THE BRAMBLE

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

NABGA Meetings Bring Growers Together

The bramble industry must be growing! At both its meetings this winter, NABGA sponsored workshops on the basics of bramble production: "ABCs of Blackberry Production" at our Annual Conference in January in Savannah, GA, and "ABCs of Raspberry Production" at NABGA's Regional Meeting in Syracuse, NY, in February.

In Savannah, though we had originally limited the workshop to 35 participants, interest was so high we let in many more than had preregistered, and still had to turn away several disappointed last-minute hopefuls. In Syracuse, the session did not require preregistration, but attendance far exceeded expectations. The room, which comfortably seated around 60, was packed with 80 to 90 people, some sitting in the doorways!

Both meetings introduced many to NABGA, brought in new members, and gave us opportunities to provide practical information on production and marketing, present new research, and increase awareness of the national issues facing our industry. One session that was especially successful in Savannah was our informal dinner and discussion at the Cobblestone Conch House in on the historic riverfront, where we enjoyed delicious local fare, sampled blackberry wines, and engaged in some very thoughtful dialogue on the needs of the industry. Many members also participated in a strategic planning workshop of the National Berry Crop Initiative, which worked to prioritize among many issues of concern.In Syracuse, NABGA hosted an evening reception that included an informal bramble product taste test.

The annual meeting also included election of new Executive Council members (see page 2), approval of the Association's annual budget (see page 13), and the awarding of research grants for 2006 (see page 2).

Top: NABGA President Ervin Lineberger addresses the NY State Berry Growers Association in Syracuse, NY. Bottom: The entry banner to the trade show at the Southeast Regional Fruit and Vegetable Conference welcomed NABGA and the North American Strawberry Growers Asssociation.

Proceedings, containing papers based on sessions at both of these conferences, have been mailed out with this newsletter. Additional copies are available from NABGA for $15 (postage included).

NABGA thanks the Georgia Fruit and Vegetable Growers Association, the New York State Berry Growers Association, and the New York State Vegetable Growers Association, which were the host organizations of these meetings, for their willingness to have NABGA at their meetings and for all their assistance.

NABG Research Foundation Makes Grants

The North American Bramble Growers Research Foundation, established by NABGA's charitable organization to support research, met in Savannah, GA to consider the proposals it received for 2006 funding. The following projects were funded:

- **Determining the Role of *Rhyzoctonia, Pythium,* and *Cylindrocarpon* in Replant Disorder of Raspberry** (Annemiek Schilder, Michigan State University) $2714.
- **Evaluation of Genotype x Environment Interactions in Primocane Fruiting Blackberry Populations** (Courtney Weber, Cornell University; John Clark, University of Arkansas; and James Luby, University of Minnesota) $3,000.

Two other projects, were funded through a cooperative arrangement with the IR-4 program, a federal program that supports pesticide-related research for minor crops. NABGA will provide $2,500 to IR-4, and IR-4 in turn, will fully funds both projects for a total of $5,000, thus doubling the effect of NABGA's contribution. A similar arrangement supported several projects last year. The projects this year are:

- **Weed Mangement in Young and Established Brambles** (Katie Jennings and David Monks, NC State University).
- **Evaluation of Herbicides for Yellow and Purple Nutsedge and Annual Sedges Control in Young Blackberry Fields** (Mark Czarnota, University of Georgia).

Sources of NABG-RF Funds

Funds for the Foundation this year come from several sources.

- Twenty-five percent of the dues of all grower members go directly to the Research Foundation. Often, as this year, this percentage is increased at the discretion of the board to $25 per membership.
- The board also authorized the transfer of $3,203 in additional funds from NABGA's general reserves.
- Amounts sent in recent months as subscriptions to *Fruit Grower News* are being transferred to the Foundation, as FGN recently offered free subscriptions to NABGA members.
- Substantial donations were made by Driscoll Associates, Norcal Nursery/ Sakuma Brothers, and Nourse Farms.
- The following members made donations between March 2005 and 2006: Bob & Coleen Blain; Anthony & Carol Boutard; Daniel Derr; Pat Divello; Anne & Charles Geyer; Guy, Lynn & Fenby Moore; Kristine Naess; William Rosby; Henry & Sandi Rose; Bob Rouse; and George Sutton.

Many thanks to all these generous members and apologies to anyone who has inadvertently been left off this list.

QUESTION CORNER

? From Pam Fisher, Ontario Ministry of Food, Agriculture, and Rural Affairs: A grower has asked me about picking aids for fresh raspberries. Does anyone have a good idea of how to pick with two hands and have containers handy?

Please send responses to Pam at pam.fisher@omafra.gov.on.ca and also to NABGA – sounds like a great article for the next newsletter.

? From Cristiano F. de Barros: I'm looking to work as a farm worker in bramble crops anywhere (farmers) need. Despite my strong commercial background I once owned a small farm where we grew cherry tomatoes and some tropical berries. I am living currently in British Columbia but want to live and work southwards.

Contact Cristiano F. de Barros, 9555 128st. #217, Surrey, BC V3V 5N6 Canada, cristianodebarros@yahoo.ca. His resume indicates skills in English, Spanish, Portuguese, various computer programs, sales and marketing, public relations, and writing.

NABGA Annual Meeting Report

The NABGA annual meeting, on January 6, 2006, opened with remarks by NABGA president Ervin Lineberger, who commented on the governance structure of NABGA and urged members to give feedback to the organization on key issues such as the Farm Bill, ag labor, food safety, all areas where NABGA can have influence.

He introduced current and departing Executive Council members, thanked the EC members stepping down, Sue Gragan and Bob Blain, who both have been active and involved EC members, and offered the slate of candidates developed by the EC:

Region 1: Henry Mutz, British Columbia grower

Region 2: Nate Nourse, Nourse Farms, incumbent, for first full term (served one year already)

Region 4: Guy Moore, Maryland grower

Region 6: Dean Henry, Iowa grower

Region 8: Henry Bierlink, Washington Red Raspberry Commission

The nominations were accepted by acclamation. *See the back page of the newsletter for their contact information.*

The annual meeting also reviewed the 2007 budget, and all members were urged to help bring in new members.

