



BRAMBLE

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WINTER, 2004–2005

THE NEWSLETTER OF THE NORTH AMERICAN BRAMBLE GROWERS ASSOCIATION, INC.

It's Time to Register for NABGA's Conference in February, 2005!

The plans are made, the schedule is mostly set, the staff is busy, and the registration forms should be in your hands before you get this newsletter. NABGA's annual conference for 2005 is the North American Berry Conference, being held in cooperation with our sister organization, the North American Strawberry Growers' Association (NASGA), in Nashville, Tennessee, February 16-19.

Bramble-specific sessions start at 2:00 pm on Thursday, Feb. 17 and continue through 5:00 pm on Friday, Feb. 18.

Interested in extending your season? Go to **Bramble Season Extension**, led by Marvin Pritts, Cornell University, and followed immediately by **Tunnels North of the Mason-Dixon Line**, with Kathy Demchak, Penn State University, on Thursday afternoon. Concurrent sessions include grower and past NABGA president Sam Erwin discussing **Mechanical Harvesting: The East Coast Experience**.

Just getting started or want a refresher course on what you never learned but should have? **ABC's of Growing Blackberries and Raspberries** is a double-length session on Friday morning. It will be led by Marvin Pritts of Cornell with David Lockwood, U. of Tennessee providing a southeastern perspective and Tom Walters of Sakuma Nursery providing a nurseryman's practical advice on getting started as well as a Northwestern perspective. Or, in a concurrent session, retired Extension specialist and bramble/strawberry grower Charlie O'Dell will help you **Learn the Lingo** – and the concepts behind important production terms. Also scheduled is a session on **Bramble Tours for Summer**, led by Pierson Geyer of Westmoreland Berry Farm.

Registration Basics

Conference Location: Doubletree Hotel Nashville, 315 4th Avenue, North Nashville. Phone **800-222-8733** or **615-244-8200**.

Deadline for reduced hotel rates: Jan. 14th. Call today!

Discount Conference Registration: Register by Jan. 14.

Earlybird registration bonus: 50 free copies of the publication *Naturally Good Berries* for registrations by Dec. 31.

Registration forms: Coming to you by mail, also on the web at www.nabga.org and www.nasga.org.

The **NABGA Annual Meeting** is just before lunch on Friday. It will be followed by sessions on **Trellis and Pruning Options**, led by John Strang of the University of Kentucky, **Let's Drink to Blackberries**, led by grower and NABGA VP Ervin Lineberger, and a wrap-up **Bramble Update on Research, Varieties, and Pest Controls**. For details of the schedule, see the registration form.

These bramble-specific sessions are

only part of what is going on. All general sessions and many of the concurrent breakout sessions will be of interest to NABGA members, with a variety of sessions on berry harvest and marketing. From working with the NC Strawberry Association, I know quite a few of the speakers: I guarantee that you'll enjoy hearing Gretchen and Dan Copeland talk about their diversified consumer-oriented Texas farm, grower Karma Lee's experiences holding low risk, community-based festivals, and Cal Schiemann's successes with promotions and advertising. If you raise strawberries as well as brambles, try to bring a second person from your farm, or you'll be pulled apart by the choices! And that's not to mention the trade show, the farm tour, and the numerous informal opportunities make connections, learn from each other, and restore your energy for the coming year.

NABGA's Executive Council and Research Foundation will also meet in association with the conference. Our annual fundraiser, **A Taste of the Berry Fields**, will be Thursday evening (see below).

See you there!

–*Debby Wechler, NABGA Exec. Sec.*

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● **A Taste of the Berry Fields**

● This is NABGA's special event on Thursday evening, Feb. 17, to raise funds for

● bramble research. It's a chance for everyone to sample – and celebrate – berry

● products of all kinds in a fun and social setting, to “open your ideas to new

● opportunities for berry marketing and open your tastebuds to berry delights.”

● **Please donate products for this event.** We need preserves, juice, wines,

● salsas, breads, candies, etc. that you make with fruit from your farm. Of course

● we want blackberry and raspberry products, but strawberry and other berry

● products are welcome as well. Depending on what is received, we will choose

● specific types of product for comment and judging. If you sell your products, you

● may find some potential buyers, so be sure to bring brochures or business cards.

● Contact NABGA Executive Secretary Debby Wechsler at 919-542-3687 or

● nabga@mindspring.com by January 15 to let her know what you plan to bring or

● send for Taste of the Berry Fields. (If you can't come to the meeting, you can

● still send products.) If you can help with set-up and hosting of the Taste, please

● also let us know.

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Looking for Leaders...

Have some ideas? Want to see changes? Got a little time and a willingness to help YOUR organization? Know someone else who does? If you are interested in nominating yourself or someone else to the NABGA Executive Council, please contact NABGA Vice President, Ervin Lineberger at 704-739-6602 or the NABGA office at 919-542-3687 or nabga@mindspring.com.

