



**UMASS
EXTENSION**

Cranberry Station Newsletter

DECEMBER 2008

UMASS CRANBERRY STATION

1 STATE BOG ROAD

P.O. BOX 569

EAST WAREHAM, MA 02538

<http://www.umass.edu/cranberry>

It's a record crop!

Notes from the Sixth Annual Cranberry Summit

On December 11, a group of Massachusetts growers, handlers, and researchers came together at the Cranberry Station to discuss the 2008 growing season. We discussed management challenges, research and education needs, and as always — the weather, this year's winner for positive impact on crops. This is a summary of the discussion arranged by the topics covered.

General

Crops in general were up in 2008, with all indications that the MA crop set an all time record — up as much as 50% from last year. Howes rebounded the most from 2007, with Stevens crops the most similar to those last year (if you remember, in general, Stevens was the cultivar that had good crops in 2007).

Some data (average bbl/acre) were provided by Joe DeVerna of Ocean Spray (2007 numbers from last years' summit):

<u>Massachusetts</u>	<u>2007</u>	<u>2008</u>
Early Black	119	168
Howes	115	162
Stevens	213	227
Ben Lear	180	260

These data illustrate the strong tendency of non-hybrids towards biennial bearing, that is, they alternate large and small crops. However, the hybrid Stevens do not show this trend. Carolyn DeMoranville noted that this is common for cranberries — individual uprights of Early Black and Howes that flower in a given year have less than a 25% chance of flowering again the next

year. However, the hybrid Stevens do not show this trend. The re-flowering percentage for Stevens is greater than 65%. Biennial bearing can be explained by the competition between developing berries and bud initiation (both occur during the same time frame). The leaf area of the natives is smaller than that of Stevens and thus, their capacity to manufacture the resources needed for both fruit and bud development is less. So if fruiting uses all or most of the available resources, bud development is reduced. One factor favoring strong 2008 crops was the poor crop in 2007 (i.e., more resources went into bud development in 2007). Overall, the average yield for MA Ocean Spray growers was 187 bbl/A similar to that in New Jersey and eastern Canada. Color was up 6% from last year. The Decas Company reported that their growers also had excellent crops with good color and low fruit rot.

Compared to 2007, crops in Wisconsin (Ocean Spray data) were up about 18% (setting a record) and eastern Canada crops were up more than 30%. All other regions had poorer crops in 2008 — New Jersey was down 6%, British Columbia was down 12%, Oregon was down 20% and Washington was down 45%. The poor crops in the Pacific Northwest were attributed to a very wet, cool, and prolonged spring. Like Massachusetts, Wisconsin was the beneficiary of excellent growing-season weather in 2008.

Wisconsin continues to lead in average crop production at 272 bbl/A. The robust production can be partly explained by the fact that more than 50% of WI acreage is planted to Stevens (high-yielding hybrid) compared to just over 20% in MA.

Other comments — “This was one of our best crop years ever”; “We grow fresh fruit, it was a tremendous year.”

Good crops were correlated to weather factors (see below) but also to better management of soil moisture, perhaps an outcome of good periodic rain after fruit set, and excellent pollination. Some also noted that there was little sanding in 2007-2008 after the extreme upsurge in sanded acres the previous winter. While sanding in 2006-2007 may have contributed to low crops in 2007, the rebounding of those beds and less sanding prior to the 2008 season likely contributed to the excellent 2008 crop.

Increased attention to management and increased management inputs over the last two years as prices have improved were also contributing factors according to several of the participants. Most felt that we have finally recovered from the intentional or unavoidable neglect that some properties suffered during the worst of the downturn.

Last years’ discussion of downward yield trends in Howes was revisited. All agreed that Howes production was good in 2008. This led to the question: Why have Howes been trending downward in previous years but recovered in 2008? One theory related to the loss of Kerb as a management tool in 2008; could it have been negatively affecting Howes? A possibility, but others noted that they had problem Howes beds that did well in 2008 but that never had been treated with Kerb.

There was some speculation that sanding might be popular again this winter and if so (and depending on depth applied), next season’s crop could be negatively impacted. Most agreed that as of early December, the bud is looking good.