ABCs of Blackberry Production Notebook

Copies of the looseleaf notebook that was created for participants in the ABCs of Blackberry Production workshop at our annual meeting in Savannah are now available from NABGA. The notebook contains basic production advice; cultivar and nursery information; recommendations on disease and pest control, soil management, and pruning; and production budgets. The focus is primarily for the Southeast and Eastern states. The looseleaf format makes adding and replacing information easy. This is a good resource for someone just getting started. The cost is $18/copy, shipping included. To order, send your check and mailing address to the NABGA office.

NABGA Executive Council Report

Meeting on Thursday, January 5, 2006 the NABGA Executive Council made a number of decisions and plans for the coming year. The Council:

• decided to work on revising and streamlining the bylaws of the NABG Research Foundation, and discussed ways to increase funding for bramble research.

• unanimously approved continuing with the same goals adopted last year (which are, briefly, to improve communication, promote bramble fruit to the public, and provide a unified voice for the bramble industry, building coalitions with other groups.) Considerable progress has been made on these; for example, with the newsletter and website and NABGA's participation in the National Berry Crops Initative and conference partnerships.

• decided to explore creating new types of membership for nurseries, organizations or associations, and consumers.

• approved a contining contract with Debby Wechsler as Executive Secretary.

• approved a slate of nominees for Executive Council.

• reviewed 2005 finances and adopted a budget for FY 2006 (see page 15).

• decided to hold our 2007 annual meeting in the Midwest, probably in cooperation with an existing meeting

• approved an increase in annual NABGA dues from $75 to $85, increased the acreage assessment cap from $35 to $100, and created an introductory rate for new members of $50. The EC felt that this combination would help cover the increasing costs of doing business, but also make it easier for NABGA to grow. The introductory rate was initiated at the Syracuse regional meeting.

• discussed creating a health benefits brochure that members could hand out and set a goal of creating something by June 2006.

• approved a proposal from F*ruit Grower News* to provide free subscriptions to NABGA members, and approved transfer of any FGN subscription funds in hand or subsequently received to the Research Foundation.

• discussed the possibility of changing NABGA's name to something less confusing, such as the North American Raspberry and Blackberry Association, but no action was taken. The EC would like to get more of a sense of how members feel about this (see box below).

Briefly Speaking...

"Potentially.....Two Shots in the Foot"

Americans are being asked to consume more fruit and vegetables in their diet. Health and nutrition organizations, experts, and government agencies all agree that a move in that direction is needed. To accomplish that goal, however, fruit and vegetable supplies must be plentiful and affordable. Everyone agrees on that also. The challenge to participate in this effort that will improve our society is welcomed by the industry, especially berry crops. But, there are some obstacles being placed on the industry that, like a shot in the foot, will hobble our progress.

Shot one... at the border

Immigration reform being considered by Congress could starve the fruit and vegetable industry of its essential labor supply. On one side of the issue is border security, with proponents wanting "enforcement-only" legislation. This position does not account for the large number of undocumented workers who are already in this country and working. Passage of enforcement-only legislation without a "guest worker" component would present a major shock to the economy, make criminals out of growers and workers, take our country in the direction of a closed society, and further make consumers dependent on imported food. Legislation that would contain a sensible guest worker program **with improved border security** would be a positive approach to the issue.

Shot two...at Beltsville, Maryland

Another issue with potentially negative impact on our industry is the planned closing of the Agricultural Research Service's Beltsville Fruit Lab. At the request of President Bush to trim the '07 Budget, USDA budget makers are proposing this termination. Fruit breeding and other research at the lab have been at the forefront for nationwide improvements in berry crops. So, why does the USDA plan to hobble the progress of the berry industry by cutting off this valuable resource while another branch of the USDA is leading the effort for better nutrition in the diet of everyone? Surely there is a better money-saving alternative.

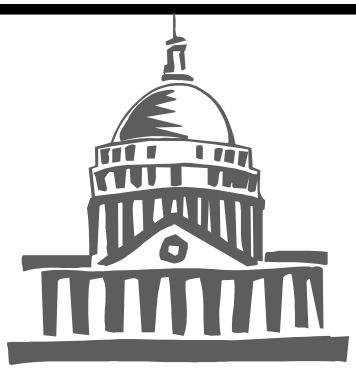
Your NABGA Executive Council has taken a position on both of these issues and is working to represent brambles on these national issues. We ask that everyone in the bramble industry learn more about these issues and respond with supporting actions and your own voice and letters.

—Ervin Lineberger, NABGA President

A *Bramble by Any Other Name*?

Many of us find that the general public is very confused by the word "bramble" and the name of our association. If the word brings to anything to mind, it may be objectionable thorns, not delicious fruit.

The NABGA Executive Council is considering the possibility of changing the name of our organization to remove this confusion and help our consumer education efforts. How do you feel about a name change? What do you think of changing our name to the North American Raspberry and Blackberry Association? Do you have a sugestion for a different name? Let your regional representative know, or contact the NABGA office.



ACTION ALERT

Speak Out on Immigration Reform

The Senate is considering this issue as we go to press,so the time to speak out is ***now***. Personal letters, calls to your senators, and faxes are especially effective. Your letter or fax does not need to be formal; it is just fine to tell your own experiences and use your own words.

The National Council of Agricultural Employers has a lot of information on its website, **www.ncaeonline.org/**, including contact information for all Senators and Representatives – all you have to do is type in your zip code. A letter can be emailed dirctly from the site. This letter is also a good source of information and wording.