NABGA's Executive Council, made up of representatives from eight regions, plus officers (elected by the council from its membership), is its board of directors. The Council meets just before the conference and works via phone, email, and letter throughout the year. Representatives serve two-year terms and may serve up to two consecutive terms. The following seats are currently open:

Region 1 (Represents all of Canada)

Region 3 (Represents MI & NY)

Region 5 (Represents DE, MD, OH, & WV)

Region 7 (Represents AL, DC, GA, FL,

LA, MS, NC, SC, TX & VA)

(Seats for odd-numbered regions are open in odd-numbered years; even-numbered in even-numbered years. States within the regions can be rearranged.)

And for Ideas...

The start of a new membership year, election of a new Executive Council and officers, and the annual conference are all opportunities to examine the needs of the bramble industry and the direction of NABGA. Many thanks to those members who suggested specific needs on their renewal forms. Comments included:

- Blackberries for northern growers
- *Specific* recommendations on herbicides and rates
- Availability of disease and insect-free planting stock that is true to type
- Virus-resistant blackberries – virus-free is not enough as viruses are endemic in the wild.

Gina Fernandez's article on page 5 of this newsletter tells how NABGA's research grants leverage other funds and encourage research. Setting clear priorities for research is another way that

NABGA can help the industry – funding agencies pay *lots* of attention to priorities set and documented by commodity organizations. What are ours?

Policy: The U.S. Senate is considering a bill, passed by the House, called the Specialty Crops Competitiveness Act. If it passes,

new funds will be available at the state and national level to improve the quality, viability, and safety of specialty crops. And diverse challenges face our industry: country-of-origin labeling, import pressure, labor issues, pesticide availability, food safety. What is our role?

As we asked on the renewal forms, how can NABGA be serve *you*? But also, how can *you* be involved? Please be thinking about these issues, and share them at the conference or by contacting Council members or NABGA office. ❖

What's Cooking?

This recipe was sent to NABGA by member Kathy Rosby in Brooklyn Heights, Ohio, in response to our appeal in the last newsletter for bramble recipes. She notes "this is probably our customers' favorite raspberry recipe. We've given it out for years but no one seems to know where it came from."

Raspberry Pudding or Pie Filling

Quick, Easy & Delicious

1 large box vanilla instant pudding
Milk (according to recipe)*
1 8 oz. carton of CoolWhip
1 quart red raspberries
Mix pudding according to package directions. Let set a few minutes. Fold in the CoolWhip and berries.
*If using as a pie filling, use a little less milk in the pudding for a firmer filling. Cool and enjoy.

Please continue to send recipes for the new website we are building! Kathy suggests making available a collection of "Farm-favorite recipes from NABGA members" ...but we'll need more recipes to do it!

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Illini Hardy

Kiowa*

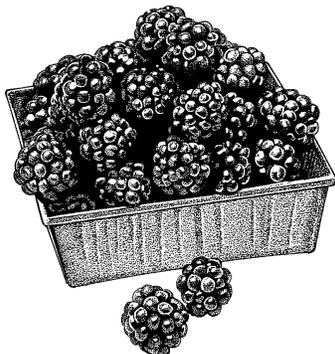
Navaho* thornless

Ouachita*

Shawnee

Triple Crown thornless

* Patented



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It's time to renew your membership!

If you didn't renew last issue, we've tucked a renewal form in your newsletter. Please renew today! (You can also renew with your conference registration.)

This year, we are pleased to offer discount subscriptions to three, not two, publications, adding the *Fruit Growers News* to *American Fruit Grower* and *Northland Berry News*. NABGA's special subscription rates for all three are approximately half of their regular rates.

GROWER PROFILE

Producing and Marketing Organic Blackberries

By Milton Parker

Blackberries offer an excellent opportunity as a specialty, high value crop in southeastern North Carolina. Blackberry acreage is increasing as farmers, particularly tobacco producers, look for viable alternatives to supplement income lost through tobacco quota reductions.

One such producer starting to produce blackberries is Richard Ward of Whiteville, NC. Richard, along with his brothers, farms approximately 1,200 acres just south of Whiteville.

Growing organic crops is nothing new to Richard. He started growing organic tobacco seven years ago, attracted by a premium price more than twice what conventional tobacco brought. He then added organic sweet potatoes, strawberries, squash, watermelons, other vegetables, and the blackberries. He is also growing figs and pawpaws. He has received organic certification on 126 acres of land, but only part of that is in production so far.

The biggest challenge in growing organically, says Richard, is that "you basically have to relearn your whole farming process. You have to figure out the right fertilizer amounts and manage insect and disease problems without chemicals. I went to a lot of different seminars to help me learn. After I got into it I became more interested in the other benefits. You see quite a bit of difference in how the food tastes and how it builds the soil microbes and beneficial insects."

