THE BRAMBLE

VOLUME 21, ISSUE 2
SUMMER, 2006

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

Raspberry Marketing Order Being Considered

By Henry Bierlink, Executive Director of the Washington Red Raspberry Commission and Region 8 representative on NABGA's Executive Council

The Washington Red Raspberry Commission (WRRC) believes that it is time to unite bramble growers to concentrate on expanding North American markets for our fruit. We have a great story to tell on both health and taste but we have not been very effective in telling that story. Much of our challenge comes from very limited marketing budgets.

Bramble growers have nowhere near the marketing budgets of our strawberry and blueberry neighbors. It has also been difficult for us to invest large sums in promotions when an increasingly large percentage of berries sold in ths country are being imported. We ask ourselves, "Why should we assess ourselves to market when our foreign competitors get the primary benefit?"

We sense that we need only to look towards the blueberry farmers for an answer to this dilemma. The WRRC has been researching means to set up a national order that would allow all raspberry growers to cooperate in marketing and also assess imported berries for funds to support our marketing efforts.

USDA's Research and Promotion Program (R & P) is the only way we've identified to assess imported berries at the same rate we assess our own berries for both research and/or promotion. The US Highbush Blueberry Council is an example of an R & P program. Establishing an R & P program can be done with a grower vote or be established with a deferred vote within three years of the program's establishment. This program estimates 12-18 months as an optimistic period for the time from the request to actual establishment of the program. Extensive public hearings and grower involvement is crucial to the establishment of the program.

The ability to assess imported raspberries to help our marketing program is a major interest of the WRRC. An R & P program is by definition a national program so our first decision will be about whether the program is strictly processed berries or both fresh and processed raspberries. (Of the fruit produced in Washington state, 98% goes to processing; we don't do much fresh. California is about the opposite and I assume that most of the raspberry growers around the nation are also primarily fresh producers.) Our preference is for including both processed and fresh-market berries, but only if there is support from the fresh berry growers. We are having discussions with California growers and we invite bramble

Continued on next page

2007 NABGA Annual Conference Preview

NABGA's annual conference, which we are newly christening the "**National Bramble Conference**," will be held on January 16-17, 2007 in Columbus, Ohio, in association with the Ohio Fruit and Vegetable Congress. Mark your calendar now, and watch for full conference information this fall!

This is an excellent arrangement for NABGA – it is a convenient central location, and a substantial and reasonably priced conference, and we've been warmly welcomed by the Ohio conference planners. Ohio has been a leading center of research on health benefits of brambles, especially black raspberries. We will be able to draw on the expertise of growers and extension in the region as well as bring the benefits of our national organization to Ohio bramble growers. Ohio organizations cooperating in the conference are the Ohio Fruit Growers Society, the Direct Agricultural Marketing Association of Ohio, the Ohio Vegetable and Potato Growers Association, and Mid-American Ag and Hort Services, as well as Ohio State University.

We plan to have a full day of bramble-related sessions on Tuesday, January 16, plus a half-day on Wednesday, January 17. There may also be an intensive workshop on the afternoon of Monday, January 15; we're not sure yet. There is a large trade show on January 16th and 17th. Besides attending our sessions, you'll be able to take full advantage of the other sessions scheduled on tree fruits, strawberries and blueberries, direct marketing, and vegetables.

The conference will be at the Greater Columbus Convention Center in downtown Columbus, with special rates at hotels in the vicinity. If you want to see what the OFVG Congress was like last year, go to www.ohiofruit.org. To find out more about the Columbus area, you can visit www.columbusconventions.com.

Do you have ideas for sessions and speakers for the conference? Can you suggest any exhibitors we should encourage to come? Would you like to be involved in planning the conference? Can you help with a NABGA table or other volunteer tasks during the event? Contact the NABGA office at nabga@mindspring.com or 919-542-3687 to offer ideas and help.

Raspberry Marketing Order *continued from previous page*

growers throughout the nation to participate in this discussion.

A good place to start learning about R & P programs is the USDA website located at: www.ams.usda.gov/fv/rpb.html. We hope bramble growers around the nation will investigate how this program might be able to help in your research and promotion plans. We'd benefit from hearing from you.

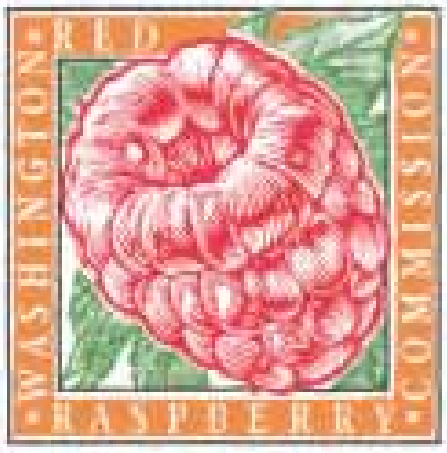
The Bramble asked Henry a few questions that growers might ask:

What is the expense to me likely to be? How would it be collected?

Typically groups like ours, and likely the proposed R & P program, collect assessments based on either volume or value of berries produced. Our Commission collects $.005 per pound. We have a *de minimus* amount of 3 ton under which growers are exempt from having to contribute. It just doesn't make sense to chase after small U-pick or farm stand growers. We collect the assessment after the end of harvest. First handlers of berries, places where growers deliver berries for processing, deduct ½ cent per pound from what they pay the growers and send it to our Commission. Producers who market their berries directly send in a report on their production and a payment based on that record.

Is is the answer to the question you pose in the article, "Why should we assess ourselves to market when our foreign competitors get the primary benefit?" to also asses imports and to encourage across-the-board consumption so both local and imported fruit will benefit?