NABGA RESOLUTION CONCERNING AGRICULTURAL GUEST WORKER POLICIES

Whereas the bramble growers all across the country produce a valuable and nutritious crop of raspberries, blackberries, Marionberries, and related fruits,

And whereas many commercial bramble growers rely upon immigrant workers to harvest their crop, and many depend upon the H2A guest worker program to provide their workers,

And whereas bramble growers often hire the same skilled, hardworking families year after year and would far prefer to have legal workers than illegal workers,

And whereas many undocumented workers are making significant contributions to rural communities despite very difficult conditions,

And whereas farmers should not be criminalized if after hiring workers in good faith and performing appropriate status checks these workers turn out to be illegal immigrants,

And whereas, reducing the supply of available labor will make it extremely difficult for seasonal employers such as bramble producers to compete with year-round employers such as the landscape, construction, and hospitality industries,

And whereas, closing the borders to migrant workers absent a sensible guest worker program will create extreme hardship for bramble producers, drive production overseas, and help put farms out of business,

Be it resolved on this day, March 17, 2006, by the Executive Council of the North American Bramble Growers Association, that Congress should

- include a sensible guest worker program in any immigration reform legislation
- recognize the value of the existing undocumented workers and provide for an orderly transition to legal status, and
- ensure that the labor needs of agriculture are met in both the short and long term.

Budget Cuts Threaten Beltsville Fruit Lab

The proposed FY 2007 Federal budget announced on February 6 by President Bush proposes to eliminate the Agricultural Research Service (ARS) Beltsville, MD Fruit Lab. NABGA has signed on to the following letter, sent to all members of the Senate and House Ag Appropriations subcommittees. We encourage NABGA members to contact their Senators and Representatives, especially those in the districts of these subcommittee members (see side bar) right away.

March 14, 2006

Dear Senator:

We are writing in strong opposition to the President's FY 07 Budget, which proposes to eliminate the Agricultural Research Service (ARS) Beltsville Fruit and Phytonutrients Laboratories and to share with you the significant impact this action would have on thousands of our farmer members. Through our seven associations, we represent the American farmers who grow strawberries, blueberries, cranberries, and brambles in the states largely east of the Mississippi, plus the North Central and Northwestern parts of our country.

Virtually all of our nation's berry crop production has developed over more than a century as a direct result of these USDA breeding programs. The future success and sustainability of our fruit industries depend on our ability to produce crops with greater efficiency while reducing chemical inputs. Toward this end, the USDA ARS fruit programs are vital to the continued development of cultivars with resistance to newly emerging diseases and insect pests and have been essential as many pesticide alternatives have been eliminated in recent years.

The impact of the ARS Fruit Laboratory is evidenced by the extensive utilization of cultivars it has developed for our crop species which includes 77 strawberry, 24 bramble (raspberry/blackberry), 93 blueberry plus the widely-grown cranberry cultivar 'Stevens'. A critical element for the program's success is the location (soils/climate) of this breeding and selection process in Beltsville, MD, Chatsworth, NJ and other eastern sites where varieties and germplasm of these temperate crop species are subject to high seasonal

variation and high disease pressure, endemic to these field evaluation sites. It is noteworthy that the varieties developed from this program are grown coast to coast and have provided breeding materials for numerous state Agricultural Experiment Stations, the USDA-ARS National Clonal Repository, and private industry including Driscolls.

The major focus of both the blueberry and strawberry breeding programs is the identification of disease resistance and the development of disease resistant germplasm and cultivars for the major diseases that threaten these industries in order to minimize the necessity for chemical inputs for disease control. Because of this program these industries have thrived and are sustained by the hardy, disease- and insect-resistant cultivars that have and continue to be developed. Moreover, resistance is the best strategy for minimizing potential impacts to the environment and to food safety.

In the past decade, blueberries, raspberries, strawberries, and cranberries have become recognized for the benefits they can provide to human health. All of these crops are rich sources of anti-oxidants. Other health benefits encompass anti-atherosclerotic, anti-carcinogenic, anti-inflammatory, and anti-bacterial activities. Blueberries and cranberries have been shown to have activities against age-related neurodegenerative disorders. As the significance of the human health benefits resulting from these fruit crops continue to come to light, the importance of the research performed by the USDA-ARS Fruit Laboratory is further underscored.

Nearly every citizen of the United States has enjoyed the fruits of these programs. Breeding successful varieties of long-lived asexually propagated perennials requires decades of sustained effort. The process is expensive and not suited for commercialization due to time involved, the very low average farm size, and the diversity of our fruit industries. The varieties that have sustained the domestic fruit industries over the last century are a result of the continuity of this program by dedicated breeders and scientists. The highbush blueberry industry is directly attributable to Dr. Frederick Coville, a USDA Beltsville scientist who initiated the domestication of the native American blueberry in 1902. The continued development of cultivars and research is vital for the future of the blueberry ($359 million annual farm-gate value), strawberry ($1.4 billion), cranberry ($212 million), and raspberry ($228 million) industries.

In conclusion, we ask for your assistance in restoring funding for this vital USDA research program and ask that you carefully consider the direct and indirect impacts of the proposed closure on the thousands of small fruit producers as well as millions of Americans who also benefit from the ongoing research efforts at the Beltsville facility.

Signed by:
American Cranberry Growers Assoc.
Cape Cod Cranberry Growers Assoc.
Cranberry Institute
North American Blueberry Council
North American Strawberry Growers Assoc.
North American Bramble Growers Assoc.
Wisconsin State Cranberry Growers Assoc.

And from the Pacific Northwest...

The budget also includes other cuts as these excerpts from a letter by Dr. Bob Martin, USDA-ARS, Corvallis, OR, explain:
...Anticipated are huge cuts in agricultural programs, including in-house research (USDA-ARS) and funding sources relied upon by our Land Grant partners at Washington State, Oregon State and University of Idaho as well as at other universities. The proposed cuts and redirections for the Agricultural Research Service approach 20% of the agency's annual budget and for our unit the cuts are greater than 25%.