In 2003, Richard received an \$8,000 grant from the Rural Advancement Foundation International-USA, a non-profit farm advocacy organization, to help him develop organic small fruit production. His first blackberries were planted in April, 2003. The remainder was planted in September of the same year. All were set on black plastic with drip irrigation. Spacing is 8 feet by 10 feet on 14 rows, 200 feet in length. All plants were trained on three horizontal wires. Prior to planting, soil samples



Richard Ward is developing an organic blackberry operation in southeastern North Carolina. Photo by Milton Parker.

were taken and organic fertilizers applied. Fertilizers used were K MAG at 300 lbs/acre and feather meal at 500 lbs/acre. K MAG is 22% nitrogen, and feather meal is 10% nitrogen. Varieties planted include Chesapeake, Triple Crown, Chester, Hawthorne, Apache, Navaho, and Arapaho.

Heat, fungal disease, and Japanese beetles were the primary problems on these organic blackberries. Weeds were controlled through mowing and use of weed eaters. Insecticidal soap and StoroX (a hydrogen peroxide-based material) were the only pesticides used. Six applications of StoroX were made at .5 gallon per acre and one application of insecticidal soap at one quart per acre.

The first harvest season for Richard's blackberries was in 2004. Harvesting was primarily on Chesapeake, Chester, Hawthorne, and Triple Crown, since the other varieties were not ready. He harvested fruit from June 1 through July 15, selling in flats of 24 half-pints and precooling them prior to store delivery. All sales were through the Carolina Organic Growers Association, a growers' cooperative, to four different organic buyers. The average price per flat received was \$20. Buyers were pleased with the quality of fruit, and Richard was pleased with the prices received for his berries.

Unfortunately, in his first market

year, only a total of 225 flats were sold before intense heat and disease ended the harvest season. Richard feels that early, heat-tolerant varieties are needed at his farm and throughout southeastern North Carolina, if organic blackberry production is to be profitable. Intense heat and high humidity hurt his later maturing varieties.

The primary varieties that performed well were Chesapeake and Triple Crown. Chesapeake was the highest yielder and produced the highest percentage of quality fruit. Triple Crown was very large and produced similar yields to Chesapeake. Chester was very late, did not perform well, and was hurt by the heat and fungus disease. Hawthorne produced small fruit.

"I really liked Chesapeake even though it is very thorny," comments Richard. "It is by far the most productive and had the highest quality fruit." If losses to hot weather repeat this year, Richard is considering taking out the later varieties and concentrating on the earlier ones, making June his primary month for blackberry harvest and sales. ❖

Richard Ward can be reached at 438 Arn Ward Rd., Whiteville, NC 28472, bettysward@earthlink.net, 910-642-7209.

Milton Parker recently retired as an NC extension agent. He is a member of NABGA's Executive Council.

NABGA Seed Money Grows Larger Research Projects

By Gina Fernandez, NCSU

The North American Bramble Growers Research Foundation (NABG-RF) is the research arm of the North American Bramble Growers Association (NABGA). Since the inception of the NABG-RF in 1999, \$40,379 has been awarded to 20 different projects at universities throughout the U.S. and the USDA research centers.

As Research Coordinator for NABG-RF, I have tracked funds allocated to various groups. Recently I polled some of the awardees and asked them how NABG-RF funding has impacted their programs. A summary of their comments is in the table at right. All of the researchers who received funds said that getting funding from NABG-RF has justified their bramble research to their superiors and has enabled them to get additional support from other funding agencies. They all

Amount of Operating Dollars Developed Through Competitive Grants and Industry Funds for Bramble Research

Researchers	Institution	Amount Awarded	Additional Support	Return on investment
Gergerich and Clark	University of Arkansas	\$1500	PhD student funded and funds provided for 2-year epidemiology of viruses. (State of Arkansas)	> 30 %, additional insight on virus situation in Southern US blackberries
Lewers	USDA-ARS Beltsville	\$1500	\$24,760 for SSR library	16.5 %
Ballington	NCSU	\$2500	Development of certification program for blackberry and raspberry nurseries	Helped reinvigorate and justify need for raspberry breeding program
Weber	Cornell University	\$2800	\$43,500 and \$800,00 requested	15.5 % or more

stated that support from the national bramble grower organization (NABGA) was very important since many do not have bramble grower organizations in their states. The continued support of research is critical for bramble growers and we hope that you continue to support this very important part of NABGA. ❖

Note: A quarter of all grower membership dues and all of NABGA's annual acreage charge (\$5/acre) go

directly to the Research Foundation. Funds are also raised through our A Taste of the Berry Fields event at the annual conference. NABGA members often make additional voluntary donations to the Research Foundation. (If you would like to do this, you can either send your donation as part of your membership renewal or send a check made out to NABG-RF to NABGA, 1138 Rock Rest Rd., Pittsboro, NC 27312.)