Weather

The 2008 growing season had perfect weather — enough rain early, great pollination weather at bloom (lots of dry, sunny days), good periodic rains after fruit set (11 days with rain from mid-July to mid-August), and warm but not scorching temperatures during fruit development (best sizing occurs when daytime highs are between 68° and 85° F).

There were some hail events (Rochester and South Plymouth), but for the most part, the fruit recovered,

suffering only minor cosmetic damage. Frank Caruso noted that, based on previous hail events whereby some growers left some heads plugged during chemigation, the application of copper fungicides to hail-damaged berries did NOT decrease fruit rot.

Carolyn raised the idea that having good periodic rains after fruit set led growers to irrigate less and perhaps this meant that soils were less saturated. There is good experimental evidence that when the soil is too wet, fruit retention declines. One grower noted that they changed managers at a property and that the old manager tended to keep the ditches high while the new one did not: under the new management, crops increased. As we implement better irrigation scheduling with soil and plant monitoring (Peter Jeranyama’s work) and also use intermittent sprinkling for frost protection, we should expect better fruit retention and bigger crops as a result of optimizing soil moisture. Carolyn did note however, that fruit set in cranberry generally is only about 30% on average.

Cool nights in late August may have contributed to early color development this year. However, contrary to some schools of thought, the early cool nights did not affect fruit size. No ‘cat-facing’ of fruit (abnormal growth of the calyx end) was noticed in 2008.

All agreed that the 2007-2008 winter was much more ‘normal’ with minimal winterkill or leaf drop injury showing in the spring. While the spring frost season provided several long stretches of sleepless nights, little damage was reported.

Pollination

Pollination was reported as good to excellent. Lots of bumblebee activity was noted.

Water and nutrient management

Nutrient management and its interaction with water is becoming the pesticide issue of the new century. Algal blooms can easily be seen when they occur and as the density of neighbors increased around the farms, concerns are being raised more frequently. In addition, under the Federal Clean Water Act, states must identify impaired water bodies, determine causes of the impairment, and determine what needs to change to reduce that impairment. As part of this process a

TMDL, the total maximum daily load that the water body can tolerate during recovery, is developed. Once that information is gathered, communities must formulate plans to achieve the recovery of the water bodies, including assigning portions of the load to various land users that contribute to the loading. This process may affect growers with regards to nutrient management if their water source is one of the identified impaired bodies. The important nutrients are phosphorus (P) for inland waters and nitrogen (N) for coastal water bodies.

Production research has shown that, for many years, we have used more P than is horticulturally necessary. With N, overuse is regulated by the fact that if you use too much your production and fruit quality decline — there is a built-in regulator in the system. With P, there appears to be no downside in crop or quality, BUT there is a major downside in water quality. We need to add modest amounts of P fertilizer (up to 20 lb P/acre per season) to maintain production, but more than that does not increase crop and is a potential source of pollution. We know that the soils in cranberry beds tie up P due to their high iron content and low pH. However, iron only holds P when oxygen is present. When the soil is saturated or flooded, oxygen in the soil declines and the iron changes its chemical state and releases the previously bound P. The P can then move with the water. Like all chemical reactions, the release of P from the iron is temperature-dependent and so it is more pronounced in warm weather (summer and fall) than in the winter.

Fall fertilizer was used by some, but not as much as in some years.

The take-home message here — use low P fertilizers and pay good attention to water management and the movement of water within and through the bog system. This topic will be the focus of my research and educational programs for the immediate future. This includes working with growers as they reduce P to monitor crops and change in water quality.

Peter Jeranyama also discussed water management and described his research on the Crop Water Stress Index for cranberries. This research will identify soil and plant factors that can be monitored and used as the basis for decisions regarding when and how much to irrigate.

So far he has noted that stress conditions develop more readily on sand-based bogs compared to those with a peat base. This also relates to the project described next since peat-based bogs tend to have an established water table that can be manipulated.