Locally, the President's proposed budget will affect all research programs of the Horticultural Crops Research Laboratory (Corvallis, OR; Prosser, WA; and Parma, ID) plus the competitive grants program under the Northwest Center for Small Fruits Research, the Northwest Plant Improvement Initiative, and numerous Specific Cooperative Agreements between USDA-ARS and our collaborators at Washington State University, Oregon State University, and the University of Idaho...Scientists at WSU, OSU, and U of I will suffer directly in that many rely significantly on funding from the grant programs associated with the Northwest Center for Small Fruits Research, and various Specific Cooperative Agreements that also are included in the cuts. The President's total proposed reduction in Small Fruit and Grape research in the Pacific Northwest exceeds $2M...The President's budget consistently has reduced funds for agricultural research each year since about 1996, but concern is heightened because the extent and magnitude of proposed cuts are so large that important domestic programs may not be reinstated by Congressional committees during their budget deliberations.

Ag Appropriations Subcommittees

House
Henry Bonilla (TX), Chairman, Ag Appropriations Subcommittee
Rosa DeLauro (CT), Ranking Member
Jack Kinston (GA)
Tom Latham (I(A)
Jo Ann Emerson (MO)
Virgil Goode, Jr. (VA)
Ray LaHood (IL)
John Doolittle (CA)
Rodney Alexander (LA)
Maurice Hinchey (NY)
Sam Farr (CA)
Allen Boyd (FL)
Marcy Kaptur (OH)

Senate
Robert Bennett (UT), Chairman,Ag Appropriations Subcommittee
Thad Cochran (MS), Chairman, Senate Appropriations Committee
Arlen Specter (PA)
Kit Bond (MO)
Mitch McConnell (KY)
Conrad Burns (MT)
Larry Craig (ID)
Sam Brownback (KS)
Herbert Kohl (WI), Ranking Member
Tom Harkin (IA)
Bryon Dorgan (ND)
Dianne Feinstein (CA)
Dick Durban (IL)
Tim Johnson (SD)
Mary Landrieu (LA)

Environmental Conditions Affect Size, Yield, and Taste

By Nate Nourse, Nourse Farms

Conversations with growers this winter had two distinct themes: flavor and production. We believe these issues could be associated with environmental conditions the plants were subjected to before, during, and after harvest. We can further distinguish these conditions by those we can and cannot control and the cultural practices growers can perform to relieve or limit the damage.

The majority of the time, flavor is affected by too much or not enough water and/or sunlight. Most growers recognize that flavor can be washed out by too much rain or irrigation, but many have recently learned that inadequate moisture and/or sunlight will reduce flavor. This issue is more noticeable in higher producing varieties that require more water. Examples include Darselect strawberry and Caroline raspberry, which are larger and juicier if they receive adequate moisture.

This leads us to production issues. Before and during flower bud development, both overall plant health and adequate moisture are key components. After harvest is an important time to provide timely and adequate moisture. Also, disease and insect control to maintain highly efficient foliage is very important and supported by research. The combination of these conditions will greatly influence flower bud production and subsequently fruit production the following season.

Another factor that can influence both flavor and production is herbicide use. Growers are highly concerned about controlling weeds with the lowest labor cost, but how is herbicide usage affecting plant health? Plants are affected in many ways. First, through a general decline in vigor, due to damage to leaf tissue. Second, by changing metabolic activity because of damage to the roots. We must also consider that microorganisms are negatively impacted. And finally, through the inhibition of root and runner development. These negative influences happen to some degree with all herbicides, including those applied to other crops in years prior to planting.

In conclusion, both research and growers' results indicate that there are other environmental conditions that alone may seem insignificant, but together, make an impact. Is your pH too high or too low? Are imbalances of micronutrients affecting health and production? Is less ozone in the atmosphere letting through too much ultraviolet light, sun burning plants and fruit? These seemingly minor factors will affect certain varieties more so than others, especially our most productive ones. If you add in factors of too much or too little water, and the effects of other management practices, combined with unfavorable conditions, flavor and yield will be impacted.

Reprinted from Nourse Farms Newsletter, *Spring 2006.To subscribe or order a catalog, email info@noursefarms.com.*

Spring 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.

Plant growth and development

- ❑ Plants deacclimate quickly
- ❑ Bud differentiation (additional flowers formed)
- ❑ Bud break
- ❑ Flowering
- ❑ Primocane emergence

Pruning and trellising

- ❑ Finish pruning and make sure all floricanes are tied to the trellis before budbreak.
- ❑ Rotate shift trellises to horizontal position before budbreak; rotate to upright position immediately after flowering.

Weeds

- ❑ Weed growth can be very vigorous at the same time as the bramble crop peaks. Don't let weeds get out of control.
- ❑ Weed control is best done earlier in the season before harvest commences.
- ❑ Hand-weed perennial weeds in and around plots.

Insect and disease scouting

The period of time in the spring when the plant is flowering is the most important season for control of insects and diseases. Know what your pests are and how to control them.

Water management

- ❑ Bramble plants need about 1"-2" water/week. This amount will be especially critical during harvest.
- ❑ In the South onsider installing an overhead system for evaporative cooling. Turn on once or twice a day from 10 am to 3 pm for short periods of time (approx. 15 minutes) until mid afternoon.

Nutrient management

- ❑ Apply second half of nutrients if doing split application.

Marketing and miscellaneous

- ❑ Service and clean coolers.
- ❑ Make sure you have enough containers for fruit in the coming season.
- ❑ Prepare advertising and signage for your stand.
- ❑ Contact buyers to finalize orders.
- ❑ Hire pickers.
- ❑ Prepare signage for field orientation; it is easier to tell pickers where to go if rows are numbered.

Please Check Your Membership Directory Listing

If you see any corrections or changes that need to be made, contact the NABGA office. (You'll note I've already found a few mistakes!) I will make the corrections in our records and the on-line directory, and send them out with new member listings in future newsletters. Do you have an email address but it is not listed? If you provide it, I will then be able to send you the Association's occasional email action alerts and reminders.