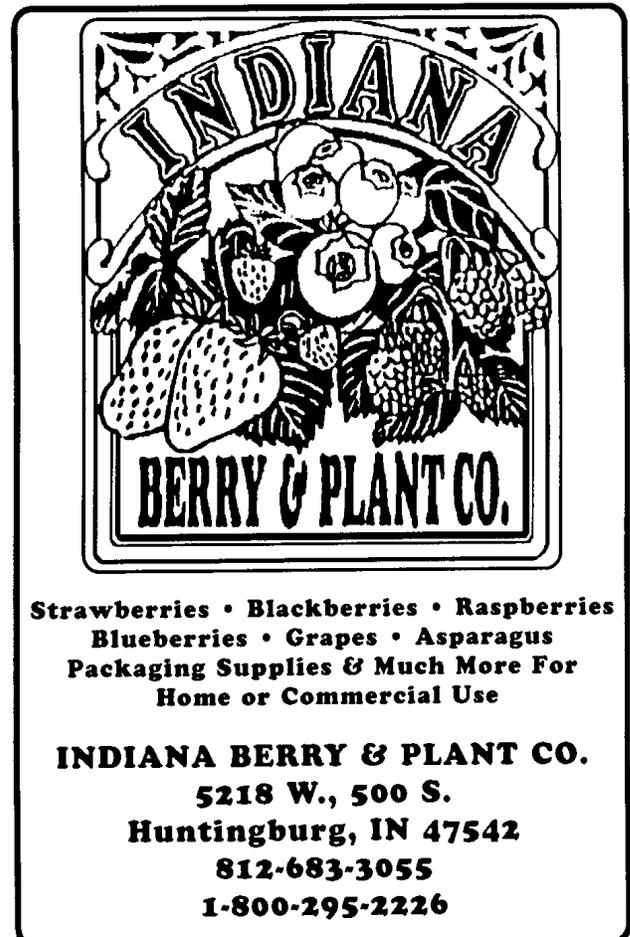


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RESEARCH REPORT

Rest Completion and Susceptibility of Blackberry Floral Buds to Low Temperature Injury

By Michele R. Warmund, University of Missouri. Edited for this newsletter; for a copy of the complete report, including all tables, contact NABGA or the author (warmundm@missouri.edu).

Introduction

Blackberry plants require a period of chilling during dormancy to produce normal shoots, flowers, and fruit. In comparison with other perennial temperate zone fruit crops, blackberries have a short chilling requirement (Westwood, 1993). For example, raspberries require 800 to 1700 hours of chilling temperatures, while some blackberries need as little as 200 to 600 hours of chilling (Chandler et al., 1937; Westwood, 1993). If the chilling requirement is not fulfilled, poor bud break and growth will occur the following spring. Drake and Clark (2000) recently reported that 'Navaho' blackberry may have a chilling requirement as long as 800 to 900 hours. This relatively long chilling requirement may limit its suitability for planting and productivity in southern climates in the United States.

In northern U.S. climates, chilling hours can be accumulated in very early winter. Blackberry tissues may then be injured by freezing temperatures following a warm period in late winter when plants have accumulated sufficient chilling hours to break rest. Warmund et al. (1989) reported that floral primordia and cane tissues of 'Cherokee' blackberry dehardened slowly before rest completion. After rest was completed, the rate of deacclimation of floral primordia and xylem increased. The relationship between rest completion and low temperature injury among a range of blackberry cultivars has not been investigated.

In a recent study, a hydrophobic kaolin clay-based material applied to young tomato transplants prevented ice nucleation (i.e., ice formation) and

subsequent low temperature injury (Glenn, unpublished data). The use of this hydrophobic clay may also prevent freezing injury of blackberry buds in late winter after rest completion by keeping buds cooler and delaying bud break. Thus far, the hydrophobic material (unlike hydrophilic kaolin clay, Surround®) has not been tested on a perennial crop. Because of erratic weather patterns across the U.S., information regarding the chilling requirement is needed to choose suitable blackberry cultivars for that region. Moreover, information is also needed to provide recommendations to growers concerning cold-tolerant blackberry cultivars to prevent cold injury and crop loss.

Objectives

1. To determine the time of rest completion and the percentage of bud break among six Arkansas blackberry cultivars.
2. To determine the relative susceptibility of blackberry cultivars to low temperature injury before and after rest completion.
3. To evaluate hydrophobic kaolin clay and white latex paint for temperature suppression and delayed bud break.