Peter is beginning a new project looking at the use of drainage tiles for not only drainage but as a way to manipulate the water table for sub-surface irrigation. He asked the growers present if they were using drainage tiles and if so, at what depth and spacing. All who are installing drainage are using 4-inch perforated pipe. They noted that using a “sock” on the pipe did not work well. Growers with large acreage are using the 4-inch perforated pipe fairly extensively on new and renovated beds. They are using an average depths of 12-16 inches from the soil surface to the top of the pipe. Spacing varies from 14 to 20 feet depending on how wet the bed is, with 20 feet a popular choice and pipes running across the entire bed.

Diseases

Overall - rot incidence was reported as low with growers reporting a few exceptions on Stevens and Howes. Most of the fruit rot appeared to manifest in September and advanced quickly.

Frank Caruso discussed some instances of rot on Stevens. Some could be accounted for if growers allowed too much time to elapse between fungicide applications or on beds where fungicide applications were reduced for several previous years (allowing inoculum buildup). However, the rot from some locations could not be easily explained and many of these locations had low populations of fungi in the berries (based on lab culturing). Frank raised the possibility that these cases are ‘sterile rot’ or physiological breakdown of the fruit. This type of breakdown is normally seen more often in storage and is fairly common in the Pacific Northwest. The presence of rot symptoms may have been related to the early color, and presumed early ripening, with 2008 harvesting occurring at the same or later time as other years. In other words, the fruit may have been over-ripe. Frank plans to continue studying this phenomenon.

This year, Frank initiated research to determine if Bravo (especially the Weather Stik formulation) was causing

fruit injury to Ben Lears. In field trials, Bravo injury was induced on Ben Lear — more with Weather Stik than with Ultrex, more with 3 applications than with 2, and more if the 2 applications were at mid- to late-bloom compared to early- and mid-bloom. Frank showed examples of injured berries. Growers confirmed seeing injury around heads with the Weather Stik formulation but not with Ultrex. Frank applied his fungicide treatments on days with moderate weather.

This was a fairly bad year for upright dieback on Early Blacks, although some growers reported little incidence. Conditions in summer lead to expression of this disease in the following year. Based on this summer's weather — incidence should be less next season. It was noted that the timing for treatment with fungicides is in the early spring (before symptoms show up) and that few acres were treated in the spring of 2008.

Fairy ring is on the rise in Massachusetts and even more so in New Jersey. Stevens and Ben Lear are the most susceptible to this disease. Frank is working on this disease with Peter Oudemans of Rutgers University. Peter will visit in the summer of 2009 and they will conduct a bogside workshop on this disease. The causal agent has now been identified as a *Rhizoctonia* species (fungus). Based on this information, new strategies for control should be forthcoming. There were reports of good efficacy of Abound fungicide against fairy ring in 2008.

2008 saw the first sighting since 1999 on several Howes beds, of red shoot disease, while there was almost no rosebloom reported this year. Red shoot and rose bloom are both caused by *Exobasidium* species.

Weeds

The hot topics on the weed front were dodder management without Kerb and the use of Callisto against numerous weeds.

Many reported bad problems with dodder. Most tried to use Casoron for management but many felt they may have missed the timing. Hilary Sandler noted that the big problem with having heavy dodder infestation this year is the seed bank produced. A large portion of the seeds produced in the present year will germinate

and infest beds next year but the remaining seeds will persist and may remain viable for 30 years. Hilary did note that there is some evidence that applications of Callisto, made before the dodder flowered (while it did not prevent the dodder from growing, flowering, and making seed capsules) did appear to have led to the production of non-viable seeds in the treated dodder. This will be followed up in 2009 research. Dodder will remain a high priority since it is apparent that new controls will need to be identified to replace Kerb. Indications from EPA are that they will not consider the use of Kerb on cranberry anytime in the foreseeable future.

On new plantings, preemergence applications of Devrinol DF followed by postemergence Callisto applications did an excellent job for weed management.

Callisto was used by all growers present at the meeting, with varying experiences reported. It was noted that if Callisto was used to control clover, it did an excellent job on the weeds, but the end result was overgrowth of the vines. Clover is a nitrogen fixer and when it decomposed after treatment, it acted as a green manure, supplying N to the cranberry plants in excess.