—Debby Wechsler, Exec. Secretary

Rediscovered Raspberry Holds Promise for Production in NC

By Suzanne Stanard

Reprinted with permission from the Winter 2006 issue of Perspectives, *the magazine of the College of Agriculture and Life Sciences, N.C. State University.*

Some say the easiest way to find something is not to look for it. This was the case for Dr. Jim Ballington, professor of horticultural science and specialist in small fruit breeding, who serendipitously rediscovered the Mandarin raspberry, a variety that had vanished nearly 20 years before. Like unearthing an ancient family recipe or a stash of treasured old photos, finding the "lost" berry was like a homecoming for Ballington, who has headed the NC State University's small fruit breeding research program for more than 20 years.

He recently handed over the program's reins for bramble breeding to associate professor and small fruit specialist Dr. Gina Fernandez, who is building on the strengths of Mandarin to re-propagate the variety and evaluate Mandarin hybrids developed by Ballington, as well as create new hybrids that could advance the production of raspberries in North Carolina.

Mandarin raspberries. Photo by Gina Fernandez.

Mandarin was released in 1955 by the NC State raspberry breeding program. The program dissolved soon after, and only a few Mandarin plants existed into the 1960s. The problem with the berry, Ballington says, is that it was susceptible to a disease that aggressively killed the young shoots. At the time, he suspects, the researchers might not have known how to manage the disease, so they chose not to promote the raspberry, allowing it to slip into "almost" nonexistence.

Until one day in the late 1980s, when Ballington received a surprising phone call. "I found out that Mandarin still existed through Dr. Joe Brooks, former Extension small fruit specialist," Ballington says. "He told me that Ashe County Extension agent Chuck Gardner, who is now retired, still had plants of the variety."

It turns out that Gardner's sister-in-law also had a few Mandarin stragglers nearby in Wake County. Ballington contacted her, obtained the plants, and immediately embarked on a mission to propagate Mandarin and also to explore possibilities for developing offspring of the variety that could be mass-produced in North Carolina.

Ballington and his team meristemmed the plant, placing tiny shoot tips into tissue culture. Typically, plants multiply very rapidly after successful meristemming.

Continued on next page

Rediscovered Raspberry

Continued from previous page

Ballington was successful in this first attempt, and soon after, delivered a number *in vitro* to a nursery in the Northeast.

"Our big problem was commercial propagation," Ballington says. "Since this nursery was in the business of making money and he didn't sell around 10,000 Mandarin plants every year, he soon got rid of them."

Ballington forged ahead. Dr. Turner Sutton, N.C. State professor of plant pathology, determined that the disease problem that had plagued the original Mandarin plants in the 1960s was a type of anthracnose *(Colletotrichum gloeosporoides)*, and simply spacing the plants a little farther apart allowed ample air movement and light through and around the plants to effectively manage the disease.

The Mandarin is a hardy, flavorful raspberry with outstanding tolerance to heat and humidity and resistance to variable temperatures during winter. This is especially significant considering that most raspberries can't survive North Carolina's scorching summers, much less our typically fickle winter season, in which the temperature can dip from 60 degrees to 30 degrees in a day. Mandarin seems perfectly suited for production in North Carolina.

But there hasn't been much awareness of the Mandarin and its characteristics, and interest in commercial propagation has been weak, Ballington says. He and Fernandez hope to change this by getting tissue culture source-propagated plants into commercial channels in the near future, since producing plants by conventional means is slow.

Building on Mandarin's strengths, Ballington also crossed it with more modern types of raspberry to produce berries with larger size, higher yield and a longer production season. Fernandez, who is continuing these efforts, says, "Working with Mandarin has opened the door to a number of exciting possibilities."

Dr. Fernandez would like to hear from nurseries interested in propagating and selling Mandarin plants. Contact her at gina_fernandez@ncsu.edu or 919-513-7416.

RESOURCES

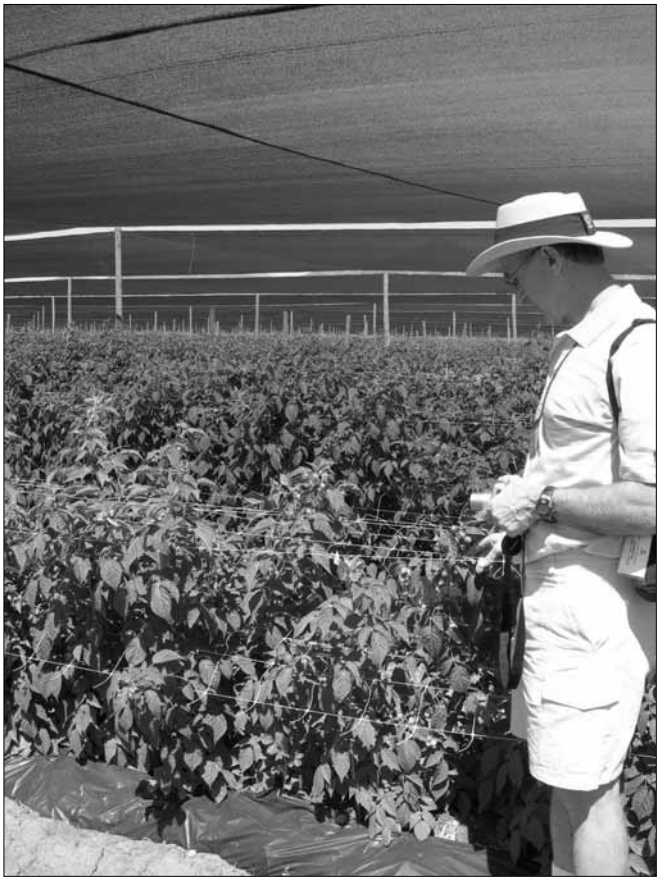
"Berries and their Role in Human Health" is a 100-page independent report, available from DeBoer Consulting. The report summarizes the health beneficial properties of berries and their chemical compounds. It discusses the potential health effects of berry products for numerous clinical conditions and how much of this basic science data is supported by clinical studies in humans. Current clinical trials, sponsored by the National Institute of Health, are summarized. The effects of berry processing and storage, the reasons for often very different compositions, as well as the potential use and benefits of processing waste are highlighted. The important differences between whole fruits or berries and purified chemical compounds and the awareness of the public with regards to the importance of fruit consumption is discussed. The price is Can$95 as a PDF file, or Can$110 printed (including shipping).For more information visit www.deboerconsulting.com/reports.html.