You have it right on how we propose to answer the question we posed. We



believe that all who benefit from the growth in the market should pay for that benefit. Establishing an R & P program is the only way we can ensure that imported berries do that.

Do you have a sense of what kind of national budget we'd be talking about?

Last year we imported over $53 million in IQF raspberries. Plus a large amount in fresh and other processed products. Just the IQF amount would bring in nearly $300,000 from offshore producers if we stuck to our ½ cent assessment. Add that to US raspberry production, which is about 70 million for frozen fruit and something close to that for fresh and you add another $625,000 to the budget. We are now starting to look at a possible $1 million promotion campaign.

The most important question we currently face is if we should simply pursue the R & P program strictly for processed berries or both fresh and processed. It is important to us to hear from the NABGA growers what they think.

Please let us know your thoughts

on this proposed program, which could bring hundreds of thousands of dollars a year to raspberry research and promotion. WRRC sincerely seeks comments from growers across the nation. Send your comments to NABGA at nabga@mindspring.com or 1138 Rock Rest Rd. Pittsboro, NC 27312. You can also contact Henry Bierlink directly at henry@red-raspberry.org.

2007 Farm Bill Priorities

The National Berry Crops Initiative (NBCI), whichNABGA participates in, is working in coalition with other groups to advocate for a common set of priorities for the 2007 Farm Bill. By joining with other berry crops, with tree fruits, and with vegetable crops, and with other organizations – many of which have far more savvy in legislative matters – and by having a set of mutual objectives across region and different crops, we strengthen and clarify our message. The National Berry Crops Initiative strategic research and extension plan, which we've beenworking on this past year, becomes part of a larger National Plan for Specialty crops. Historically the Farm has favored the "program crops" such as corn, soybeans, and other major commodities.

Overall, the United Fresh Fruit and Vegetable Association has taken the lead in developing a comprehensive set of recommendations through a "Farm Bill Working Group". Within NBCI, staff of the Washington Red Raspberry Commission, and the Orgeon Raspberry & Blackberry Commssion, along with the Wild Blueberry Commission (and probably others), have been quite active already in this Working Group and in discussions with Congress. NABGA's national membership base is a strength of our organization as this process continues.

The Statement of Principles below is a work in progress, as are the more specific legislative recommendations that follow it in the 2007 Specialty Crop Farm Bill Priorities.

Statement of Principles

1.The specialty crop industry is a critical and growing component of U.S. agriculture. It deserves full and equal consideration in the Farm Bill.

2. Support for the specialty crop industry should emphasize building the long-term competitiveness and sustainability of U.S. specialty crop production.

3. Doubling fruit and vegetable consumption, as called for in the 2005 Dietary Guidelines, can be accomplished by expanding specialty crops access and availability.

4. Specialty crops deserve a fair, level playing field with international competitors.

5. To increase exports, federal policy and resources must support efforts to remove existing international trade barriers that block U.S. specialty crop exports.

Specific priorities include expanding research in specialty crops and the State Block Grant Program, equal benefits for specialty crop producers in all farm programs, and a mandatory allotment for specialty crops within the EQIP Conservation Program.

We are important: According to a recent USDA report, the fruit and vegetable industry accounts for nearly a third of U.S. crop cash receipts and a fifth of U.S. agricultural exports. See the full report at www.ers.usda.gov/Publications/VGS/Apr06/VGS31301/.❖

Briefly Speaking...

For most of us, this is a very busy time of year, when it is hard to find a moment to even sit down. So, a special thanks to two members of our Executive Council, Stanley Scarborough and Henry Bierlink, who contributed articles to this issue. The "Research & Promotion Program" that Henry proposes (see page 1) is an exciting prospect for the bramble industry that I believe we should all support. And I can attest, from my own experience this year, to the growth in demand for blackberries grown in the Southeast that Stanley describes on page 6.

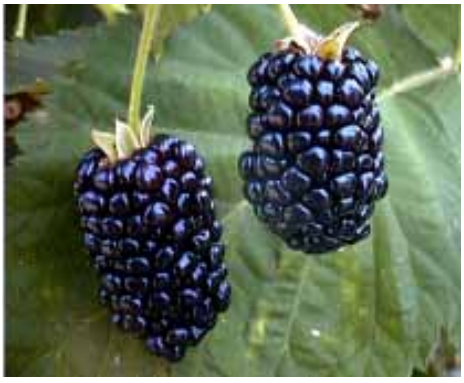
I'd also like to say thank you and farewell to one member of the Executive Committee, Dena Fiacchino, who is leaving her extension job at Cornell and the region she represents and going back to graduate school. Dena was very involved in helping with our meeting in Syracuse this winter. Any member interested in representing this region (NY, MI, NJ, and PA) should contact me.

Thank you also to all members who wrote their senators and congressional representatives about immigration. The issue now rests with a House/Senate conference committee that has the responsibility to try to resolve the differences between the harsh border control-only House bill and a Senate version that includes a guest worker program. It's my understanding that messages from the grassroots really helped convince the senators that the request for guest workers was broadly based, not just from large employers. The legislation may yet die in committee; we will continue to monitor it and keep you informed.

There are probably many reasons for the strong demand and high prices that I am currently seeing in blackberries. Rainy weather, high transportation costs, and poor quality of fruit coming out of Mexico are several that come to mind. But I believe there is one more enduring reason: I think that people re genuinely hungry for fruit and that we are finally getting the message out that you're healthier eating fruit. And that is very good news!

I wish you all the best with the harvest season.