Several growers noted that when they applied Callisto, they saw weed yellowing but that soon after, the weeds re-greened. Based on turf experiences, it was noted that the re-greening may have been due to applying fertilizer to the bogs soon after the Callisto. In turf, discoloration from Callisto is remedied by application of fertilizer. It may be important to allow more time between Callisto treatments and the application of your fertilizers to assure that you are not reviving the grassy weeds. This fits with grower experiences that early Callisto applications were the most effective. Also, it appears that Callisto is less effective against well established sedges and rushes.

There were some reports of color changes in the cranberry plants following Callisto use. In most cases this was transient but not always.

For perennial weeds, Callisto appeared to damage but not kill them. Repeated annual applications will likely be needed to control tenacious weeds like dewberry

and sawbrier. It was noted that this was the pattern that was most effective in using Stinger against wild bean.

In general, weeds remain a top concern for most growers.

Insects

Most reported fewer than average insect problems in 2008, with cranberry fruitworm and Spag at low levels. Marty Sylvia noted that she had received positive reports from growers using Delegate and Assail but would like to hear from more growers regarding their experiences. It was noted that many growers did use Delegate in 2008. Marty did note that Delegate does not work on weevil and that we are very dependent on Avaunt for weevil control, leaving us at risk of resistance development in the future.

Mike Utley commented that he felt blackheaded fireworm was widespread but growers were able to control it. Monika Schuler observed a third generation at some locations. The importance of scouting for and treating Spag in the first generation was noted. There was only one report of mites.

The group discussed the importance of following label instructions in the use of pesticides and that signs should be taken down when appropriate so that people will not get used to always seeing them and disregard them.

We want to thank all the attendees for their time and input for the meeting. Valuable information is always exchanged and the summit provides an excellent forum for identifying emerging priorities as well as revisiting progress on long-term management problems.

CAROLYN DEMORANVILLE AND STAFF

Cranberry Management Update Thursday, January 22, 2009, 7:30 AM – 4 PM Radisson Hotel Plymouth MEETING SCHEDULE

7:30 - 8:00 Registration (with coffee)

8:00 - 8:15 Station Update - Carolyn DeMoranville, Director

8:15 - 8:50 Nutrition - Carolyn DeMoranville

8:50 - 9:20 Weed Management - Hilary Sandler

9:20 - 10:00 Pathological Observations for the 2008 Growing Season – Frank Caruso

10:00 - 10:30 Coffee break

10:30 - 11:15 Preventing and Controlling Aquatic Weeds - Marc Ballaud, Aquatic Weed Control Technology, Inc.

11:15 - 11:45 Plant Physiology Research - Peter Jeranyama

11:45 - 12:00 Grower Survey - SARE Project and Flame Cultivation

12:00 - 1:15 LUNCH BREAK (on your own)

**1:15 - 2:15 Insect Update – Anne Averill
CFW Spray Trials, CCD Update, and
New Compounds Chemistry**

**2:15 - 2:30 Understanding Frost Tolerance-
Carolyn DeMoranville**

**2:30 – 3:30 Callisto Panel – Hilary Sandler
Moderator**

Jeff Zelna, Syngenta

Cranberry Growers - Mark Sherman, Scott Hannula, and Kirby Gilmore

3:30 - 4:00 PM Wrap-up and Paperwork

CALLISTO SURVEY There's still time to respond!!

We have almost completed compiling the survey results of your experiences with Callisto in 2008. However, if you have not yet returned your survey, please do so as soon as you can!! We would love to hear from you. The more growers who respond, the more accurately the results will represent the industry's experience. If you need a new copy of the survey, contact Hilary (ext. 21) or Natalie (ext. 12) at the station.

We really want to hear from you.

HILARY SANDLER, IPM/WEED SPECIALIST

NOW AVAILABLE!

**2009 UMASS EXTENSION GREEN
DIRECTORY**

The 2009 UMass Extension Green Directory is a comprehensive guide to educational resources for Massachusetts Agriculture industry professionals. This 40-page guide is used as a reference all year long!