Procedures

Objective 1. A biophenometer was placed within a three-year-old blackberry planting located at the Horticulture and Agroforestry Research Station, New Franklin, Missouri on 16 Nov. 2002 as the first killing frost (-4.4°C) of the season occurred to record the number of chilling hours as they accumulated. However, in late November, the

biophenometer malfunctioned. Thus, hourly temperature data were collected from the nearest National Weather Service station located .4 miles from the blackberry planting as an estimate of the number of accumulated chilling hours at each date of sampling. Calculations of accumulated chilling hours from the temperature data collected off-site were nearly the same or within one chilling hour of those recorded by the biophenometer before it malfunctioned. Blackberry tissue samples of 'Apache', 'Arapaho', 'Chickasaw', 'Kiowa', 'Navaho', 'Shawnee', and 'Darrow' were obtained from the field planting on 4 Dec. 2002 and 8 Jan., 5 Feb., and 4 Mar. 2003. 'Darrow' was used as a standard of comparison because of its tolerance to low temperature injury. At each sampling date, ten eight-node sections of wood were removed from the middle portion of lateral canes located 60 cm from the soil surface. Cuttings were then placed in oasis wedges (Smithers Oasis Company, Kent, Ohio) and submerged in a perlite bed in a greenhouse at 21°C. Bottom heat (25°C) was supplied in the perlite bed and cuttings were misted intermittently with water (10 sec every 10 min) from dawn until dusk for 30 days. Bud break was recorded daily for a period of 30 days for each date of collection to determine dates of rest completion. Data analysis was performed on ten replications of each cultivar. An arcsin square root transformation of the proportion of buds per cane that broke bud was performed before data were subjected to an analysis of variance (ANOVA) and means were separated by

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Research Report

Continued from previous page

Fisher's protected LSD test, $P \# 0.05$.

The number of days to bud break for each cultivar at each date of collection was also subjected to ANOVA.

Objective 2. Samples of the cultivars listed above were collected simultaneously on 8 Jan. and 4 Feb. 2003 to assess floral bud hardness before and after rest completion. Thirty-six two-node cuttings of each cultivar were collected from six replications of the field trial as described above. Tissue was then placed in sealed polyethylene bags, packed on ice, and transported to the laboratory. Six two-node cuttings were placed in moist cheesecloth and wrapped in aluminum foil for each of six test temperatures. Additional samples were prepared similarly and were stored at 2EC for use as an unfrozen control. A 30-gauge copper constantan thermocouple was placed in contact with a bud of a sample enclosed in aluminum foil to monitor tissue temperature.

Thermocouple output was read with a digital thermometer (Omega Engineering, Inc., Stamford, Conn.). Samples were then placed in a programmable freezer at -2EC and held at this temperature for 12 hours to equilibrate the tissue. Thereafter, samples were cooled at 3EC/h and removed from the freezer at 3EC intervals estimated to result in bud injury. Tissue was thawed at 2EC for 24 hr. After thawing, tissue was incubated at 100% relative humidity at 25EC for 5 days before examination for oxidative browning under a dissecting microscope at #40H. The number of injured and uninjured floral buds was recorded and the modified Spearman-Kärber equation

Each research project funded by the NABG Research Foundation submits a progress report to the Foundation at the end of the year. Reports on all projects are printed in the *Bramble* over the course of the year. This is the last of the reports received in December 2003 for projects funded in February 2003. Reports on 2004 research will begin in the March, 2005 *Bramble*.

Table 2. Percentage of blackberry buds per cutting that grew at each sampling date in 2003.^z

Cultivar	8 Jan.	5 Feb.	4 Mar.
'Kiowa'	97.5 a ^y	96.3 a	100.0 a
'Shawnee'	40.0 bc	73.8 b	96.3 abc
'Arapaho'	61.3 b	88.8 ab	88.8 bcd
'Chickasaw'	43.8 b	47.5 c	87.5 cd
'Apache'	25.0 c	80.0 b	97.5 ab
'Navaho'	41.3 bc	97.5 a	98.8 a
'Darrow'	0.0 d	41.3 c	85.0 d

^z Fifty-five percent of the 'Kiowa' buds and 9% of 'Arapaho' buds broke bud when sampled on 4 Dec.

^y Mean separation within columns by Fisher's protected LSD test, $P \# 0.05$.

Table 3. Average number of days to bud break for each sampling date in 2003.^z

Cultivar	8 Jan.	5 Feb.	4 Mar.
'Apache'	13.2 ab ^y	7.6 b	3.9 bc
'Chickasaw'	13.9 a	11.1 a	4.5 b
'Arapaho'	12.0 abc	5.8 bc	4.1 bc
'Navaho'	10.0 c	5.8 bc	3.6 bc
'Shawnee'	1.5 bc	7.5 b	3.4 bc
'Kiowa'	7.2 d	5.0 c	2.9 c
'Darrow'	— ^x	11.9 a	8.8 a

^z When buds were sampled on 4 Dec., mean days to bud break for 'Arapaho' was 21 and 19 days for 'Kiowa'. None of the buds from other cultivars grew after 30 days in the greenhouse.

^y Mean separation within columns by Fisher's protected LSD test, $P \# 0.05$.

^x No bud break observed after 30 days in the greenhouse.

(Bittenbender and Howell, 1974) was used to calculate T_{50} values (temperature at which 50% of the floral primordia exhibited browning) for buds at each sampling date. Data from each date of collection were subjected to ANOVA and means were separated by Fisher's protected LSD test, $P \# 0.05$.