—Ervin Lineberger, NABGA President



Blackberries in the Southeast

By Stanley Scarborough

Interest in blackberries from the South East is reaching an all-time high with buyers and consumers. The University of Arkansas blackberries developed by Dr. John Clark are the backbone of this success story. These varieties are productive, arrive to customers with good quality, and are the superior berries in the world in flavor and taste tests.

The "Super Sweet" blackberry brand produced by Georgia and Arkansas growers and sold through our company, SunnyRidge Farms, has developed a loyal customer base that is demanding not only higher volumes but also a longer production window. This product has real brand recognition and the customer demand to add a longer production season will give new opportunities to blackberry growers in the Southeast, particularly the North Carolina mountains, to participate in the program.

Blackberry growers in the Southeast are enjoying higher pricing, increased demand for their product, and a more secure and stable future for their farms. This situation has developed due to several factors. One of these is improved cold chain and shipping methods, resulting in a higher percentage of customer acceptance of arrivals and less shrink of delivered product. Success in upgrading quality, particularly from Mexico, has allowed consumers to enjoy blackberries as a part of everyday shopping on virtually a year-round basis. Growers have improved not only production volume but also general berry appearance due to improved practices provided by Extension and University personnel. Educational programs through a variety of meetings across the Southeast have become an essential part of the blackberry success story.

The health benefits story is in its early stages with blackberries as compared to the work done with blueberries in the past. However, research being done in areas such as cancer studies and research on potential diabetes benefits show excellent promise to promote blackberries as a healthy product that needs to be featured as an integral part of a healthy diet. The combination of a quality berry that tastes great and a focus on health benefits will prove to be a winning team for blackberries.❖

Stanley Scarborough represents Region 5 on the NABGA Executive Council and is Production Manager for SunnyRidge Farms. He is based in Florida and Georgia and may be contacted at 863-294-8856 or stanley.scarborough@sunnyridge.com.

Halting Black Raspberry Decline

In Oregon, the nation's main black raspberry producer, symptoms of the disease known as "black raspberry decline" have surfaced in every region of the state where the berries are grown.

Symptoms include yellowing leaves due to a chlorophyll deficiency, puckered and spotted leaves, yield reduction, and cane dieback—gradual death of shoots, branches, and roots, from the tip inward.

The disease shortens a plant's life expectancy from several decades to three to four years, with severe economic repercussions. Replanting can cost farmers about $2,000 an acre in addition to profit losses resulting from reduced yields.

In an important step toward controlling the disease, ARS plant pathologist Robert Martin has identified one cause of it: the black raspberry decline-associated virus (BRDaV).

"Decline is generally a symptom of a virus complex," says Martin, research leader in the ARS Horticultural Crops Research Unit at Corvallis, Oregon. "In most cases, a plant infected with one virus will not show such severe symptoms. But plants infected only with BRDaV do."

Martin discovered the new virus with ARS colleagues and Oregon State University graduate student Anne Halgren. They found BRDaV by extracting double-stranded RNA from affected plants, which indicates virus infection. This was then cloned, and a routine laboratory procedure called RT-PCR (reverse transcription-polymerase chain reaction) was developed for detecting the virus. RT-PCR is a standard method for making many copies of small pieces of DNA so they can be more easily studied or detected.

This technique allows scientists to efficiently gather information on new viruses, even from asymptomatic plants.

Martin and his colleagues have already used this method to obtain sequence information on 17 berry viruses, including BRDaV.

In a related discovery, the team has learned that BRDaV hitches a ride on the raspberry aphid *Amphorophora agathonica*. In fact, disease spread rates appear to be directly related to aphid numbers. This suggests that controlling the aphid population could slow the disease's spread.

Black raspberry plants showing symptoms of black raspberry decline. Photo courtesy USDA-ARS.

Because BRDaV can trigger decline without the presence of other viruses, it's a much more potent threat to the berry industry. The Corvallis scientists are studying which management tactics will control it most effectively.

They have also learned that BRDaV can infect other commercial and native raspberry and blackberry plants without triggering symptoms. Thus, isolation of black raspberry fields from plantings of these other berries will be an important part of a disease-control strategy. The researchers are currently conducting field studies to understand the virus's epidemiology.

"Presently, little information exists on the viruses that cause many diseases of small fruit crops," says Martin. "Understanding which ones are involved and how they are transmitted is the first step in developing a control strategy."—By **Laura McGinnis,** Agricultural Research Service Information Staff.

This research is part of Plant Diseases, an ARS National Program (#303) described on the World Wide Web at www.nps.ars.usda.gov.

Robert Martin is in the USDA-ARS Horticultural Crops Research Unit, 3420 N.W. Orchard Ave., Corvallis, OR 97330; phone (541) 738-4041, fax (541) 738-4025, martinrr@science.oregonstate.edu.

"Halting Black Raspberry Decline" was published in the June 2006 issue of Agricutlural Research *magazine, available online at www.ars.usda.gov/is/AR/archive/june06/berry0606.htm.*

Web Diagnostic Tools

• **The Berry Diagnostic Tool** is at at http://www.hort.cornell. edu/department/faculty/pritts/BerryDoc/Berrydoc.htm. It focuses primarily on the Northeastern states and Canada and includes raspberries, strawberries, blueberries, and grapes.

• **The Blackberry Diagnostic Tool** is at http://www.ncsu.edu/project/berries/diagnostic_tool/blackberry_diagnostic_tool.html. (Bookmark that, you don't want to type all that in twice!). It concentrates on blackberries and warmer climates.

