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

Attend the NABGA Annual Meeting & Conference

January 5-6, 2006 - Savannah, Georgia

The North American Bramle Growers Association 2006 Annual Meeting and Conference is coming up soon! Our conference is being held in association with the Southeast Fruit and Vegetable Conference (SFVC) in Savannah, Georgia. All members should have received the SFVC program booklet in the mail; if you didn't, contact the NABGA office right away or visit www.gfvga.com to find this info on the web; you can also register online.

To register for NABGA's meeting, just register for the SFVC. Both one-day and three-day registrations are available. There is an additional "a la carte" registration fee for the pre-conference Blackberry ABCs session. All participants in this session will receive a notebook chock-full of useful information. (If you are coming for the Blackberry ABCs workshop and bramble sessions, you can still choose the one-day rate, i.e., Friday).

Bramble sessions will discuss current disease issues, primocane-fruiting blackberries, plant nutrition, marketing, and more, including a grower panel and a panel of major marketers, featuring John Shelford, President of Global Berry Farm, and Keith Mixon of SunnyRidge Farm. Sessions on peaches, blueberries, vegetables, organic production, and more will run concurrently, and there is a huge trade show. The North American Strawberry Growers Association will be meeting here on January 4-6. An important forum on the National Berry Crops Initiative Strategic Plan will be on Saturday, January 7; we encourage you to attend (see page 7).

Accommodations: Be sure to make your hotel reservations right away. The SFVC booklet and website list several downtown hotels where discounted blocks of rooms have been reserved. Another option is the Days Inn, also

nearby, where a good rate was available if purchased online at www.daysinn.com. If you are driving to Savannah, NABGA president Ervin Lineberger recommends the Howard Johnson, near 1-95, where he is staying. It is about 20 minutes from the convention center, and the rates are very reasonable (17003 Abercomb St., Savannah; call 912-925-7050).

NABGA business: The NABGA Executive Council will meet on Thursday, January 5 at 10:00 am (Jasper Boardroom). The NABG Research Foundation will also meet on January 5, at 4:15 pm (Greene Room). Members are invited to sit in on these meetings. Our Annual Meeting on January 6 will include Executive Council elections, the 2006

Thank You, Conference Sponsors!

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budget, and plans for the coming year.

If you can't come to Savannah... we hope you will be able to come to NABGA's Northeast Regional Meeting in Syracuse February 15 and 16, 2006 (see page 2). Proceedings, incorporating papers from both meetings, will be sent to all members in early spring.★

Join NABGA for Dinner!

On Friday, January 6, join NABGA members for dinner at the Cobblestone Conch House on Savannah's River Street, in the heart of the historic waterfront. The restaurant is "eclectic Caribbean cuisine with a coastal Georgia flair" and comes well recommended. It has a



private upstairs room where we can eat and talk as a group. We will be pre-ordering the restaurant's special "Low Country Boil" buffet, which features Savannah red rice with Andouille sausage, shrimp, jalapeno cheddar cornbread, peach cobbler and key lime pie, and also includes salad, other vegetables, sodas, coffee and tea. The cost per person is \$25, which includes tax and gratuities.(Alcoholic beverages are on your own.) After researching many Savannah restaurants, we're convinced this is a great deal and should be a lot of fun!

To sign up for the dinner: Contact NABGA (1138 Rock Rest. Rd., Pittsboro NC 27312, nabga@mindspring.com, phone 919-542-3687). We'll need headcounts by January 2. Send a check for \$25/person to NABGA or pay at the beginning of the NABGA sessions on January 6.★

EVENTS

January 5-6 – NABGA Annual Meeting and Conference. See page 1.

January 9-10 – **57th Western Small Fruit Pest Conference** at Washington
State University's Mt. Vernon Research
and Extension Center. For more information contact Tom Walters at 360-8486143 or twwalters@wsu.edu.

January 23-27 – **Florida Strawberry Tour,** organized by the NC Strawberry Association, to see farms and research. For details, visit www.ncstrawberry.com.

January 31 - February 2 – **Mid-Atlantic Fruit and Vegetable Convention,**

Hershey Lodge and Convention Center, Hershey, PA. For more information, contact PVGA at 717-694-3596 or pyga@pyga.org.

February 15-16 – **NABGA Regional Meeting**, Syracuse, NY. See box to right.

March 7-8 – **Illinois Small Fruit School,** Mount Vernon, IL. Sessions cover production, pest management, and marketing, plus trade show. For information, contact Mosbah Kushad, 217-244-5691, kushad@uiuc.edu.

Do we have your email and web addresses?

Providing your email allows NABGA to send you timely email notices. NABGA also puts a link to all member websites on its own website. Check your membership listing in on-line Membership Directory at www.raspberryblackberry.com, in the Members Only section. Send additions/ changes to nabga@mindspring.com.

The BRAMBLE is a quarterly publication of the North American Bramble Growers Association (NABGA) and is a benefit of membership in the association. For sample copy, reprint permision, membership information, and advertising rates, contact

NABGA

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NABGA Regional Meeting February 15-16, 2006 Empire State Fruit and Vegetable Expo



NABGA will hold a Regional Meeting in cooperation with the New York State Berry Growers Association as part of the Empire State Fruit and Vegetable Expo, at the Oncenter

Convention Center in Syracuse, NY. All members should have received a booklet about the meeting, but may find it a bit hard to pick out the bramble-related sessions. Here's the program:

Tuesday, February 14

Syracuse, New York

Sessions on potatoes, tree fruit, cabbage, beans & peas, with the trade show opening at 11:00 am. No small fruit sessions.

Wednesday, February 15

10:00-11:30 **Bramble Growers Roundtable.** Issues on the table include weed problems in established plantings and acquiring and keeping good labor; NABGA expects to have resource persons on hand. But we can take up whatever's on *your* mind; plan to share your own experiences and concerns.

11:30-2:00 Lunch and visit trade show

2:00-5:00 **ABCs of Raspberry Production.** Production basics for new growers or a refresher for experienced growers. Led byMarvin Pritts, Courtney Weber, and Cathy Heidenrich of Cornell and Nate Nourse of Nourse Farms.

Evening: **NABGA Hospitality Room and Discussion Session** at the Holiday Inn Liverpool.

Thursday, February 15

9:00-4:35 **New York State Berry Growers Annual Educational Meeting.** Lots of bramble talks, plus strawberries and blueberries! See the detailed schedule in the program booklet; here are the topics in brief.