The directory includes:

- * Contact information for UMass Extension Agriculture and Landscape Specialists and Faculty
- * Upcoming UMass Extension conferences, seminars and workshops
- * UMass Plant Diagnostic Lab submission information for insect, tick, disease and cultural problems
- * UMass Soil and Tissue Testing Lab information
- * Pesticide license information, including test dates, training workshops, and how to get a pesticide license
- * Phone resources to refer home gardener questions
- * Extension newsletters, web sites and publications
- * Frequently used phone numbers related to Agriculture and the Green industries

Available online at <http://www.umass.edu/agland/>.
Click on 'Green Directory'
For a hard copy, call (413) 545-0895, fax request to (413) 577-1620, or
email eweeks@umext.umass.edu.

**CAROLYN DEMORANVILLE
STATION DIRECTOR**

**Training Workshops to Prepare for
Pesticide Applicator License Exams**

This workshop, which is sponsored by Pesticide Education, UMass Extension, is designed to help individuals **prepare** for the pesticide applicator license exam. This workshop provides a review of the study manuals and is not intended to replace a thorough reading of the study manuals on your own. Dates for this training here at the Cranberry Station Library are set for January 29 - 30; March 5 - 6; and May 7 - 8, 2009.

To register for these workshops: contact Natalia Clifton at 413-545-1044.

**REQUEST FOR PROPOSALS
CRANBERRY BOG MANAGEMENT
Quashnet Bog**

The Town of Mashpee, through its Conservation Commission, invites competitive proposals from qualified firms for a contract to manage, maintain, cultivate and harvest cranberries from the Quashnet Bog totaling +/- 16.3 acres for a three (3) year period.

Specifications may be obtained beginning Wednesday, December 17, 2008, at the office of the Town Manager, Mashpee Town Hall, 16 Great Neck Road, Mashpee, MA 02649, Monday through Friday, between the hours of 8:30 A.M. and 4:30 P.M., by calling (508) 539-1400, ext. 510, or by e-mail via bos@ci.mashpee.ma.us. Inquiries relative to this Request for Proposals should be directed to Mr. Rene J. Read, Assistant Town Manager at (508) 539-1400, Extension 572. Proposals will be received until Tuesday, January 27, 2009, at 2:00 p.m., at which time all proposals will be opened publicly.

A pre-bid tour of the Mashpee bogs will be held on Tuesday, January 13, 2009. All prospective bidders interested in taking the tour shall meet at the office of the Mashpee Conservation Commission on 10:00 a.m.

**Registration Form for Cranberry Management Update
Thursday, January 22, 2009 7:30 AM - 4 PM
Radisson Hotel Plymouth Harbor**

Please register for the meeting using this form.

COMPANY _____

CONTACT _____

PHONE _____

**Return with payment by:
January 14th, 2009**

NAMES OF ATTENDEES _____

Include check made out to:
UMASS
In the amount of:
\$20 per person.

Return to:
**UMass Cranberry Station
P.O. Box 569
East Wareham, MA 02538**

Attach additional sheets as necessary.

**CRANBERRY STATION NEWSLETTER & REVISED 2009 CHART BOOK RENEWAL
YOU MUST RETURN THIS FORM EACH YEAR TO STAY ON OUR MAILING LIST!!**

The Cranberry Station Newsletter is provided **FREE to all MA growers, cranberry researchers and IPM consultants nationwide.** Annual subscription fee of \$15 is required for out-of-state growers and industry personnel. All persons wishing to receive this newsletter (whether paying or not) must complete and return this renewal form to maintain a subscription. Include a check (made out to UMass) with the renewal form if you are out-of-state or are industry personnel. **All subscriptions sent by email, including out-of-state and/or industry personnel are FREE.**

**Everyone must respond to this notice by Dec. 31, 2008
or your name will be taken off of our mailing list for 2009!**

NAME _____

Please check one:

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Please Choose One!!! Postal delivery _____ or Email _____

SEE INSIDE

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- * 2009 NEWSLETTER RENEWAL FORM

MARK YOUR CALENDARS!!!

2009 UMass Cranberry Station Meetings

**January 22 - Cranberry Update Meeting
Radisson Hotel - Plymouth**

**April 03 - Pesticide Safety
Elk's Hall - E. Wareham**

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