• **Northwest IPM** has a wealth of information oriented towards the Pacific Northwest at www.nwipm.com.*g*

Summer Bramble Chores

This list was developed by Dr. Gina Fernandez, Small Fruit Specialist at NC State University and reviewed and revised with the assistance of Dr. Marvin Pritts at Cornell. Chores and timing may be somewhat different in your area or for your cropping system.

Plant growth and development

- ❑ Fruit development.
- ❑ Rapid primocane growth.
- ❑ Floricanes senesce.

Pruning and Trellising

Floricane-fruiting raspberries:

- ❑ May need to adjust primocane numbers if canes are too thick (i.e. remove less vigorous primocanes at their base)
- ❑ Train primocanes to the trellis.
- ❑ Pinch black raspberry primocanes at 2 to 3 ft. to promote lateral growth.

Primocane-fruiting raspberries:

- ❑ Train primocanes within a trellis to hold canes erect.

Erect blackberry types:

- ❑ In warm climates with a long growing season, hedge (tip) the new primocanes when they are about 6-12" below the top wire of the trellis to encourage lateral branching. Continue hedging at monthly intervals to maintain desired branching and height of canopy (laterals should reach top wire).
- ❑ In colder climates, tip primocanes once when they are about 2 – 3 ft. tall to encourage lateral branching.
- ❑ Prune out spent floricanes after they have produced fruit, do not thin out primocanes until mid-to late winter.
- ❑ Train primocanes to trellis to minimize interference with harvest. Shift trellises or V trellises make this relatively easy.

Trailing blackberry types:

- ❑ Train new primocanes to middle of trellis, or on the ground in a weed free area or temporarily to trellis outside of fruiting area (depends on trellis type).
- ❑ Cut back side shoots to 18" (after dormancy in cold climates).
- ❑ Remove spent floricanes after harvest.

Weed management

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

Insect and disease scouting (these will vary by region)

- ❑ Scout for insects
  - ❑ Raspberry crown borer (canes girdled and wilt)
  - ❑ Psyllid
  - ❑ Two spotted spider mite
  - ❑ June beetle
  - ❑ Japanese beetles
  - ❑ stink bugs
  - ❑ fire ants
- ❑ Scout for diseases
  - ❑ Botrytis
  - ❑ Rusts

  Orange Felt (orange cane blotch) (blackberry)
  - ❑ Sooty blotch (blackberry)
  - ❑ Orange rust
  - ❑ Powdery mildew
  - ❑ Double blossom (blackberry)
  - ❑ Cane blight (blackberry)
  - ❑ Powdery mildew

Water management

- ❑ Bramble plants need about 1"-2" water/week, and this is amount is especially critical during harvest.
- ❑ For blackberries (not raspberries) in warmer climates only, consider installing an overhead system for evaporative cooling to reduce sunscald. Turn on once or twice a day from 10 am to 3 pm for short periods of time (approx. 15 minutes).
- ❑ Give plants a deep irrigation after harvest.

Nutrient management

- ❑ Take leaf samples after harvest and send to a clinic for nutrient analysis. Do not fertilize with nitrogen at this time of the year.

Harvest and marketing

The busiest time of the year for a blackberry or raspberry grower is the harvest season. Each plant needs to be harvested every 2-3 days. For larger plantings, that means fruit is picked from some part of the field every day of the week.

- ❑ Pick blackberries when shiny black for shipping. Those that are dull black are fully ripe and suitable for PYO only.
- ❑ Pick directly into clamshells with absorbent pads OR for PYO use soft drink flats.
- ❑ Keep harvested fruit in shade and move into coolers as soon as possible to lengthen the shelf life of the fruit.
- ❑ Use forced-air precoolers for best removal of field heat.
- ❑ Store at 32 to 34°F and 95% relative humidity.
- ❑ Freeze excess fruit for jam, juice or wine.

www/raspberryblackberry.com

We're in the process of updating our website, updating and expanding our list of bramble experts, adding more recipes, and more. If you have any great recipes or photos to share, or suggestions of resources, send them to NABGA. We can also post your bramble related special events and meetings.

AG CHEM NOTES

Capture Receives Supplemental Label

By Tom Monaco, NCSU

The insecticide Capture has received a supplemental registration from EPA for the control of raspberry crown borer in caneberries. The expansion of the label allows a fall or spring application to control borers, which have become a major problem in blackberry plantings. The Southern Region Small Fruit Consortium lobbied with the IR4 forthis expansion. Directions for use allow a " 0.1 lb ai/A post-harvest(fall) or pre-bloom(spring) application as a drench directed at the crown of plants in a minimum of 200 gallons water/acre. Greater efficacy is observed at higher water gallonages(up to 400 gallons/A) or in application prior to a significant rainfall event. Do not make pre-bloomfoliar and pre-bloom drench applications" (quoted from the supplemental label).

Capture is a restricted use pesticide and is toxic to fish and aquatic organisms. Follow all label instructions; restrictions; and precautions and consult local authorities for guidance in using this product.

The actual label can be viewed at www.cdms.net/ldat/ld149002.pdf.

From the Southern Region Small Fruits Consortium Small Fruit News, *Vol. 6, No. 1, April 2006*

Gramoxone Inteon

A New Formulation of Paraquat

By Wayne Mitchem, NC, SC and GA Regional Weed Specialist

Gramoxone Max has been the trade of paraquat marketed in the United States since it replaced Gramoxone Extra several years ago. The new formulation of paraquat, Gramoxone Inteon, was marketed for the first time this spring and will replace Gramoxone Max when current supplies are sold.