- Black raspberry potential
- Fruiting raspberries in the fall using high tunnels
- NABGA and the national issues affecting bramble growers
- New developments for efficient pesticide applications
- Fruit Products- 21st Century style
- Economics of high tunnels
- Blueberry disease research
- Reducing weed pressure in strawberries using buckwheat
- Current research on powdery mildew control in strawberries

The trade show also continues all day Thursday

Cost: Single-day pre-registration (by February 1) is only \$30, and two- or three-day registration is \$55/person. Registration at the door is \$40 and \$65.

Travel & Accommodations: The official hotel for the Expo is the Holiday Inn Liverpool. Rooms are available for a dicounted rate of \$69.95. Call 315-457-1122 to make reservations; mention the Expo to get the discount. There is free shuttle bus service to/from the Oncenter during the Expo. Parking at the hotel is free; parking at the Oncenter is \$5/day. The nearest airport is the Syracuse/Hancock airport, about 10 minutes from the hotel. For free shuttle service to the hotel, just call the hotel from the airport.

★

Thanks to Executive Council members Nate Nourse and Dena Fiacchino for their work to help plan this meeting. Hope to see you there!

A New Bramble Resource

A new electronic resource is now available for bramble growers and others interested in the bramble industry. Under the sponsorship and funding of NABGA, a web site has been created by Doug Pfeiffer, Tony Bratsch, and Jerry Williams of Virginia Tech, entitled "Bramble Production and IPM News" You can find it at

http://www.nabgaipm.shorturl.com

While there is a focus on pest management issues, the site also provides access to information on other bramble production topics. The main features of the site are:

- Bramble resources: links to publications, and listings of bramble faculty by state
- Current issues upcoming meetings, regulatory alerts with deadlines for public comment
- Bramble pest biology
- Insect and disease control recommendations
- Pesticide regulatory changes, based on daily checks of the Federal Register Pesticide section
- Labels and MSDS for pesticides recommended in bramble production.

A streamlined version of this site has also been developed for downloading onto PDAs.

Listserv: In addition to the web site, a listserv has been created at Virginia Tech to allow discussion of bramble related topics. Regulatory alerts, where public comment is requested will be posted here (to reduce the need to actively check the web site for announcements), in addition to other timely announcements. Members may post question to the group as well. Contact Doug Pfeiffer, Entomology Dept., Virginia Tech (dgpfeiff@vt.edu), to be added to the listsery.

RESOURCES

The **Berry Health Benefits Network** – http://berryhealth.fst.oregonstate.edu/ is a web site that came out of the Berry Health Benefits Symposium held last summer in the Pacific Northwest.

Briefly Speaking...

You would think that with all the developments in communications technology, the task of sharing ideas and working together to achieve common goals would be easier. But it seems there are more problems attributed to poor communication than ever before. As an example, many of the complaints associated with the Hurricane Katrina relief efforts now appear to be due to people's communication failures rather than equipment. My thinking is that as we rely more on the tools of communications, such as computers and wireless technology, we do so at the expense of time devoted to critical thinking, formulating relevant concepts, and listening for understanding. We also assume too often that if thoughts are written or spoken to others, communication has taken place.

Our organization was established in 1985 for the purpose of assisting bramble growers, collectively, with some of their needs. The three needs of highest priority that were selected for 2005 are:

- 1. Promotion of blackberries and raspberries to the consuming public
- 2. A unified voice to represent the bramble industry
- 3. Improved communications among all associated with the bramble industry, and easier accessibility by interested individuals to educational programs of the organization.

In reviewing recently the progress being made by NABGA toward our 2005 goals and projects, I was very pleased. Action projects started to address these needs include upgrading *The Bramble* newsletter, website development, joining with other organizations to conduct regional education programs, and partnering with major berry organizations to form the National Berry Crops Initiative.

But then I realized that all of the goals presumed effective communications. To say that we now have a great website and an improved *Bramble* newsletter does not mean that we are reaching our goal for better communications; these are tools. A true test of how well we are proceeding toward our mission will require involvement by NABGA members and others that we are communicating with.

As we approach the Annual Meeting to be held in Savannah in January, your critical thinking and feedback are needed. I am asking you to:

- 1. think about the bramble industry and your needs as a grower
- 2. contact a regional representative, officer, or the NABGA Executive Secretary and express your thoughts before we meet in early January
 - 3. attend at least one of NABGA's two conferences this winter, if you can
- 4. be prepared to participate in NABGA during the coming year, whether by writing for the newsletter, serving on a committee, helping plan a mccting, or using the on-line communication tools we are developing. Continue to let us know your needs and how NABGA can help you, and share your own expertise.

The bramble industry is in a great position for growth. Our organization is also in a great position to support growers in this growth process.

Be involved . . . communicate.

—Ervin Lineberger, NABGA President

The World's Healthiest Foods is a link on the above site, and also has a great deal of food health information. Visit http://www.whfoods.com

The **2006 New England Small Fruit Pest Management Guide** is now on the web at www.newenglandvfc.org/ or available by calling 413-545-4347.

A 2005 Southeast Regional Brambles Integrated Management Guide has recently been posted on the web site of the Southern Region Small Fruit Consortium (along with guides for other small fruits), at http://www.smallfruits.org/SmallFruitsRegGuide/index.htm

Cane Blight of Blackberry

By Phillip M. Brannen, University of Georgia Extension Plant Pathologist, and Gerard Krewer, University of Georgia Extension Horticulturist

Cane blight can be a major disease of blackberry in the Southeast, resulting in severe losses – sometimes resulting in the complete destruction of fruiting canes in any given year. It is generally not reported in other states as a major disease of blackberries, except when winter injury occurs on thornless blackberries, and most of the reports are associated with raspberry. However, wet, humid conditions observed in Georgia and other southeastern states allow for significant losses following pruning or other injuries to the primocane.

Causal organism. Cane blight is caused by *Leptosphaeria coniothyrium*, a common fungus which also causes stem canker on roses and other ornamentals. The fungus produces two types of fruiting structures (pseudothecia and pycnidia), both of which are largely buried in the dead bark tissue. Likewise, the fungus produces two respective spore types (ascospores or conidia). County extension offices can diagnose this disease, either directly through in-office examination or through shipment to extension diagnostic clinics. Incubation of dead stems in a moist chamber (sealed



Symptoms of cane blight. Following infection, dead and dying floricanes are observed in the spring and summer. Dead canes may have a silvery to gray appearance. Damage is generally associated with pruning cuts, especially large ones.

