



Cranberry Station Newsletter

DECEMBER 2012

UMASS CRANBERRY STATION

1 STATE BOG ROAD

P.O. BOX 569

EAST WAREHAM, MA 02538

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



UMass
Extension

A Record Warm Winter and Heavy Fruit Rot Incidence Notes from the Tenth Annual Cranberry Summit

On November 28, a group of Massachusetts growers, handlers, and researchers came together at the Cranberry Station to discuss the 2012 growing season. This year we were joined by Peter Oudemans, Plant Pathologist from NJ. We discussed management challenges, especially disease management, and as always — the weather. Last winter (2011-2012) was one of the warmest in our records and there was general agreement that many of the 2012 challenges could be linked back to the weather. Many growers noted good crops, although some were down and most had challenges with fruit rot. This is a summary of the discussion arranged by the topics covered.

General

Growers and handlers reported that for the most part crops were down compared to 2011. Ocean Spray saw an 8% decrease in deliveries of process fruit in MA but good color and average Brix. Parker Mauck of Decas Cranberry noted that they saw the best color of the past 5 years this fall but that rot was up 1.5% over last year. Surprisingly, Decas deliveries of Ben Lear had the least rot, while Howes had the most [several growers also noted that they had the most fruit rot on Howes]. Rot on Ben Lear (and other varieties) might have been even worse if growers did not adjust harvest schedules as rot developed. Ocean Spray representatives also commented on increased fruit rot.

Some data (average bbl/A) were provided by Rod Serres of Ocean Spray as relayed from Joe DeVerna (2008-2011 cultivar data were presented at previous summits):

Massachusetts	2008	2009	2010	2011	2012 (preliminary)
All cultivars	188	141	147	199	179
Early Black	168	126	132	169	134
Howes	162	116	127	165	134
Stevens	227	191	203	227	210
Ben Lear	260	200	224	282	223

Yields dropped back to levels seen in 2010 but it is notable that Stevens yields have remained fairly steady through the reported period. Growers reported that their poorest crop yields were on Early Black. The similarity in average yield between Howes and Early Black could be accounted for by small Early Black fruit and high percentage loss to rot on Howes.

Statistics were also provided regarding the distribution of cultivars on acreage of MA Ocean Spray growers: Early Black 37%, Howes 30%, Stevens 20%, Ben Lear 6%, all Rutgers cultivars ~1%.

Weather

The 2011-2012 winter was very mild with little snow, East Wareham temperatures were almost 5°F above average. Many growers only put on a very brief (10 day) flood in January, and apart from that had the bog unflooded during the remainder of the winter period, very odd indeed. This was followed by a very warm early March and early signs of bud development. As a result, growers were running for frost in the last week of March due to a drop back to 'normal' spring temperatures. This was followed by about 30 frost nights. Bloom was 2-3 weeks ahead of average with many bogs showing prolonged blooms. There was also differential development within bogs in a number of cases. These bloom issues presented a real challenge for doing percent Out of Bloom (%OOB) calculations for timing cranberry fruitworm (CFW) sprays. The plants remained at least 2 weeks advanced so that fruit formed earlier and were on the plants longer before being harvested compared to most years. "Everything was advanced except the harvest!"

Frank Caruso noted that we have no comparison years here as far as the mild winter goes. However, Peter Oudemans noted that the mild winter did not impact NJ bogs since they all were under winter water until spring!

The summer was dry for many locations and growers reported that some water supplies remain down as much as 3 feet. There were two reported hail events during the summer with damage reported for bogs in South Carver, Lakeville, and Plymouth.

Frost

Two growers reported that they did not run for frost in the first spring events in March — they suffered little or no apparent damage with good crops. Three others used flooding to protect from low temperatures for the late March into April period - 2 held for about 2 ½ weeks, one for 4 weeks, basically an earlier than normal Late Water event. Some growers, particularly those with limited water supplies, used frost cycling in the spring; others remain cautious about adopting the practice. One grower cycled for all but 2 of 30 frost events. Of those reporting cycling, start temperatures were set at 2° or 3° above tolerance with a 31°F stop temperature. This resulted in 15-20 minute 'on' cycles with 'off' cycles variable. None of these growers saw

reduced crops: one reported a 185 bbl/A average across his acreage, another harvested more than 200 bbl/A on a cycled bog.