The Gramoxone Inteon formulation offers the same activity as Gramoxone Max but is considered more user-friendly than Gramoxone Max. Gramoxone Inteon contains an alginate which reduces oral toxicity of paraquat. Additionally its' odor alerting agent smells like decaying grass, a less offensive odor than the alerting agent in Gramoxone Max. The most significant difference between Gramoxone Max and Gramoxone Inteon is the formulation concentration which directly impacts application rate.

Gramoxone Max contains 3 lbs of paraquat per gallon while Gramxone Inteon contains 2 lbs of paraquat per gallon. The less concentrate Gramoxone Inteon therefore requires a higher use rate than Gramoxone Max.

Gramoxone Inteon must be applied in combination with a non-ionic surfactant for optimum herbicide performance, like other paraquat formulations.

Guthion Uses for Caneberries Cancelled

EPA issued an order in the Federal Register on March 29, 2006, amending registrations of azinphos methyl (AZM) products to terminate the "Group 2" uses,

which include **caneberries**, cotton, **cranberries**, peaches/nectarines, potatoes, and Southern pine seed orchards. This order follows up on an August 2005 notice of receipt of requests from the registrants to voluntarily cancel the Group 2 uses. **Under the existing** stocks provisions, distribution or sale of AZM products for these uses is allowed until March 31, 2006, and use of **these products is allowed until September 30, 2006**.

From Massachusetts Berry Notes, *April 2006, Vol. 18, No. 4, www.umass.edu/fruitadvisor/berrynotes/index.html*

Rotenone Cancellation Proposed

On June 7, 2006, EPA announced plans to cancel all rotenone uses except as piscicide (fish killer). Though a natural botanical product, there are no formulations currently available that are OMRI-certified because of inert ingredients. The main impact of such a cancellation would result from rotenone being a component of the pesticide Pyrellin. Pyrellin is recommended in some states for mite control on brambles. Several other miticides are available; it is beneficial to have acaricides of diverse modes of action, to aid in resistance management (remember that spider mites are the leading group of arthropods for development of resistance to pesticides). EPA has called for public comment on this proposed action.

If you would like to provide input, visit the www.regulations.gov page, and search on ID no. EPA-HQ-OPP-2005-0494. Comments are due by 7 Jul 2006.

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
1138 Rock Rest Road
Pittsboro, NC 27312
Phone: 919-542-3687
Fax: 919-542-4037
Email: nabga@mindspring.com

RESEARCH REPORT

Impact and Management of Strawberry Bud Weevil (*Anthonomus signatus*) on Raspberry in the Northeast

By Christina S. Howard, University of Maine, Highmoor Farm

Summary

The strawberry bud weevil (*Anthonomus signatus*), "clipper," is an invasive pest to the Northeast strawberry and raspberry crops. Strawberry is the primary host of clipper, but it has been observed damaging raspberry crops, as well. The first objective for this research is to determine the importance of clipper as a pest on raspberries in the Northeast. Raspberry plantings were scouted weekly on 13 grower-cooperator farms in Maine during the late spring and early summer of 2005 for the adult insects and bud injury (clipped or not). 10 canes from each site were then collected and the number of total buds and clipped buds were taken. This data will be correlated with the bud injury data to determine interrelationships between clipper populations and bud injury levels. Through the first year of this research, it has been determined that clipper is a pest of raspberry in the Northeast.

The other objective for this research is to develop integrated pest management (IPM) strategies for clipper on raspberry crops in the Northeast. While scouting the farms this past summer, some different scouting techniques were tested for their efficiency and effectiveness at predicting the population levels of clipper on the crop.

In addition to this research, the importance of clipper as a pest of raspberries was tested using greenhouse-grown plants. They were analyzed for the ability of raspberry fruit yield to compensate for the loss of flower buds due to clipper damage. In addition to that study, various raspberry varieties will be evaluated for resistance to clipper injury. There will also be a trial evaluating different insecticides that can be used to control clipper. Concluding the research, this work should improve grower awareness of clipper as a pest of raspberries.

Objectives

1. To determine the importance of strawberry bud weevil as an invasive pest on raspberries in the Northeast.
   a. Determine clipper population levels in raspberry fields in the Northeast.
   b. Determine yield losses associated with clipper injury.
2. Develop integrated pest management strategies for strawberry bud weevil on raspberries in the Northeast.
   a. Develop and demonstrate practical scouting techniques for clipper on raspberry.
   b. Determine ability of raspberry fruit yield to compensate for loss of flower buds.
   c. Evaluate raspberry varieties for resistance to clipper injury.
   d. Improve grower awareness of clipper as a pest of raspberries.

Background

A lack of detailed information about insect pests and controls has been cited as a primary barrier to the development of workable integrated pest management strategies for raspberries in the Northeast (Northeast IPM Center Web Site, 2004). Although raspberries have the potential to be a viable commodity in the region, very few growers have been able to make this crop sustainable for long-term production and profit due, at least in part, to a lack of workable pest management options. One of the most important insect management issues currently facing raspberry growers in the Northeast is the degree to which a recently recognized pest of brambles, strawberry bud weevil, *Anthonomus signatus*, is a factor in reducing potential yield, and at what point control strategies are justified.

Strawberry Bud Weevil is an important pest of strawberry crops in the Northeast (Kovach 1999) and is less well known for its detrimental affect on raspberry crops in the Northeast (Eaton 2003). This 1/10th of an inch long snout beetle is commonly known as "clipper" because it describes the females' common behavior of laying their eggs in the

Continued on next page

Research Report, cont'd

bud and severing, or "clipping," the bud from the plant (Pritts 1999). The clipper is a direct pest to the plants because of the female egg laying behavior (English-Loeb et. al. 1999). This egg-laying behavior is the same in raspberry crops as in strawberry crops (Handley, et.al. 2002).