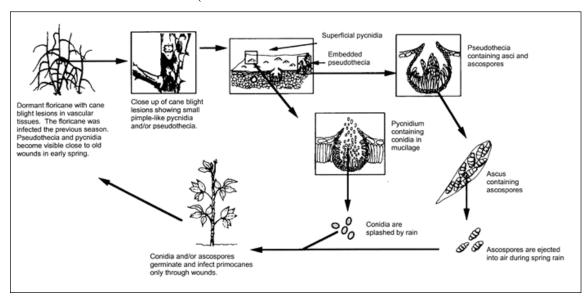
plastic bag with a moist paper towel or similar system) allows for accurate diagnosis; within 3-4 days, sporulation of both fungal spore types can be observed, and microscopic observation of the spores can be used to confirm the diagnosis. However, ascospores are seldom observed in North Carolina.

Disease cycle and causal conditions. The fungus overwinters on dead tissue of old floricanes (fruiting canes). If not removed, dead canes or cane tissue can

serve as a ready source of inoculum. Spores are produced from the spring through the fall, and spores infect injured primocane tissue. Therefore, the risk of cane blight is greatly increased when primocanes are injured or improperly pruned. Though pruning cuts provide a major infection site, insect damage, herbicide damage, freeze injury, or injury from farm machinery or other mechanical operations will likewise provide sites for infection to occur. If rainfall immedi-

ately follows any injury, this furthers the likelihood of pathogen infection and establishment in the vascular tissue. Once primocane infection has occurred, the pathogen continues to invade plant tissue during the fall and winter, resulting in floricane bud failure and cane dieback in the following spring, completing the disease cycle.

Symptoms. In the summer, fall, and winter following the initial wound-site infection, cane blight



Disease cycle of cane blight. The cane blight fungus survives on dead canes or infected tissue. Infection of damaged primocanes occurs in the spring, summer, or early fall following injuries, such as those caused by pruning cuts. Following infection, symptoms of dieback may be observed, but symptoms often do not develop on the floricanes until the following spring.

lesions may develop on the primocanes; these lesions are generally dark red to purple with irregular purple borders – similar in appearance to those of Botryosphaeria cane canker. In some cases, lesions may extend for only a few inches, but canes can also be girdled by larger lesions or cankers, resulting in their death and complete loss of production the following year. Floricane lesions become brittle in the spring and summer, and released spore masses dry on the canes, often resulting in a silvery to gray surface appearance on dead tissue. With a hand lens, the fruiting structures will appear as small, black, pimple-like bumps which are largely buried in the blackberry tissue.

Cultural Controls. 1. Avoid wounding the primocanes whenever possible. However, pruning is necessary for blackberry production, so wounding will occur through pruning operations. Pruning wounds are the primary site of infection, especially following prolonged rains, such as those observed in tropical storms and hurricanes. Rainfall or overhead irrigation will disperse fungal spores to fresh wound sites and create favorable conditions for infection. Always check the weather forecast before pruning operations. If at all possible, prune when at least four days of dry weather is expected.

- 2. During the summer, "pinch off" or "tip" tender primocanes when they reach 3-4 feet in height. This is accomplished by removing 1-4 inches from the primocane tip. If possible, instead of clipping, continue to "pinch" prune during all summer pruning. To reiterate, pruning of primocanes should be timed to allow for "pinching off" of the upper tips, as opposed to making severe pruning cuts with shears. Pinched tips have minimal damage, and they heal quickly. Unfortunately, when canes become too tall, use of pruning shears becomes necessary, and they create wounds which open up the stems and pith for infection by fungal pathogens
- **3.** After harvest, remove infected canes and all old floricanes each year, making cuts as close to the ground as possible.

 continued on page 13



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 floricane 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

Floricane-fruiting raspberries

- prune out the spent floricanes
- itie canes to wires so they are spread
- ☐ 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 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.

Response of Erect Blackberries to Improved Water and Nutrients Management

By Charlie O'Dell, Extension Horticulturist Emeritus, Crows Nest Farm, Blacksburg, VA

A few years ago we planted an acre of newer varieties of erect blackberries including thornless varieties Apache, Arapaho, Navaho, Chester and Ouachita, and thorny ones including Shawnee, Kiowa and Chickasaw. The planting was made on old recycled plasticulture strawberry beds after which pumpkins had been grown, followed by sweet corn, so these beds had been successioncropped four years—two in strawberries, one in pumpkins, one in sweet corn. Plant nutrients for succession crops had been supplied via fertigation through the drip irrigation lines based on soil tests of the beds before each succession crop, and on our experience with succession plantings on plastic mulch..

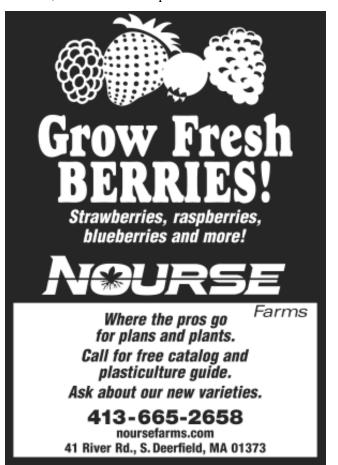
After spraying beds with Round-Up herbicide two weeks earlier, old plastic mulch, tattered and torn, was hand removed, as were the old drip lines.

Blackberry tissue-culture plug plants were set into the undisturbed beds using hand bulb setters to make planting holes every four feet apart in-row, one row per bed. Every other bed was planted to provide ten feet between rows. Under each plug plant about two teaspoons of three-month, slow-release Osmocote 14-14-14 was hand placed, then covered with about one-half inch of soil to prevent direct contact of young, tender plant roots with the fertilizer pellets. Twice during that summer at six-week intervals, one-eighth cup of 10-20-20 granular fertilizer was side-dressed on the uphill side of plants (beds are on the contour of this hillside site). In the second and third years in early springs we side-dressed 300 pounds/acre of 10-20-20 fertilizer on the uphill side of the beds 4 to 6 inches away from plant stems.

