dull black, PYO only
√ Pick shiny black fruit for shipping
√ Pick directly into clamshells with absorbent pads OR for PYO use soft drink flats
√ Keep harvested fruit in shade and move into coolers as soon as possible to lengthen the shelf life of the fruit.
√ Force air precooler is best for removal of field heat
√ Store at 32 to 34°F and 95% RH
√ Freeze excess fruit for jam,juice or wine

Quarterly Strawberry Plasticulture Checklist

Gina Fernandez, Small Fruit Specialist
North Carolina State University

This checklist was originally developed for growers in North Carolina. You will have to adjust your work activities either earlier or later depending on your location. For more detailed information, check the Southern Region Integrated Strawberry Management Guide and the Southeast Regional Strawberry Plasticulture Production Guide at: http://www.smallfruits.org/SmallFruitsRegGuide/index.htm

Summer (June-August)

✓ Clean-up fields after harvest
✓ Clean-up stand and fields
✓ Spray to kill spent plants with contact herbicide
✓ Remove and recycle plastic
✓ Send in soil sample for fall fertilizer recommendations
✓ Plant summer cover crop
✓ Order plants or tips
✓ If raising your own plug plants, organize your plug production set-up (irrigation, soil, flats, tips…)
✓ Plow in cover crop late summer
✓ Apply fall fertilizers as recommended
✓ Prepare fields for fumigation, allow adequate time for plant-back interval

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