The adult clipper over-winters in strawberry or raspberry fields or in bushes, weeds or woods nearby the field (Handley et. al. 2002). The adults become active in early spring, coinciding with bud development (Handley et. al. 2002). The female clipper finds a suitable host, then punctures the base of the bud and inserts only one egg into the bud, then girdles the bud from the pedicel with her mouthparts (English-Loeb et. al. 1999). The bud dries up and eventually falls to the ground beneath the plant (Handley et.al. 2002). The egg hatches and the larvae develops and pupates inside the bud, feeding on the bud, and emerges as an adult in about 3 weeks (English-Loeb et. al. 1999). Clipper has one generation per season and female adults can lay multiple eggs (English-Loeb et. al. 1999) making even one clipper found in the field a crop threat.

Not much work has been done researching strawberry bud weevil on raspberries even though we have known its potential to be a raspberry pest for a long time. Recent observations of University of New Hampshire scientist Alan Eaton and others throughout the Northeast note high levels of clipper injury and crop losses up to 75% for some growers. Preliminary studies done at the University of Maine show 5% to 55% injury levels in raspberries based on bud counts (Handley 2004). Clipper damage occurs in late spring and early summer, before raspberry scouting occurs, therefore farmers overlook it since it is past a stage where clipper can be controlled (Schloemann 2003).

No research has been published in the US that focuses on clipper as a pest on raspberries, therefore no analysis has been done on the effect that this pest has on the resulting raspberry crop. To determine the severity of effect the strawberry bud weevil has on raspberry crops, raspberry plantings must be surveyed and evaluated during the growing season and levels of clipper injury correlated with crop yield. This will determine how much clipper damage can be tolerated in raspberries, before there is a significant crop loss.

Materials and Methods

1a. Raspberry plantings were scouted weekly on 13 grower-cooperator farms in Maine. The plantings were monitored for strawberry bud weevil populations and bud injury levels during the late spring and early summer of 2005 and the scouting will be repeated at the same farms in 2006. Scouting was coordinated and carried out by a graduate student and technician based at the University of Maine.

1b. Raspberry harvest data collected at grower-cooperator farms involved in the project will be analyzed with clipper and bud data to determine interrelationships between clipper populations, bud injury and fruit yield.

Replicated plots of insecticide treatments, varying timing and number of

Almost impossible to see in here and in the field, the raspberry clipper causes injury and crop losses of 5% to 55% in raspberries, according to this study's preliminary data.

applications, will be established within an existing raspberry planting at the Maine Agricultural Experiment Station in Monmouth, to determine how targeted reductions in clipper populations effect bud injury and yield. Analysis of this data and that of 1b above will be used to determine if strawberry bud weevil poses a serious economic threat to raspberries in the Northeast. If damage levels are significant, recommendations for management will be developed based upon population levels and timing deemed most appropriate to prevent economically significant damage.

2a. Different sampling techniques for clipper were evaluated at all of the scouting sites including beat clothes (dislodging the insects onto a cloth by shaking the plants), sweep nets (brushing a net along the outer foliage and flower clusters), sticky traps (white boards with sticky covering placed within the planting) and pheromone traps (sticky traps baited with a chemical attractant recently developed in Europe for a very similar insect, *Anthonomus rubi*, that stimulates aggregation behavior). Efficiency and effectiveness of each method was measured to determine the most practical means to monitor clipper populations in raspberries.

2b. Raspberry plants were grown in greenhouse facilities at the Maine Agricultural Experiment Station in Monmouth. Replicated flower bud removal treatments were applied, based on similar work recently carried out on strawberries (English-Loeb et al. 1999), varying the number of buds removed and the bud position on the inflorescence, to determine to what degree, if any, that raspberries can compensate for bud removal by increased size fruit from remaining, uninjured buds.

2c. Established raspberry variety trials at the Maine Agricultural Experiment Station in Monmouth and the Agricultural Experiment Station in Durham, NH will be used to determine if clipper populations, bud injury levels, or yield losses vary significantly between different raspberry varieties. Levels of resistance will be evaluated to determine if this may be an economically viable option for reducing clipper injury.

2d. Data from the studies will be used to develop management recommendations for clipper on raspberries that will be incorporated into regional pest management guides and publicized in regional newsletters, web pages and a fact sheet. One farmer/cooperator site in each state will be host to a grower meeting where clipper injury monitoring techniques and management techniques and management strategies will be demonstrated.

Experimental Design and Statistical Analysis

Each location that is used for sampling is a replication in this experiment. Within each replication the treatments will be a randomized complete block design for sampling. Analysis of variance with mean separation with LSD will be used for analysis of the data. Some of the experiments have been conducted (but no data has been analyzed yet) and some will be done in the 2006 season. The experiments that have been conducted will be repeated in 2006 as well.

Literature Cited

Eaton, A. 2003. Personal Communication with David T. Handley.

English-Loeb, G., Pritts, M., Kovach, J., Rieckenberg, R., Kelly, M. 1999. Compensatory Ability of Strawberries to Bud and Flower Removal: Implications for managing the strawberry bud weevil. *Journal of Economic Entomology* Vol 92 (4): 915-921.

Handley, D.T., Wheeler, A., Dill, J. 2002. A survey of strawberry inflorescence injury caused by strawberry bud weevil. *HortScience* 35(3): 391.

Kovach, J., Rieckenberg, R., English-Loeb, G., Pritts, M. 1999. Oviposition Patterns of the strawberry bud weevil at two special scales and implications for management. *Journal of Economic Entomology* 92(6): 1358-1363.