Ram 17 heavy wall drip line tubing with fused-in emitters spaced every two feet apart was placed on each bed top about three inches from plants on the

uphill side of each row. Frequent timely rains that first summer and the next eliminated the need to hook up and use the drip irrigation system. In hindsight, those rains apparently lulled us right to sleep! The third spring we had a drought of over six weeks duration beginning just as plants began to wake up and make new spring growth, lasting well into bloom time. During bloom earlier side-dressed fertilizer was still somewhat visible on top of the beds and unavailable to the plants. Like all growers during spring months, we were very busy with many enterprises including strawberry frost control in other fields, finishing up blueberry and seedless grape pruning, raspberry fertilization and trellis construction, asparagus planting, and on and on. No thought was given to irrigating the blackberries this early in the season, assuming (assumptions will get you every time) that "Heck, blackberries are tough as weeds, they'll be fine."

An abundant blackberry bloom period occurred during this extremely dry period, especially bountiful on the vigorous variety Apache. We had visions



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of canes soon to be loaded with big, tasty, juicy, sweet blackberries! But suddenly pollinated blooms began to abort along with very young fruit, even though bees and native pollinators were abundantly present. We made almost no crop that summer, with Apache especially the hardest hit. Surprise! Cultivated, high yield blackberries are not a crop for arid desert conditions! We searched high and low for something to blame, but there was no one but us. We checked with other blackberry growers in Kentucky and North Carolina, with plant breeders, horticulturists and with growers at the annual NABGA winter conference. Several growers in other areas also experienced the same dry spring conditions and reported similar plant response, especially with Apache plants. Soil and plant tissue analysis in early summer showed that our levels of phosphorous, potassium and calcium were low in both soil and plants—not surprising since side-dressed fertilizer was still right there unused, unavailable, sitting on top of the beds where it had been placed at least six weeks earlier.

We then guit the search for the culprit, finally accepting the reality that it was us, and so we went to work, vowing to avoid future moisture stress on the blackberries. We hooked up the drip irrigation system already in place and actually began to use it on a regular basis. We began to irrigate the blackberries as we have always done with blueberries and primocane raspberries: at least twice a week when rains do not come, especially during bud, bloom and fruit development, then all summer long. Also, we began an intense, supplemental foliar feeding that includes calcium phosphite, potassium, and a plant bio-stimulant from seaweed extract along with very small amounts of nitrogen, applied with an air-blast sprayer every two weeks throughout the growing season.

The plant response was immediate! With regular, more constant soil moisture, plants could begin to extract fertilized soil nutrients previously unavailable to them on the dry beds. Supplemental light foliar "spoon feedings" of soluble plant nutrients twice monthly plus the catalyst effect of the bio-stimulant enhancing

National Berry Crops Initiative Update

In the last issue of *The Bramble*, we discussed this Initiative and printed the assumptions, goals, and objectives of the draft Strategic Plan. The NABGA leadership has been very involved in this exciting effort (NABGA President Ervin Lineberger and Executive Secretary Debby Wechsler both serve on the Steering Committee). It has already had significant benefits in networking among segments of the berry industry!

Stragetic Planning Workshop

Now, you have an opportunity to help define priorities and action steps for this plan in a three-hour Stragetic Planning Workshop on Saturday, January 7, after the NABGA meeting in Savannah (a sister workshop will be held concurrently with our bramble sessions). Right now, we have a great list of everything we'd like to accomplish—you can help pick the most important items and develop the timeline and action steps that will make them happen. One important focus is the upcoming 2006 Farm Bill.

It is not necessary to preregister for this workshop, but you can arrange to see the work-in-progress spreadsheet (Excel) by contacting Tom Bewick at tbewick@csrees.usda.gov. A questionnaire will also be distributed in advance to those who have preregistered for the conference.

Visit the Initiative's new website, **www.nationalberrycrops.org**, to learn more.

nutrients absorption and utilization and the resulting plant growth, kept us busy summer topping and pruning! Senescence of stems and leaves was delayed, and we wondered if all this verdant succulent growth might reduce winter hardiness or overly delay fall hardening off of the plants. So, in very early October of each year, we now stop irrigating. We also only foliar feed potassium, twice during October, to help harden and toughen plant cells in preparation for winter dormancy.

This past spring provided the opportunity for the real test: we were hit once again with a very prolonged dry spring, and also with very extended cool weather compared to our averages. We kept day/night temperature records this spring, noting we did not get a 60 degree F. night temperature here until June 5! At first sign of new spring buds and leaves on the blackberries, we began to drip irrigate regularly, also applying supplemental foliar feed twice monthly. Again we had a very abundant and extended bloom season; the Apache plants and all varieties were covered with blooms. What a picture! This time they all "stuck", with no abortions or drying up of very young fruit. We enjoyed a very good crop of large, sweet berries from late July until late September over all of the varieties.

Apache was a very heavy yielder of very large berries, so we feel we have learned, finally, how to manage these newer varieties for profitable production into the future.

Summarizing the two main management points necessary for success:

- 1. Uniform, regularly applied soil moisture maintenance from early spring, and continuing all summer long;
- 2. Good soil-based plant nutrition has been further enhanced with regular light foliar feedings that include all plant nutrients in the program to balance the normal pattern of heavier spring nitrogen applications.

With plant nutrients and soil moisture working together as a symbiotic team, water and nutrients requirements are met and maintained, resulting in little or no plant stress from these factors. The payoff is in bountiful fruit, healthier plants, and extended harvests. Because better water and nutrients management have worked so well for our blackberries, we began using this same program on all our U-Pick crops including blueberries, all blackberries and primocane raspberries (we retired from strawberries) as well as with our fresh-picked asparagus and seedless grapes. So, bring on those three-berry cobbler pies and ice cream!

RESEARCH REPORT

Cultural Strategies and Organic Fungicides for Managing Gray Mold on Raspberries

By Elsa Sánchez, Kathleen Demchak and Graham Sanders, Department of Horticulture, Penn State University

Funding jointly provided by the North American Bramble Growers Association and IR-4 was combined with funding from the State Horticultural Association of Pennsylvania and the NE Sustainable Agricultural Research and Education (NE SARE) program to implement and expand this study. The objective was to identify alternative fungicides and cultural strategies for gray mold management in raspberries. In our proposal to NABGA we proposed six treatments; however, with the additional funding we were able to include ten treatments in the study. A significant Extension component was included in the proposal submitted to NE SARE, which will allow information on small fruit diseases and new information gained from this study to be disseminated to growers.

The study was conducted at the Russell E. Larson Agricultural Research Center at Rock Springs, PA. The soil type is a Hagerstown silt loam and the crop planted previous to the raspberry crop was winter wheat. Summer fruiting red raspberry cultivars 'Nova' and 'Prelude' were planted in the site in May, 2004. The raspberry crop has been managed based on practices outlined in the current Commercial Berry Production and Pest Management Guide for Pennsylvania with the exception that only treatment fungicides have been applied.