Objective 3. The three treatments in this experiment were: (1) lateral canes of 'Apache' and 'Navaho' plants painted with hydrophobic kaolin clay; (2) canes coated with latex paint; and (3) unpainted control canes. Kaolin clay was applied at 60 gAl⁻¹ and latex paint was mixed with water (1:1,v/v). Treatments were applied to ten lateral canes of each cultivar on 14 Jan. 2003, with a second application of treatments on 27 Feb. 2003. All three treatments were applied on the same floriculture, with ten replications of each treatment. On 21 Jan. and 3 Mar. 2003, bud temperatures were recorded hourly (144 consecutive hours in January and 197 hours in March) with data loggers (HOBO; Onset Computer Corporation, Bourne, Mass.). Bud

temperatures, as well the ambient temperature, were logged on three replications of each treatment. Mean temperatures for each treatment were calculated at the end of data collection period. The date of bud break was recorded for each bud on the treated canes. Bud break data was analyzed as described in objective 1. Mean temperatures for each test period were also calculated.

Results

Temperature extremes and mean monthly temperatures were recorded on-site at HARC. In this study, chilling hours were defined as the number of hours between 0 and 7°C. Between 15 Nov. and each sampling date of 4 Dec., 8 Jan., 5 Feb., and 4 Mar., the total number of chilling hours recorded were 187, 590, 725, and 959, respectively.

When samples were collected on 4 Dec. and placed in the greenhouse, 55% of the 'Kiowa' buds and 9% of the 'Arapaho' buds broke. In the previous two years of sampling during the first

week of December, none of the cultivars, except for a few 'Kiowa' buds, completed rest at that test date. By 8 Jan., all cultivars had some buds that completed rest except 'Darrow' (Table 2). 'Apache' also had fewer buds break than 'Chickasaw', 'Arapaho', and 'Kiowa'. However, at the two later sampling dates, 'Chickasaw' and 'Darrow' had fewer buds break than 'Kiowa' and 'Navaho'. Moreover, by 5 Feb., nearly 50% more 'Navaho' and 'Kiowa' buds had completed rest than 'Chickasaw' and 'Darrow'. By 4 Mar., 85% of the buds of all cultivars exhibited growth after exposure to warm temperatures in the greenhouse.

While only two cultivars broke bud in December, 'Kiowa' buds exhibited growth in 11 to 30 days (0 = 19) after exposure to warm temperatures. Seven 'Arapaho' buds exhibited growth in 19 to 23 days (0 = 21) after sampling. In January, mean days to bud break was considerably reduced, ranging from 7 to 14 days for all cultivars except 'Darrow' (Table 3). As chilling hours accumulated, even fewer days in the greenhouse were required to break bud in February and March. By 4 Mar., all cultivars averaged as few as 3 to 9 days to bud break. In January, February, and March, 'Darrow' and 'Chickasaw' averaged more days to bud break than 'Kiowa'.

Other researchers have estimated chilling requirements for some of the Arkansas blackberry cultivars. In an experiment using whole plants placed in cold chambers, Drake and Clark (2000) reported that 'Arapaho' had a chilling requirement of 400 to 500 hours, while 'Navaho' plants required 800 to 900 hours. In a different study using stem cuttings collected from the field, Yazzetti and Clark (2001) reported that 'Kiowa' completed rest after 200 hours of chilling and 'Shawnee' required 400 to 500 hours. They were unable to determine conclusively the chilling requirement for 'Chickasaw', 'Apache', and 'Choctaw'. Results from the December collection date in our study indicated that 'Arapaho' has a lower chilling requirement than that of 'Shawnee'. Additionally, 'Navaho' satisfied rest in our study by the time 590 hours of chilling tem-

Savannah Conference Offers Bramble Sessions

The 2005 SE Regional Fruit and Vegetable Conference in Savannah, Georgia, on Jan. 7-8, 2005 offers a full day of bramble sessions, plus a two-day agent training sponsored by the Southern Region Small Fruit Consortium (SRSFC).

Says Tom Monaco, Director of the Consortium, "We are sponsoring five agents from each of the SRSFC member states (NC SC GA TN). We have 20 additional seats available for county agents on a first-come basis. A registration fee of \$25 is required to cover the expense of handouts. This invitation is offered to county agents from any state." Any agents interested in attending should contact him at tom_monaco@ncsu.edu or 919 515 6963.