The Ninth International *Rubus* and *Ribes* Symposium, Pucon Chile

By Tom Walters

Researchers, extension agents, and growers from around the world convened in Chile this past Nov. 30-Dec 7. We enjoyed an excellent tour of the berry fields in Chile followed by a top-notch scientific symposium.

Chile is a very long (18 degrees south to 56 degrees south) and narrow (about a hundred miles wide) country. The country's climates include the world's driest desert, rainforests, the icefields of Patagonia, and everything in between. Our tour took us through the berry producing regions of the country, which range from Los Andes at 33 degrees south to Osorno, at approximately 42 degrees south. We spent four fascinating days visiting farms in the region. There just isn't enough space here to tell everything, but here are a few highlights.



Raspberry production north of Santiago. Note the shade cloth to prevent sunscald, and the clever use of a plastic mesh to hold primocanes erect.

The pre-symposium tour began in Chile's capital of Santiago, a modern, bustling city that is home to about a third of Chile's 15 million people. We jet-lagged and weary tourists were welcomed with warm Chilean hospitality and a good dinner. The next morning, we were ready and eager to see farms.

The region just north of Santiago is mild and pleasant, reminding me of Central California. There, we saw some beautiful blackberry and raspberry plantings for fresh market export. The blackberry varieties included 'Navajo' and 'Tupy'. We also saw 'Heritage' and proprietary raspberry varieties. Shade cloth was used extensively, as temperatures can climb and sunburn is a concern in this region. Interestingly, the growers usually left a gap between sections of shade cloth to improve air circulation. One of the growers also used a floral mesh to trellis primocanes; this method looked much simpler to erect than most of the trellis systems we use here in North America.

From this northern point, our tour headed south and included visits to nurseries, farms and berry processing facilities throughout the berry growing regions of Chile. Although Chile is famous for exports of fresh fruit, approximately 70% of the raspberries grown in Chile are for processing. In contrast with the large, highly capitalized fresh market growing operations, the farms which grow the processing raspberries are many (an estimated 16,000 operations) and often very small (sometimes just an acre or two of berries). They face many challenges, including lack of access to a research and extension system, and no source of clean plants. It was humbling to realize what we take for granted! These small growers welcomed us graciously and generously nonetheless.

Some Chilean processing raspberry farms are big. We saw one 200-acre operation near Temuco which looked like it could've been airlifted from the Pacific Northwest. Same variety (Meeker), similar trellising and irrigation systems. The frost protection system in place made it clear, though, that we were nearing the edge of the best production region.

Organics are big in Chile, and we saw several organic operations. Many European and American organic certification boards certify producers in Chile. With a limited domestic population, Chilean berry growers have been export-oriented from the beginning. As such, they've come accustomed to third-party inspection and certification for organic production and for food safety. A recent trend is certification for meeting certain social issues, such as picker pay and contributions to social services. One of these, "Euro-Gap", is becoming popular in Europe, but I don't know of anything similar in the U.S. right now.

Following the end of the tour, the Symposium itself took place over three days in Pucon, Chile. We had a great many excellent presentations and posters on breeding and genetics, physiology and production, pests and diseases, agronomy and postharvest quality and nutrition. I can't begin to do justice to the program, but here are some of my personal high points:

Chad Finn reported on a worldwide survey of newer raspberry cultivars and brought forth some of the most promising. Those of us in the mild Pacific Northwest are now growing 'Casacade Delight'(great root rot resistance), 'Coho' (outstanding quality for IQF processing), and 'Cowichan' (resistance to Raspberry Bushy Dwarf Virus). New releases from Harry Swartz's program include 'Alice', Debora', 'Jaclyn' and 'Georgia'. 'Octavia', a new release from East Malling Research, appears to be 5-9 days later than Tulameen. It certainly seems worth a look.

Continued on next page

Ninth *Rubus* and *Ribes* Symposium

Continued from preious page

Dr. Jim Ballington spoke about breeding raspberries adapted to warm, humid climates with fluctuating winter temperatures. Talk about taking on a challenge! He has had some encouraging early results using *Rubus parvifolius*, as well as *R. innominatus* and the native *R. occidentalis*.

John Clark reported on new trends in blackberry breeding. The hottest new trend in blackberries is, of course, Dr. Clark's primocane-fruiting varieties. The first ones are on the market now; still to come are thornless versions with improved fruit quality. There is a need to improve sunscald tolerance and low-temperature flowering ability in summer-bearing types. There are also some recently released trailing blackberry types, as described by Chad Finn. 'Black Diamond' has been extensively planted. It has a season similar to that of 'Marion', machine harvests well, and has beautiful, jet-black fruit. It also appears to be a little more cold-tolerant than 'Marion'. ORUS 1843-3 combines the outstanding fruit flavor of *Rubus ursinus* with thornlesness and disease resistance of 'Waldo'.

Dr. Bernadine Strik spoke on worldwide production of blackberries. About 50% of the berry plants in production are semi-errect types, with about 25% each of erect types (Brazos, Tupy) and trailing types (Marion, Boysen). China is increasing acreage rapidly, with 1550 HA in production (a 70% increase in the last 10 years). Mexico has also increased rapidly, as Mexican growers in the Michoacan region have learned new production systems allowing them to produce fruit nearly year-round.

In a separate report, Dr. Strik also reported on management of primocane-fruiting blackberries. Primocane-tipping at 1 m height dramatically increased yields of both Prime-Jim and Prime-Jan. In fact, Prime-Jim just about had to be tipped to produce acceptable yields.

Adam Dale delivered an excellent address on physiological aspects of greenhouse raspberry production. He described a number of ways to increase yields in greenhouses, including letting primocane fruiters branch during long days, use of low-chill cultivars, and using vernalization to reduce time to flowering.