Treatments included were based primarily on input by an advisory board of growers (Table 1). Endorse was included based on input from IR-4. Oxidate was used only in combination with other materials on the recommendation of a company representative.

Treatments were arranged in a randomized complete block structured as a factorial with two cultivars and ten gray mold management strategies (including

Table 1. Treatments used in this study.

	Treatment
#	rreaument

- 1 Control 1 No gray mold management. (water only sprayed).
- 2 Control 2 Conventional fungicide program consisting of Elevate 50 WDG at 1.5 lb/acre (fenhexamid, Arvesta Corp., San Francisco, CA) and Captan 50 WP at 4.0 lb/acre, (captan, Arvesta Corp., San Francisco, CA) in rotation.
- 3 Milstop at 3.75 lb/acre, (potassium bicarbonate, BioWorks, Inc., Fairport, NY)
- 4 Endorse at 1.8 lb/acre (Polyoxin D zinc salt, Arvesta Corp., San Francisco, CA)
- 5 Lime Sulfur Solution at 1% of spray solution volume (calcium polysulfide, Miller Chemical and Fertilizer Corp., Hanover, PA)
- 6 Phostrol at 5 pt/acre (mono- and dibasic sodium, potassium, and ammonium phosphates, Nufarm Americas, Inc., Burr Ridge, IL)
- 7 Milstop at 3.75 lb/acre + Oxidate at 1% of spray solution volume* hydrogen dioxide, Biosafe Systems, Glastonbury, CT)
- 8 Oxidate at 1% of spray solution volume* + Vigor Cal Phos at 4 qt/acre (nutrient supplement comprised of phosphorus salts of calcium and copper, Agro-K Corp., Minneapolis, MN)
- 9 V-trellis (as a cultural control to improve sunlight penetration & drying of foliage)
- 10 Cane thinning (as a cultural control to increase air circulation)

*Oxidate was applied at 1% of spray solution volume for the first 3 applications, then changed to 0.33% of spray solution volume to align as closely as possible with label directions.

two controls). Each treatment was replicated four times with plots consisting of 12 foot long hedgerows. Rows were on 10-foot centers.

Treatments 1 - 8 (Table 1) were initiated at 10-15% bloom (early bloom), and then applied two more times at fiveday intervals during bloom. Treatments were discontinued briefly, then resumed when harvested berry counts reached 10-15% (early harvest) and continued on five-day intervals. These timings corresponded to early, mid and late bloom, and early, mid and late harvest (Table 2; not shown here). Treatments were applied in a volume of water equivalent to 50 gal/ acre using a compressed CO, sprayer operated at 40 psi. Each application made to each plot was timed by a second person operating a stopwatch. All applications made were within plus or minus 10% of the target rate.

Cultural strategies (treatments 9 and 10 in Table 1) were not applied to the 2005 raspberry crop because the plants had not reached adequate heights to warrant trellising and the number of canes in each hedgerow was not high enough to warrant cane thinning. V-trellising is currently being constructed. Canes were thinned to 5 to 6 per linear foot of hedgerow in August, 2005 to initiate the cane thinning treatment. Data from these two treatments will be collected beginning in the 2006 growing season, including microenvironmental factors. (Table 2, showing the 2005

fungicide application schedule, is omitted here).

We experienced drought conditions throughout much of the 2005 growing season. As a result, very little gray mold was observed in the field. If drought conditions exist for the 2006 growing season we will use an overhead irrigation to promote conditions conducive to gray mold development.

Phytotoxicity Evaluation

Phytotoxicity was evaluated for the fungicide treatments on the day following each fungicide application (Table 3). A visual rating scale of 0 to 100% using 10% increments was used.

Milstop applications resulted in chlorosis of leaf tissues. Plants applied with Oxidate + Vigor-Cal-Phos exhibited necrosis of leaf tissues. Applying Phostrol resulted in noticeable marginal and interveinal necrosis of leaf tissues. In general, 'Nova' was more susceptible to phytotoxicity than was 'Prelude'.

Marketable Yields

Fruit was harvested by hand every other day from each plot from June 27 to July 25, 2005 for 'Prelude' and from June 27 – August 2, 2005 for 'Nova'. Berries were sorted into marketable and unmarketable categories with those that were blemished considered unmarketable. Most blemishes were due to insect and mechanical damage. A lesser amount of diseased berries was also observed. Berries were weighed and counted and

Table 3. Mean phytotoxicity ratings by fungicide treatment and cultivar.

Cultivar	Fungicide Treatment	Mean Phytotoxicity Rating (% of leaf tissue affected)
'Prelude'	Control 1 - Water	0
	Control 2 - Captan/Elevate Rotation	0
	Milstop	10 Chlorosis of leaves.
	Endorse	0
	1% Lime Sulfur Solution	0
	Phostrol	40 Marginal & interveinal necrosis
		of leaves
	Oxidate + Milstop	10 Chlorosis of leaves.
	Oxidate + Vigor Cal Phos	10 Necrosis
'Nova'	Control 1 - Water	0
	Control 2 - Captan/Elevate Rotation	0
	Milstop	30 Chlorosis of leaves.
	Endorse	0
	1% Lime Sulfur Solution	0
	Phostrol	80 Marginal and interveinal
		necrosis of leaves
	Oxidate + Milstop	30 Chlorosis of leaves.
	Oxidate + Vigor Cal Phos	40 Necrosis

immediately subjected to post-harvest evaluation (for more information see the section following).

In general, the raspberry crop was small (Table 4; not shown here). We are currently in the process of statistically analyzing the data; however, marketable yields ranged from about 60 – 90% and were higher from 'Prelude' than from 'Nova'. In addition to requiring more time for ripening, 'Nova' berries tended to remain firmly attached to the receptacle even when ripe and released easily from the receptacle only when they where a bit overripe. As a result these berries had more disease and insect damage than 'Prelude' berries leading to a lower percentage of marketable yields.

'Prelude' plants treated with the Captan/Elevate rotation, Endorse and Oxidate + Vigor Cal Phos produced the highest berry weight and number of berries per linear foot compared to the other treatments. 'Nova' plants treated with the Captan/Elevate rotation and Endorse produced the highest berry weight per linear foot compared to the other treatments. 'Nova' plants treated with the Captan/Elevate rotation, Milstop, Endorse, Phostrol and Oxidate + Vigor Cal Phos yielded the highest number of berries per linear foot compared to the other treatments. Individual berry weight was similar for both cultivars regardless of treatment.