Here's the schedule of bramble sessions:

Friday January 7, 2005 (Grower and Agents)

- 8:05 Cultural Practices for Bramble Fruit - *Gina Fernandez, Small Fruit Specialist - NCSU*
- 8:25 Bramble Cultivars and the University of Arkansas Breeding Program - *John Clark, Horticulturist - U. of Arkansas*
- 9:10 Bramble Diseases and their Control - *Guido Schnabel, Fruit Pathologist - Clemson U.*
- 10:00 Bramble Pests & Their Control - *Doug Pfeiffer, Entomologist - Virginia Tech*
- 10:40 Growing Bramble Fruit in the Deep South - *Stanley Scarborough, Sunny Ridge Farms, Baxley GA.*
- 11:00 Growing Bramble Fruit in the Upper Piedmont with Emphasis on Virus Diseases - *Walker Miller, The Happy Berry, Seneca, SC.*

Saturday January 8, 2005 (AGENTS ONLY)

- 8:00 Bramble production basics: Plant lifecycle and environmental requirements - *Gina Fernandez, NCSU* and Growing brambles in low chilling areas - *Gerard Krewer, U. of GA.* Pruning and trellising - *David Lockwood, U. of TN*
- 9:30 Blackberry cultivars in depth - *John Clark, U. of Ark.*
- 10:45 Insect management of brambles - *Doug Pfeiffer, Virginia Tech*
- 11:30 Disease management of brambles - *Guido Schnabel, Clemson U.*
- 12:15 Lunch (included in registration)
- 1:15 Blackberry certification program - *Zvezdana Pesic-VanEsbroeck, NCSU*
- 1:45 Weed/floor management in bramble plantings - *Wayne Mitchem, NCSU*
- 2:15 Food safety puts thorns in the bramble patch - *Dennis Osborne, NCSU*
- 3:30 Bramble enterprise budgets - *Charles Safley, NCSU*
- 4:15 IR-4 Program: How it works and what is in the pipeline for brambles? - *Roger Batts, NCSU*
- 6:00 Reception at Hyatt Regency Hotel

The conference will be held at the Savannah International Trade and Convention Center. Other tracks at this conference include peaches, strawberries, vegetables, roadside markets, watermelons, grapes, and more. There is also a large trade show. There is an earlybird discount for registration before December 17th. To see the full schedule, visit www.gfvga.org, email info@gfvga.org, or call 877-99GFVGA.

peratures had been recorded. However, it should be noted that in the other studies (John Clark, personal communication), the killing frost temperature was defined as -3.3 °C whereas chilling hours were counted after a killing frost of -4.4 °C in our study. Moreover, in Drake and

Clark's study conducted in the cold room, temperatures were maintained at a constant temperature (3 °C), while temperatures dropped below freezing and diurnal fluctuations occurred in the field.

When blackberry cultivars were
Continued next page

Choosing Cultivars

The December issue of the UMass *Berry Notes* e-newsletter includes an excellent and extensive review of raspberries as part of a larger small fruit cultivar review by Cornell fruit breeder Courney Weber. He writes:

“The winter months are a good time to review your current small fruit cultivars and to make plans for new plantings. New cultivars are released all the time, and the vast majority of them fail to catch on for various reasons including poor adaptability to diverse growing regions, unforeseen disease or insect susceptibility, or fruit characteristics that are unacceptable to the buying public.

[This list is] meant as a guideline for New York and the northeastern U.S. No cultivar will work well in all locations, soil types, and production systems, but many have proven to be useful in many different situations ... as always, try new cultivars on a limited basis before abandoning cultivars that have proven reliable in your production scheme.”

To access the list go to www.umass.edu/fruitadvisor/berrynotes/index.html (issues are posted for the public one month after publication; see subscription form) or to www.hort.cornell.edu/extension/commercial/fruit/Berries/berrycult2003.html. Other states also publish variety recommendations and

trial results.

Do Your Own Trials

Doing your own informal on-farm trials, just following minimal research procedures, can give you lots of good information and is a lot of fun. It's even better if you can get other people to do the same trials – that's “replication” across farms. A few suggestions:

1. Assess your variety and market needs before choosing what to put in the trial and what to track. What are the most/least important characteristics for your market: flavor, size, keeping quality, color, yield, harvest period? No one variety will do it all. What is crucial, what is only nice to have?

2. Also assess your production limitations: location, climate, disease pressures, etc. Do you need varieties with specific disease resistance or hardiness?

3. Keep trials small. Don't bet the bank on something new.

4. Compare similar types of plants (like fall-fruiting red raspberries) and include a standard or familiar variety.

5. Plant your trial where soil conditions for all plants are as similar as possible, and provide the same fertilization and care to all the plants.

6. Keep records and WRITE them down. Note planting dates, bud break, flowering, first fruit, incidence of disease, last marketable fruit, etc.

Keeping track of yields may be tougher. Write down your unscientific observations as well (e.g., “plants look scrawny”), and date them.

8. Do taste trials. They're fun and you'll find lots of willing cooperators.

9. Keep your trial going for several years to account for weather variation. ❖

Research Report

Continued from previous page

evaluated for susceptibility to low temperature injury, ‘Kiowa’ was always less hardy than all other cultivars. Among the Arkansas cultivars, ‘Apache’ ranked the highest in tolerance for low temperature injury in March. While the Arkansas cultivars attained their maximum hardiness (i.e., lowest T_{50} values) in January, ‘Darrow’ had the lowest T_{50} value in February. In previous experiments, ‘Darrow’ always ranked higher in winter hardiness than other Arkansas cultivars (unpublished data).