Raspberries growing with frost protection near Temuco, Chile.

Pedro Oliveira gave an update on his extensive work in cutting back primocane-fruiting varieties to manipulate yields and harvest time. In Portugal, cane density of 16-24 canes/m of row was optimal. By pruning in the summer, fruit could be harvested in October, November and December. Pruning lower on the plant was more effective in delaying fruiting, but reduced yields. He pointed out that results depend upon variety and environmental conditions

Wayne Wilcox presented an exellent overview of that nemesis of raspberries, root rot. He found some evidence for biologicals control with GV41 Trichoderma and Gliotoxin. He also reminded us that the use of raided beds remains the single most effective cultural practice for management of root rot. Soil amendment with gypsum is effective, but use of calcitic lime is more questionable. *P. megasperma* and *rubi* are important in the south of Chile, but in the north of the country, other species cause root rot of raspberries. Courtney Weber reported on his development of marker assisted selection for resistance to root rot in red raspberries.

Chile has wonderful natural resources: a great range of climates, abundant water from the Andes and deep soil. These are important, but pale in comparison with Chile's incredible human resources: hardworking growers, a stable, democratic government dedicated to the rule of law, and industry leaders with clear goals and a determination to compete on the global market. The Chileans are here to stay.

Tom Walters is Vice President of NABGA and works at the Northwest Washington Research and Extension Center.

RESEARCH REPORT

Predicting the Flowering Time of Blackberries

Brent Black and Fumiomi Takeda, USDA-ARS, with cooperators Kimberly Lewers and James Frisby

Background

As temperatures increase in the spring, buds on temperate perennial plants lose cold hardiness and begin to grow. As a result, late winter temperature fluctuations can cause the plants to 'deharden' and then be damaged by cold temperatures. The maximum sensitivity to cold temperatures occurs at or near bloom, when temperatures only a few degrees below freezing will damage the sensitive flower pistils. The result of this damage is either no fruit, or fruit with only a few viable drupelets that develop into small, misshaped crumbly berries (Crandall 1995).

As part of a NABGA-funded project (Hokanson, 1998), a collection of blackberry and raspberry-blackberry hybrids was accumulated at the Henry A. Wallace Beltsville Agricultural Research Center. More than 120 genotypes were established in the field in 2000. From 2002 to 2004, these plants were monitored for date of first bloom to identify late-flowering genotypes for use in the breeding program. One objective of the breeding program is to developing late-flowering varieties that will be adapted to areas prone to late-spring frosts. Ideally, new varieties would bloom late and have the shortest possible time of fruit development. Spring conditions varied dramatically during the 2002, 2003 and 2004 seasons, where 2002 was an unusually cold wet spring and 2004 was unusually warm. These differences were reflected in the date of first bloom. First bloom date for many genotypes was as much as 20 days later in 2002 than in 2004 (Lewers and Black, unpublished). This dramatic seasonal variation in bloom date makes it difficult to compare genotypes.

Objectives

1. Collect flowering dates and temperature data, and use these data to refine and validate a mathematical equation for predicting blackberry bloom date.

2. Make precise determinations of heat units required for flowering for two commercial varieties under controlled-environment conditions.

3. Develop a user-friendly spreadsheet to be used by growers to predict bloom dates of commercial cultivars for their location.

Progress

Objective 1: Data were collected on flowering and fruiting dates of 113 cultivars and selections at the Beltsville Agricultural Research Center. Corresponding weather data were obtained from a nearby automated weather station. These data, along with data for the previous three years have been given to a new cooperator, James Frisby at Utah State University (USU). As a graduate student and research technician, James Frisby worked with USU faculty to develop the mathematical models for predicting chilling requirements and bud break for peach. This 'Utah' model has been the standard for development of new chilling and heat unit models. Recently, the Utah chilling model was the basis for a chilling model developed for blackberries (Warmund and Krumme, 2005). James Frisby has agreed to use the blackberry data collected as part of this project to refine the growth model for blackberry, and is still in this process of model development

Objective 2: Dormant potted plants of two cultivars, 'Navaho' and 'Apache', were grown in controlled environment growth chambers, and date of first bloom was recorded. Chambers were set at 10, 15, 20, 25, 30 and 35ºC (50, 59, 68, 77, 86 and 95ºF). This experiment was repeated twice, and data for these repeat experiments are currently being analyzed. This analysis will be used to further refine the heat unit model described under objective 1. One of the primary questions we plan to address with these data is the effects of warmer spring temperatures (> 20ºC) on rate of bud and flower development.

Objective 3: Developing a user-friendly data base of current commercial cultivars will be completed after we have properly validated the mathematical model described in objective 1.

Other accomplishments: NABGA funding for this project resulted directly in ARS providing funding for the construction of three Conviron walk-in environmental chambers at the Appalachian Fruit Research Station, at the total cost of $90,000. This will allow F. Takeda to continue this work.

Future work plan: The effect of environmental variables on plant growth will be determined with the Richards function (Richards, 1959). Mean relative growth rate during the first period of growth when the rate of increase in cane height (log) is constant will be calculated from the gradient of the fitted relationship (Causton et al., 1978). The accumulated degree days to flowering will be estimated from the reciprocal of the gradient of the relationship between effective temperature and the reciprocal of the time to flowering or fruiting, using the method of Pearson et al. (1993). This method assumes that above the optimum temperature the rate of plant development declines linearly at the same but negative rate to that at sub-optimal temperatures. The effect of photosynthetic photon flux density (PPFD, a measure of photosynthetic light levels) in combination with effective temperature will be calculated by multiple regression analysis. In all studies described here we will document the extent of variation that occurs in the timing of flower developmental events within individual plants,

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Predicting the Flowering Time of Blackberries

Continued from previous page
between two selections, and among years. Previous work on blackberry cultivars (Takeda, 1988; Takeda et al., 2002; 2003) have demonstrated that such variation exists, but little effort has been made to examine the extent of such variations and how much the variability in shoot emergence date and cane extension growth rate contributes to non-uniformity or differences in timing of floral developmental events.