Post-Harvest Evaluation

Fruit were evaluated after harvesting to

determine the effect of the fungicide treatments on shelf-life of the raspberries. After each harvest, a minimum of 15 ripe fruit from each treatment were placed in 28-celled plastic trays. When less than 15 fruit were harvested from a treatment plot, fruit from that plot was excluded from post-harvest evaluation for that harvest. The trays were then placed moist chambers. Moist chambers were one-gallon plastic slider bags lined with 2-layers of industrial hand towels that were moistened with tap water. Moist chambers were then placed in a cold room at 40 to 45°F and visually evaluated daily for seven days for the presence of gray mold. Soon after implementing this protocol, it was determined that our storage temperature was not conducive for gray mold development. It was, however, conducive for the development of blue mold (Penicillium spp.). We modified the protocol to storage for three days at 40 to 45°F followed by four days at room temperature to monitor blue and gray mold development. By storing the moist chambers at room temperature we observed gray mold development. We then adjusted the protocol to storage for three days at room temperature followed by four days at 40 to 45°F because this better reflected the primary objectives of this study. Data collected are currently in the process of being statistically analyzed; however, the predominant diseases observed were gray mold, blue mold and rhizopus soft rot (*Rhizopus* spp.) and/or mucor mold (Mucor spp.). Additionally, berries treated with the Captan/Elevate rotation had the longest disease-free shelf-life followed by those treated with Endorse compared to the other treatments.

Additional Outcomes

Several additional products have been developed or are planned as a result of this study, including several publications. One such publication is an article that appeared in the Vegetable & Small Fruit Gazette and Pennsylvania Vegetable Growers Newsletter that was entitled "In Search of Sustainable Botrytis Management" (http://hortweb.cas.psu.edu/ extension/vegcrops/vegetable_gazette/ 2005/june2005.htm#organic). Another article on the horticultural characteristics of 'Nova' and 'Prelude' is in development for publication. We plan on developing an extension article based on the two-year results of this study next year. We also plan on developing manuscripts for

Continued on page 11

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Concept Paper: Specialty Crops and the Farm Bill

This document, being shared widely among specialty crops groups and state Farm Bureaus, comes via the United Fresh Fruit & Vegetable Association.

The Farm Bill Task Force, comprised of fruit and vegetable producers with similar interests in Farm Bill policy, has developed a Farm Bill Concept Paper on key policy issues the group would like to see included in the 2007 bill. The next step is to garner support for the Concept Paper from Farm Bureaus and allied industry groups. Production of the Concept Paper is the first step in a process to draft a Farm Bill that reflects minor crop priorities as well as those of the program crops so that a balanced bill can be passed. Below is a list of the principles and priorities of the concept paper.

Fruit and Vegetable Industry Priorities for the 2007 Farm Bill

Fruit, vegetable and tree nut production in the United States accounts for \$35

Fruit, vegetable and tree nut production in the United States accounts for \$35 billion in farmgate value, or 33% of farm cash receipts.

billion in farmgate value, or 33% of farm cash receipts. With the addition of nursery and greenhouse production, overall specialty crops account for 51% of farmgate value.

The fruit and vegetable industry is organizing itself to advocate for a single common set of priorities in the 2007 Farm Bill. A broad array of fruit and vegetable trade associations representing US growers and shippers have been working to forge mutual objectives for the Farm Bill, to assure a common platform across regions, commodities and other interests. We intend to work closely and collaboratively with allies in all specialty crops who share many of our priorities, as well as other stakeholders across U.S. agriculture.

Statement of Principles

The fruit, vegetable, and tree nut industry is a critical and growing component of US agriculture, deserving of full and equal consideration as other agricultural sectors in the Farm Bill. That demands a significant financial investment in mandatory spending.

The fruit, vegetable, and tree nut industry would not be well served by direct program payments to growers. Rather, our emphasis must be on building the long-term competitiveness and sustainability of US fruit and vegetable production.

Government investment in the competitiveness and sustainability of the US fruit and vegetable industry will produce a strong return on investment for *all of America*, not just farmers. By expanding access and availability of safe, wholesome, healthy and affordable fruits and vegetables, the Farm Bill will be a critical component in reaching the mandate of doubling fruit and vegetable consumption called for in the USDA/HHS 2005 Dietary Guidelines. That makes the 2007 Farm Bill more relevant





The fruit, vegetable, and tree nut industry is a critical and growing component of US agriculture, as deserving of full and equal consideration as other agricultural sectors in the Farm Bill.

to every Congressional district in the country than ever before.

Government investment in this agriculture industry is required to create a fair, level playing field with international competitors who do not face the regulatory burdens of US producers. With the government's mandate that domestic producers must meet the very highest standards in environmental regulation, labor and other areas comes the responsibility to help those producers achieve cost-effective compliance. Without appropriate assistance US production will re-locate to less restrictive foreign growing areas.

Consumers in US export markets are increasingly demanding high value food products as their disposable income rises. A thriving and competitive US fruit, vegetable, and tree nut industry will support strong growth in export markets and improve our agricultural balance of trade. In order to realize the goal of increasing exports, it is critical that federal policy and resources support efforts to remove the many existing international trade barriers that continue to block US fruit, vegetable, and tree nut exports.

Specific Farm Bill Priorities

Restrictions on Planting Flexibility -

We support this long-standing provision as a fundamental matter of equity among farmers. As long as some farmers receive direct payments from the government, they should not be allowed to plant crops on that subsidized land that compete with unsubsidized farmers.

Nutrition Programs – We support a strong new focus within the 2007 Farm Bill on increasing the access and availability of fruits and vegetables, particularly to children. We support expansion

of the school fruit and vegetable snack program, increased commodity purchases, higher allocation to the Department of Defense (DOD) Fresh program for schools, development of a new nutrition promotion program to assist producers in enhancing their markets, and a general requirement that USDA feeding programs and commodity purchasing comply with the 2005 Dietary Guidelines.

State Block Grants – We support an expansion of the State Block Grants for Specialty Crops program originally authorized in the Specialty Crop Competitiveness Act of 2004, and funded through appropriations in the FY06 Agricultural Appropriations bill. Due to the wide diversity and localized needs in specialty crop production, state departments of agriculture are uniquely able to assist local growers with the specific investments they need to increase competitiveness.