Northeast IPM Center Web Site. http://nepmc.org/. 2005.

Pritts, M., Kelly, M., English-Loeb, G. 1999. Strwaberry cultivars compensate for simulated bud weevil damage in matted row plantings. *HortScience* 34(1): 109-111.

Schloemann, S., ed. 2003. *New England Small Fruit Pest Management Guide: Managing Diseases, Insects, and Weeds on Small Fruits, 2003-2004*. University of Massachusetts Extension.

Christina S. Howard, is a graduate student, University of Maine, Highmoor Farm. NABGA funded this project to her advisor, Dr. David Handley, University of Maine Vegetable & Small Fruit Specialist. Contact her at Christina.Howard@umit.maine.edu or PO Box 179, Monmouth, ME 04259.

Raspberry Fruit Rot and Cane Botrytis

By Sonia Schloemann, UMass Extension

The fungus *Botrytis cinerea*, causes blossom blight, preharvest rot, postharvest rot, and cane infections in raspberries. It overwinters on canes, in dead leaves and as mummified fruit. Spores are produced in spring and begin a new infection cycle. A moist, humid environment is ideal for spore production and spread. All flower parts except sepals are very susceptible to infection by spores that land on flowers although these infections are latent; or dormant, until fruit ripens. In other words, no symptoms are visible at first. Because of this, growers must be aware of when their fields are in a susceptible growth stage and take measures to protect them from infection during that time. Other plant parts, as mentioned above, are also susceptible to infection and can cause cane leaf blights.

Wet weather or a lot of overhead irrigation is also necessary for high levels of infection to occur. Therefore, air circulation within the canopy, especially in the fruit zone, is very important. This is accomplished through good pruning practices in the dormant season. If significant wetting periods occur during bloom, the likelihood of infection by Botrytis is very high, and control measures may be needed.

Symptoms: Rotted fruit, usually with tufts of gray fungus growing on surface. Pale brown lesions may appear on primocane leaves in mid- to late summer. Cane infections appear as tan to brown lesions often encompassing more than one node. These lesions can girdle the cane causing eventual cane collapse. Cane lesions exhibit typical concentric "watermark" patterns from fall through late winter.

Cultural control 1. Create an open plant canopy to promote optimal air circulation and drying conditions by using good pruning practices. 2. Avoid excessive nitrogen fertilization, which can promote excessive vegetative growth, and control weeds. These practices also improve air circulation, increase light penetration, and speed drying of plant surfaces after irrigation and rain. 3. Pick fruit in the coolest part of the day. Keep harvested fruit in shade while in the field, then move to cold storage as soon as possible.

4. Irrigate in early morning whenever possible so plants dry quickly. Switch from overhead to drip/trickle irrigation.

Chemical control Spray first at 5% bloom and then again 7 to 10 days later. More applications during the growing season aid control in wet weather. Thorough coverage and canopy penetration are essential. Fungicide options are listed below (alphabetically, not in order of efficacy). *[These are Massachusetts recommendations; check to make sure products are registered for use in your state.]*

1. **Captan 80 WDG** at 2.5 lb/A. Do not apply within 3 days of harvest. 72-hr reentry.

2. **Elevate 50 WDG** at 1.5 lb/A. Do not use more than 6 lb/A/season. Can be used up to and including the day of harvest. 12-hr reentry.

3. **Pristine** at 18.5 to 23 oz/A. Do not use more than 2 consecutive applications or more than 4 times/year. Can be used day of harvest. 24-hr reentry.

4. **Rovral 4 Flowable** at 1 to 2 pint/A plus another fungicide with a different mode of activity. Can apply the day of harvest. Fungal pathogens have shown resistance to the action of Rovral when used exclusively. Alternate or tank-mix with other registered fungicides. Also limit to two applications per year. 24-hr reentry.

5. **Switch 62.5 WG** at 11 to 14 oz/A. May be used up to and including the day of harvest. Do not apply more than twice sequentially or use more than 56 oz/A/season. 12-hr re-entry.

From *Massachusetts Berry Notes*, June 1, 2006 Vol. 18, No. 8. To subscribe to this e-mail newsletter, contact *Sonia Schloemann at sgs@umext.umass.edu.*

ABCs of Blackberry Production

Copies of the looseleaf notebook created for participants in the ABCs of Blackberry Production workshop at our annual meeting in Savannah are 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 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 NABGA.

Welcome, New and Returning Members!

Please welcome the members listed to right to NABGA! These members have have renewed their memberships or joined NABGA since the ldirectory was printed this spring. The list above is formatted so you can clip or photocopy the page and fasten it into your membership directory. A complete and up-to-date membership list can also be found in the Members Only section of our website.