In experiments evaluating kaolin and latex paint, the mean temperature of the ambient air was always colder than that of treated or untreated buds. The dark color of the buds and canes probably absorbed heat and raised the temperature. Buds treated with latex paint were white, whereas the kaolin treatment was more translucent. In spite of these differences, mean temperatures among treatments during the logging period varied by less than 0.2 °C. However, the latex paint treatment delayed ‘Apache’ bud break by an average of 4 days and ‘Navaho’ bud break by 2 days. It is possible that the thick, viscous latex mixture that coated the bud scales delayed spreading of the scales and retarded leaf emergence. The kaolin-water mixture was considerably less viscous than the latex-water mixture.

Conclusions

Results from this study revealed that ‘Kiowa’ had a shorter chilling requirement and was more susceptible to low temperature injury than all other Arkansas cultivars tested. ‘Arapaho’ had a slightly longer chilling requirement than ‘Kiowa’, but it was not significantly more hardy than the other Arkansas cultivars. ‘Darrow’ had a long chilling requirement and acquired maximum

hardiness later than the other cultivars. Whereas the Arkansas cultivars deacclimated after rest completion, 'Darrow' acquired maximum hardiness later and subsequently deacclimated. Thus, 'Kiowa', and perhaps 'Arapaho', may be adapted to low-chill climates (i.e., southern U.S.). While 'Kiowa' has larger fruit size than that of 'Arapaho' and requires fewer chilling hours, it also produces thorny canes. Fruit harvest from 'Arapaho' is slightly earlier than 'Kiowa' and its canes are thornless. In contrast, 'Darrow', with its long chilling requirement and tolerance for low temperatures, is adapted to the northern U.S. limit of blackberry production where cold winter temperatures are problematic. However, its thorny canes and small fruit size limit widespread planting of this cultivar.

Hydrophobic kaolin clay and white latex paint treatments did not modify bud temperatures. However, latex paint delayed bud break in the spring by 2 to 4 days, whereas the kaolin treatment had no effect on the date of bud break. ❖

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Winter Bramble Chores

This list was developed by Dr. Gina Fernandez, Small Fruit Specialist at NC State University and reviewed by Dr. Marvin Pritts at Cornell. Chores and timing may be somewhat different in your area or for your cropping system. We plan to publish appropriate seasonal chores in each issue of the Bramble.

Plant growth and development

- Plant is "dormant" and accumulating chilling hours.
- Some differentiation may be occurring in the flower buds.

Pruning and trellising

- Pruning should occur in late winter or early spring. Ice storms can do tremendous damage to plants and trellis systems. If you produce blackberries in areas where ice storms are common, pruning can take place early winter to help avoid severe damage. Wait until early spring to prune floricanes raspberries so winter injured wood can be removed.
- Make trellis repairs after plants have defoliated but before pruning and training.

Erect blackberry types

- prune out the spent floricanes
- Tie canes to wires in a fan shape
- cut lateral branches back to 8-12"
- thin canes to 6-8 canes/ hill (4 ft spacing)

Trailing blackberry types

- prune out spent floricanes
- tie or weave canes to wire so that they do not overlap
- prune side laterals to 12-18"
- thin canes to 6-8 hill (6-8ft spacing)

Primocane fruiting raspberries

- Prune (mow) primocane fruiting types to the ground

Floricanes-fruiting raspberries

- prune out the spent floricanes
- tie canes to wires so they are spread out
- cut any lateral branches back to 6"
- thin canes to 6-8 / hill (3 ft spacing) or 3-4 canes per linear ft. of row

Weed control

- Many summer weed problems can best be managed in the fall and winter using preemergent herbicides. Determine what weeds have been or could be a problem in your area. Check with local extension agent for cultural or chemical means to control these weeds.
- Establishing new blackberry or black raspberry plants into rows of black plastic or landscape cloth can reduce weed problems significantly. For red raspberries, straw mulch works best since new canes will emerge within the row, and must be able to push through the mulch.

Insect and disease scouting

- Scout fields for insect and disease damage and remove those canes.
- If possible, remove any wild brambles by the roots that are within 600 ft of your planting during the winter, or treat them with Roundup in autumn.
- Apply liquid lime sulfur to dormant canes, just prior to bud break, for disease control.

Planting

- Growers in warmer areas can plant in December. In northern areas, set dormant plants in spring when the soil thaws.
- Take soil tests to determine fertility needs one year before planting. Amend the soil in the fall prior to spring planting.
- Prepare list of cultivars for next year's new plantings. A commercial small fruit nursery list can be found at www.smallfruit.org or www.hort.cornell.edu/nursery.

Water management

- Make repairs to irrigation system (check pumps, lines, etc).
- Plants generally do not need supplemental water in winter.

Marketing and miscellaneous

- Order containers for next season.
- Make contacts for selling fruit next season.
- Attend grower meetings.

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Happy Holidays & Best Wishes for the New Year!

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