International Trade – We support programs to increase foreign market access, to increase funding for the Technical Assistance for Specialty Crops program, and creating a new Export Division within APHIS to attack with much greater vigor the real but too often hidden trade barriers facing our industry in SPS issues. We will also work with allies to seek continued support for the Market Access Program.

Invasive Pests and Disease – We support significant new investment in prevention of the unintentional introduction of plant pests and diseases. Investment in prevention is more cost-effective than mitigation.

Research – We support significant new

investment in research for specialty crops, through both the National Research Initiative and programs within CSREES and ARS.

Conservation Programs – We support a mandatory allotment of funding for specialty crop production within EQIP similar to what currently exist for the livestock industry. We will work with all allies to expand general support for conversation programs.

Unique Attributes of Specialty Crop Producers – Due to the nature of highvalue specialty crop production, many

current Farm Bill programs and disaster programs are of limited benefit to specialty producers due to payment caps, limits on Adjusted Gross Income, limits on off-farm income even if integral to farming operations, etc. We support a thorough review of all farm programs to ensure that specialty crop producers have access to benefits comparable to other farmers, rather than being excluded or limited simply due to a higher cost of production.

Contact the United Fresh Fruit & Vegetable Association at 1901 Pennsylvania Avenue, NW, Suite 1100, Washington, DC 20006, 202-303-3400, www.uffva.org. If you are interested in working with a NABGA committee on Farm Bill and related activities, contact the NABGA office.

Strategies and Fungicides for Managing Gray Mold on Raspberries

Continued from page 9 submittal to referred journals after the 2006 growing season.

A presentation entitled *Current* Organic Efforts included a discussion of this study and was delivered to 22 participants of an advanced training organic workshop. The study was also presented to 64 high school students as part of the Plant Scientist course for the Governor's School of Excellence. The Governor's School of Excellence is a five-week-long competitive program held during the summer on the Penn State college campus where high school students attend classes designed for them. A presentation entitled *Botrytis Fruit Rot* and Management will be delivered at the 2005 Western Pennsylvania Vegetable and Berry Growers Meeting and at the 2005 New England Vegetable & Fruit Conference. We plan on developing a presentation based on the two year results of this study next year.*

Each research project funded by the NABG Research Foundation submits a progress report at the end of the year. Reports are printed in The Bramble over the course of the year. This is the first of the reports from the 2005 projects.

Berries in Tunnels in the United Kingdom

The text below comes from "Tunnel Facts," a web site with a lot of information on using tunnels for small fruit growing as well as the state of the small fruit industry in the UK - 65% of their small fruit production is now done in tunnels!

The UK soft fruit industry is a rare British Agriculture success story. Total berry sales in the UK in 2003 were £310m and this year estimated to be £350m, rising to anticipated sales of £400m by 2006. Sales are progressing on average at plus 20% each year. This is a tremendous story with 70% of these annual sales being grown here in the UK.

Fifteen years ago this industry was simply a small six- to eight-week season with foreign imported fruit dominating our market. Significant steps have been made in co-operative marketing, new varieties and cultural practice, but without doubt the most influential reason for the growth and establishment of this industry has been the creation of tempo-

rary field scale tunnels.

Tunnels have been great – low cost, moveable from field to field, closable for early and late season production and fully vent able for mid season production. They have also nearly eliminated most wet weather type diseases, significantly



reduced pesticide use and enabled success with biological controls and generated huge full-time and seasonal employment. They are 100% recyclable, demanded by the supermarkets for providing continuity of supply and have created this one-third billion £ industry.

However, as crucial as they are to horticulture, they do create a visual impact on the landscape and we must work hard with neighbours and local councils to make then work for all concerned.

Visit Tunnel Facts at www.tunnelfacts. co.uk/index.html. Many thanks to the Small Fruit Update: News & Opinions from Peerbolt Crop Management and Northwest IPM for flagging this site. To subscribe to the Small Fruit Update email anna@peerbolt.com or visit www.nwipm.info.

Cane Blight of Blackberry Continued from page 5

Old floricanes serve as a ready reservoir of inoculum for future infections, so destroy old canes each year by either burning or burying them. As an alternative, flail mowing of old canes which are pulled to the row middles may also help to destroy the inoculum; this works for other similar diseases of other fruit crops, but to date, research has not been specifically conducted with blackberries.

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- **4.** Practices which promote quick drying of the canopy will help to decrease infection. A weed-free strip under the canopy will also aid drying and air movement.
- **5.** Avoid stressing plants, making sure that all nutrient and water requirements are met. Soil and tissue samples allow for accurate fertilization and pH assessments.

Chemical Controls. Fungicides should be applied after pruning each day to provide a protective barrier on the wound site until healing can occur. With proper pruning and use of fungicides, blackberries can be produced without cane blight, even in wet years. Contact your local county agent for specific chemical recommendations.

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A color fact sheet of this article, with additional photos, is posted on NABGA's website at www.raspberryblackberry.com/Webdocs/Cane%20Blight%20Fact %20Sheetii.pdf (or go to the Members Only section, click on Resources and look under "Fact Sheets").

References. Ellis, M. A., Kuter, G. A., and Wilson, L. L. 1984. Fungi that cause cankers on thornless blackberry in Ohio. *Plant Disease* 68:812-815.

Williamson, B. 1991. Cane blight. Pages 5-7 in: *Compendium of Raspberry and Blackberry Diseases and Insects*. M. A. Ellis, R. H. Converse, R. N. Williams, and B. Williamson., eds. APS Press, St. Paul, MN. Drawing on page 3 is courtesy M.A. Ellis; drawing by Cindy Gray. Reprinted with permission from the *Compendium of Raspberry and Blackberry Diseases and Insects*, 1991, The American Phytopathological Society, St. Paul, MN.

Welcome, New Members!

Please welcome the members listed to right to NABGA! These members have have joined NABGA since the last newsletter. The list above is formatted so you can clip or photocopy the page and fasten it into your membership directory. A new directory will be printed in Spring, 2006. A complete and up-to-date membership list can also be found in the Members Only section of our website.

Berry Weed Control in Review

By Tim Nourse, Nourse Farms
Weed control for strawberries and
raspberries continues to be an important
topic for commercial growers. Dr. Doug
Doohan presented an excellent herbicide
review at our Open House in August. The
following is a summary of his comments.