Rejean & Jacques Demers
Demers, Inc.
796 St. Joseph
St. Nicolas, QUE G7A 1Z6 Canada
Phone: 418-831-2489 farm
Fax: 418-831-1906
rejean@phdemers.com

Patrick Garrison
Stahlbush Island Farms, Inc.
3122 Stahlbush Island Rd.
Corvallis, OR 97333
Phone: 541-757-1497 farm
Fax: 541-754-1847
patrick@stahlbush.com
Indiana Berry

David Hefler
P.O. Box 311
Scarborough, ME 04070
Phone: 207-883-5574 home
Fax: 207-883-8222
dhefler@maine.rr.com

Indiana Berry & Plant Co. &
Produce Promotions
Sam Erwin
5218 W. 500 S.
Huntingburg, IN 47542
Phone: 574-784-2905 w
888-575-4090 toll-free
sampatch@galaxyinternet.net
www.inberry.com
www.producepromotions.com

Joyce Marble
Rockport Hydroponics
P.O. Box 1108
Rockport, ME 04856
207-785-2783 w
207-785-2782 h

Douglas Pfeiffer
Virginia Tech
205C Price Hall, Dept. of Entomology
Blacksburg,VA 24061
Phone: 540-231-4183 work
Fax: 540-231-9131
dgpfeiff@vt.edu
www.nabgaipm.shorturl.com

William & Jerome Rondelez
Black Bear Farms
1133 County Rd. 20 West, RR3
Kingsville, ON N9Y 2E6 Canada
Phone: 519-733-2671 home
519-733-6289 farm
mainwest@bellnet.ca

Fred & Maria Schreffler
The Berry Ranch
7998 Hwy 20-26
Nampa, ID 83687-8146
Phone: 208-466-3860 home
fred@theberryranch.com
www.theberryranch.com

Al Shirley
Mountain Mist Farms
1869 Hidden Hills Rd.
Gatlinburg, TN 37738
Phone: 865-430-9201 work
865-548-0775 cell
Fax: 865-430-9208
ashirley@mtnshadows.com

Gavin Sills
Driscoll Strawberry Associates
151 Silliman Road
Watsonville CA 95076
Phone: 831-722-5577 work
Fax: 831-722-0191
Gavin.Sills@driscolls.com

Donel Sprenger
5466 Willow Lane
Vermilion, OH 44089
Phone: 440-967-9929 home
239-614-4845 winter home

Sheldon Wheatley
630 Suffolk Rd
Charlottetown, PEI C1A 7J7 Canada
Phone: 902-566-5606 home
Fax: 902-566-5604

RESEARCH REPORT

Weed Management Evaluations in Established Brambles

By Katherine M. Jennings, Dept. of Horticultural Science, North Carolina State University

Herbicides were evaluated in established raspberries at the Sandhills Research station in Jackson Springs, NC. Treatments included Starane (fluroxypyr) at 0.67 pt/A, Envoke (trifloxysulfuron) at 0.15 oz/A, Rely (glufosinate) at 4 qt/A, Harmony GT (thifensulfuron) at 0.5 oz/A, Sandea (halosulfuron) at 0.5 oz/A, Basagran (bentazon) at 1.5 pt/A, and Chateau (flumioxazin) at 2 oz/A. A nontreated check was included for comparison. Treatments were directed down both sides of the raspberry bushes. Plots were rated visually for crop injury and sucker control 3 weeks after treatment. Very few weeds were present in this trial. Therefore weed control evaluations were not recorded. Crop injury from Starane averaged 7% however sucker control was 100%. Injury from Rely averaged 22% and sucker control was 91%. The most significant injury was observed with Harmony GT (27%). Sucker control by Harmony GT was 30%. Crop injury from Basagran, Envoke, Chateau, and Sandea ranged from 10 to 13%. From these results it appears that some of these herbicides may be safe to raspberries. In 2006 this study is being repeated and expanded to include additional rates and herbicides.

NABGA has funded this project for the 2006 trials as well, through a cooperative agreement with the IR-4 Program.. Contact Katie Jennings at NCSU Box 7609, Raleigh, NC 27695, phone 919-218-0077, email katie_jennings@ncsu.edu.

NABGA 2006 Officers and Executive Council

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 (all of Canada) **Henry Mutz,** Berryhaven Farm, 320 Mt. Lehman Rd. S., Abbotsford, BC V4X 2L4, phone 604-859-6380, e-mail berryhaven@shaw.ca.

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), **Open. Volunteers welcome!**

***Region 4** (Represents DE, MD, OH, & WV) **Guy Moore,** 2415 Woodbine Rd., Woodbine, MD 21797, phone 410-489-7034, e-mail guymoore@verizon.net.

***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, IA, IN, IL, KS, KY, MN, MO, ND, OK, SD, NE, TN & WI) **Dean Henry,** The Berry Patch Farm, 62785 280th St., Nevada, IA 50201, phone 515-382-5138, e-mail berry.patch@midiowa.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.

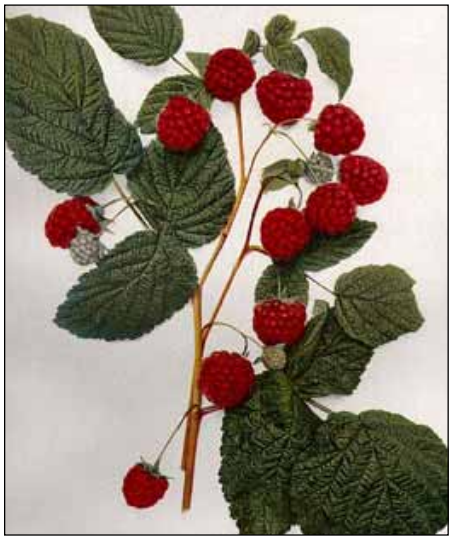
Region 8 (Represents AK, AZ, CA, CO, ID, HA, MT, NM, OR, UT, WA, WY, Mexico, Central & South America) **Henry Bierlink,** Washington Red Raspberry Commission, 1796 Front St., Lynden, WA 98264, phone 360-354-8767, e-mail henry@red-raspberry.org.

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

Save the Date: January 16-17 2007

in Columbus, Ohio for the 2007 NABGA Annual Conference

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.



NORTH AMERICAN BRAMBLE GROWERS ASSOCIATION (NABGA)
1138 ROCK REST RD.
PITTSBORO, NC 27312