Experiments will be performed to investigate whether cane management techniques can effect the time of floral bud initiation in APF-8, APF-12, and other advanced primocane-fruiting (PF) blackberry selections from Dr. John Clark's breeding program at the University of Arkansas. Field experiments will be set up in West Virginia to investigate the effects of management practices on flower bud formation and yield potential. Two trellis and cane training systems will be evaluated in which canes will be trained to grow upright or horizontally. There will be four replications of eight plants in "I" trellis and rotating cross-arm (RCA, Takeda et al., 2003) trellis systems. We hypothesize that canes trained to grow in a horizontal orientation on the RCA trellis will have better light exposure than canes on an 'I' system and their reproductive development will be affected, thus time for bloom and fruit harvest may be modified.

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Small Fruit Consortium Funds Bramble Research

The Southern Region Small Fruit Consortium, made up of the land grant universities of North Carolina, South Carolina, Georgia, Tennessee, and Virginia, has recently made a number grants to bramble-related projects. The grants were:

- Raspberry Breeding for the Southern Region, Fernandez, Ballington, Pesic-VanEsbroeck, Sosinski, NC, $5,000.
- Antifeedants, Repellants, and Organic Controls for Tarnished Plant Bug and Japanese Beetle on Caneberries, Pfeiffer, VA, $5,000.
- Enhancement of Bramble Production in the Southeastern U.S. through Micropropagation, Virus-Indexing, and Field Evaluation for Trueness-to-Type, Pesic-VanEsbroeck, Ballington, $5,000.
- Evaluation of Herbicides for Yellow and Purple Nutsedge (Cyperus esculentus and C. rotundus) and Annual Sedge (Cyperus spp.) Control in Young Blackberry Fields, Czarnota, GA, $2,000.
- Evaluating Protected Culture for Season Extension of Small Fruits, Pattison, Wolf, VA, $5,000.

New Pacific Northwest Blackberry Varieties

The USDA-ARS breeding program in Corvallis, Oregon, has recently released five new blackberry varieties in cooperation with the Oregon State University Agricultural Experiment Station and the Washington State University Agricultural Research Center.

According to breeder Chad Finn, the varieties are unlikely to be suited to other parts of the country, but other bramble breeders, such as Dr. Gina Fernandez at NCSU are taking a look at them.

New Thornless Processing Blackberry Cultivars

Black Diamond

- Thornless, machine harvest
- Kotata x NZ 8610L-163
- Selected in Oregon in 1996
- Similar appearance to 'Marion'
- Productive
- Larger and much firmer than 'Marion'
- Good flavor and fruit quality
- V. favorable response in grower trials.
- #1 for blackberry sales in 2004-200

Black Pearl

- ORUS 1117-11 x ORUS 728-3
- Thornless, machine harvests
- 'Marion' yield and fruit size
- Very good flavor and fruit quality in blind panels
- Watch firmness and erratic plant to plant yield
- Processing
- Plants available from nurseries

Nightfall

- Marion x Waldo
- Thornless
- Similar season to Marion
- High yield
- Large fruit with acceptable firmness and color
- Tart flavor
- Plants available from nurseries

New Early, Fresh Market Blackberries

Obsidian

(ORUS 1369-3)

- ORUS 828-42 x ORUS 1122-1
- Very early and productive
- Large fruit
- Excellent flavor
- Stays black in refrigeration and freezer
- Vigorous plant with long laterals
- Shipping fine in wet year (2005)
- To watch: firmness/skin toughness
- Plants available

Metolius

(ORUS 1452-1)

- Douglass x Kotata
- Very early and very productive
- Kotata size
- Excellent flavor
- Firm and very uniform shape
- Vigorous plant with stiff laterals
- Plants now available from nursery

This information was provided by Chad Finn, USDA-ARS Horticultural Crops Research Center, Northwest Center for Small Fruit Research. For more information, contact him at finnc@science.orgeonstate.edu.

Metolius fresh market blackberry

NABGA FINANCIAL REPORT

FY 2005 Financial Summary

10/1/2004 – 9/30/2005

INCOME	
Bramble ads	$ 588
Dues	7,845
Acreage assessments	1,650
Literature	5
Subscriptions (profit)	64
Other income	145
Conference	4,250
Donations (research)	1,327
Total income	**15,874**
EXPENSES	
Management	8,054
Newsletter Expenses	945
Bank/Card Expenses	109
Office Expenses	36
Telecommunications	169
Postage	581
Printing	521
Travel	205
Transfer to Research Foundation	5,358
Total Expense	**15,978**

Funds balance 9/30/2005: $22,603.64

Funds balance 12/28/2005: $26,410.67

FY 2006 Budget

10/1/2005 – 9/30/2006

INCOME	
Bramble ads	600
Dues	9,000
Acreage assessments	2,000
Literature	500
Subscriptions (profit)	100
Conference	700
Donations (research)	600
Sponsorships	1,350
Total income	**14,850**
EXPENSES	
Management	8,400
Newsletter Exp.	1,000
Bank/Card Exp.	140
Literature Exp.	250
Office Exp.	200
Telecommunications	200
Postage	600
Printing	500
Travel	900
Misc. Reimbursements	1,000
Transfer to Research Foundation	3,660
Total Expense	**15,850**

For more information on this financial report, contact the NABGA office. NABGA is a tax-exempt 501(c)(6) nonprofit agricultural organization. The NABG Research Foundation is a tax-exempt 501(c)(3) corporation. Contributions to NABG-RF are tax deductible.

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Pencil in this Date: January 16-17 2007

in Columbus, Ohio for the 2007 NABGA Annual Conference

NABGA is in the process of making arrangements to meet in conjunction with the Ohio Fruit and Vegetable Congress, the annual conference of the Ohio Fruit Growers Society, the Ohio Vegetable and Potato Growers Association, and several other groups.

If you have ideas for sessions and speakers or would like to be involved in organizing this meeting – we'd especially like to hear from Ohio members – please contact the NABGA office.

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