There are three important components to any weed control program:

Prepare your site before planting strawberries and raspberries. By selecting a site the year before planting, you have the opportunity to observe what weed species will be a problem and treat the site accordingly to remove those weeds. Whether you plant a rotational crop such a sweet corn or a cover crop, your weed management can prevent a weed problem the following year.

Identify the specific weeds that are most abundant when choosing an herbicide program for your strawberry or raspberry planting. Several of the now-predominant weeds that growers must deal with have specific herbicides and application timing necessary for control to work successfully. Of course, each state has a list of the labeled herbicides for your reference. There are several weed identification references available that are very helpful or consult with your state weed control specialist for proper identification.

Choose the correct herbicide and time of application of that herbicide to best control your target weeds, based on your weed pressure. Consult your state recommendations for labeling and the weeds controlled.

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Ed Yeager

RR 5, Box 378 Bloomfield IN 47424 Phone: 812-825-6989 hawkavn@ixnetcom.com

The article then lists a number of herbicides that can be used in fall. We only have room for a few points from this list. Note that these may apply to strawberries, not brambles. Be sure to check state recommendations.

- **Devrinol** (Pre-emergent) Controls annual grasses, suppresses nutgrass and will suppress some other weeds. It may also be applied in spring, after planting.
- **Spartan** (Pre-emergent) A newer herbicide labeled for use as a control of broadleaf weeds, specifically common groundsel, lambsquarters, pigweed, pineapple weed and others.
- Stinger (Post-emergent) A new 24C label in several states, Stinger controls a group of difficult to control weeds, including thistle, clovers, dandelion, groundsel, red sorrel plus several others. The label stresses several other considerations:
 - Minor leaf cupping may occur
 - Apply with 20-75 gals. of water per acre
 - Do not apply within 6-8 hours of rainfall
 - Do not apply when the ground is frozen

As Stinger is a post-emergence broadleaf weed control, best results will be achieved when some

fall dormancy has occurred to harden off the plants, but not after extensive frosts have damaged the weed tissue, resulting in less take up of the Stinger. Stinger is a 2,4–D type of compound.

- **Sinbar** (Pre-emergent). A standard weed control that works well for fall application.
- Poast or Select (Post-emergent). For control of perennial grass early fall is a good time to control perennial grasses, before extensive frost damages the tissue. The newer SELECT appears to be more effective in controlling perennial grasses than the other materials. If control is not completed in the fall, spring application works well, but you need to wait until grass growth is at least 4 6" high which is usually later in the spring and more difficult to schedule.
- Dacthal (Pre-emergent) Applied only in the early spring, Dacthal is an old herbicide that controls oxalis from seed. It also controls chickweed, annual grasses and other weeds.

 From the online newsletter of Nourse Farms. Visit www.noursefarms.com/ to see the complete newsletter and to subscribe.

NABGA 2005 Officers and Executive Council

The regions represented by the members of the Executive Council were redefined at the Association's annual meeting on February 18, 2005. Those districts that are new or changed are marked with an asterisk.

President- Ervin Lineberger, Killdeer Farm, 300 Goforth Rd, Kings Mountain, NC 28086, phone 704-739-6602, e-mail fruitgrower@netzero.net.

Vice President- Tom Walters, Northwest Washington Research and Extension Center, 16550 State Rte 536, Mount Vernon, WA 98273, phone 360-848-6124, e-mail twwalters@wsu.edu.

Executive Secretary & Treasurer- Debby Wechsler, 1138 Rock Rest Rd. Pittsboro, NC 27312, phone 919-542-3687, fax 919-548-4037, e-mail nabga@mindspring.com.

Research Committee Chair-Gina Fernandez, NCSU Dept. of Horticultural Science, Box 7609, Raleigh, NC 27695, phone 919-513-7416, e-mail Gina.Fernandez@ncsu.edu.

Bramble Editor- Debby Wechsler, 1138 Rock Rest Rd. Pittsboro, NC 27312, phone 919-542-3687, fax 919-548-4037, e-mail nabga@mindspring.com.

Regional Representatives

Region 1 (Represents all of Canada). Open seat. To nominate someone or volunteer for this position, contact NABGA.

Region 2 (Represents CT, NH, MA, ME, RI & VT) **Nate Nourse,** Nourse Farms, 41 River Rd., South Deerfield, MA 01373, phone 413-665-2658, e-mail info@noursefarms.com.

*Region 3 (Represents MI, NJ, NY, PA, Europe, and South Africa), Dena Fiacchino, Cornell Cooperative Extension, 3288 Main St. Mexico, NY 13114, 315-963-7286 ext 203, e-mail: dcf25@cornell.edu

*Region 4 (Represents DE, MD, OH, & WV) Sue Loomis, D&S Farm, P.O. Box 272, Charlotte Hall, MD 20622, phone 301-290-1179, e-mail sueloomis@erols.com.

*Region 5 (Represents AL, GA, FL, LA, MS, & TX). Stanley Scarborough, SunnyRidge Farm, P.O. Box 3036, Winter Haven, FL, 33885 phone 863-294-8856, e-mail stanley.scarborough@sunnyridge.com.

Region 6 (Represents AR, IN, IL, KS, KY, MN, MO, ND, OK, SD, NE, TN & WI) Bob Blain, Riverfront Berry Farm, 2799 N. 1700 East Rd., Martinton, IL 60951, phone 815-428-7382, e-mail BOCO@dlogue.net.

*Region 7 (Represents DC, NC, SC, & VA) Milton Parker, Coastal Plains Horticultural Enterprises, 622 Wedgewood Drive, Whiteville, NC 27472, phone 910-640-1791, e-mail yamman552002@yahoo.com.

Region 8 (Represents AK, AZ, CA, CO, ID, HA, MT, NM, OR, UT, WA, WY, Mexico, Central & South America)



Berry Good Cooking

Need a special berry recipe for the holidays? Visit the website **www.justberryrecipes.com**. It has 161 blackberry recipes, 514 raspberry recipes, 637 blueberry recipes, 1,072 strawberry recipes, 38 gooseberry recipes, 9 huckleberry recipes and 1,054 cranberry recipes. (Suggested in the email Small Fruit Update, published by NABGA members Tom and Anna Peerbolt, anna@peerbolt.com.) While you are at it, check out NABGA's recipes too, at **www.raspberryblackberry.com**. If you have a favorite we should include, please send it in!

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*At-Large Representative: Carlos Fear, Driscoll Associates, 151 Silliman Rd., Watsonville, CA 95076, phone 831-722-5577, e-mail Carlos.Fear@driscolls.com.

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