Diseases

By far, plant diseases, particularly fruit rot, were the biggest topic of conversation.

Fruit rot. The handlers and eleven of the growers present reported high fruit rot incidence, some reporting as much as 30% losses, with pockets of even higher rot. Howes and Stevens appeared most affected but no variety was exempt. Those growers with rot noted that it appeared to come on suddenly and develop quickly beginning from late August to early September (with a few reporting onset in October). Other observations: rot was highest deep in the canopy; bogs with *Phytophthora* root rot were most susceptible to fruit rot; bogs that had not been sanded for some time were more affected; hail-damaged bogs suffered high rot incidence [and applying fungicide after the hail did not help]; 2 years after holding late water, rot was high but not as bad as pre-late water.

Those with rot problems had used various fungicide regimens from 3 Bravo applications, to combinations of Indar and Abound alternated with Bravo and/or Dithane. There was a discussion of the advantages and disadvantages of various fungicide schedules. Many questioned the use of an Indar/Abound tank mix as opposed to using just one or the other in a rotation. Peter Oudemans noted that one advantage of the mix is an extension of the range of fungi affected. However, it was also noted that both compounds have a risk of resistance development and using either or both frequently could increase that risk. Frank has begun to look for resistance in fruit collections on bogs treated with both materials in combination or in sequence (separately) for the last 7 years but has not as yet looked through the data generated during the 2012 growing season — those results will be reported in January.

Related to rot occurrence deeper in the canopy, Peter Oudemans noted that as bogs are managed for higher crops, that the additional fruit and leaf mass makes it difficult to get fungicides down into the canopy to those lower fruit. He is working on finding technologies, such as mist blowers, to overcome this problem.

Four growers reported little or no rot on their bogs. Of the four, one used a standard 3 Bravo rotation, one used a three fungicide application schedule but with

Indar or Abound, Bravo, and Dithane as the three treatments, one used 2 Bravos after holding water for 2.5 weeks for early frost protection, and the fourth used a 4-week flood in the spring [a late water interval but starting in March].

There was extended discussion regarding the underlying causes of the high fruit rot incidence. Most attributed the warm winter and early season as a cause. This could be due to survival of more fungal spores in the mild winter, plant stress due to poor rooting after the many spring frost events [and the standing water observed as a result], or interaction of latent infections with warm temperatures in late August through early October. Fungal organisms are often found in the berries by late summer, even with no rot symptoms present - these are latent infections. Fruit rot develops in such berries if conditions are right, particularly if day and night temperatures are warm. In average years, the critical period occurs from late September into October. Because the fruit developed early in 2012, it was theorized that the critical period for activation of latent infections could have happened as early as late August, when temperatures were still quite high. By late September, the fruit were well 'aged' from a physiological standpoint and the risk of latent infection activation could have been even greater.

Growers wondered if fungicides applied so early (timed by the early onset of bloom) could have 'run out' by harvest. It was noted that there might be some value in using a broad-spectrum material such as Bravo or Dithane as the last application to extend efficacy. This is possible, but it was noted that using these materials later in the season (even within the allowed timing) increased residue risk. The value of using Bravo in the pre-bloom window for Upright Dieback control (May) might eliminate pathogens that would normally be present to infect during bloom was discussed. While this might be effective, it does use a Bravo application that would not then be available later and there is no real data regarding the efficacy of the practice. Frank also plans to investigate the possibility that there has been a change in the formulation of Bravo, leading to a change in efficacy.

Finally, it was noted that a poor Keeping Quality Forecast is an indicator that fungicides should not be reduced in that year and that a rotation using all effective materials is the best practice.

Fairy ring. This disease is becoming more prominent and is very visible from an aerial view. There was an observed increase of rings after the warm 2011-2012 winter. Those with fairy ring find it challenging to manage with most using Indar. The use of Ferbam is way down but has been effective in getting vines to regrow in the ring area. But, most noted that even when the vines in the ring area return, they are thin and crops remain poor in those areas (as much as 50% reduced crop). Stevens and Ben Lear are both susceptible leading to speculation that Crimson Queen (Stevens and Ben Lear are its parents) will also be susceptible, but some reported extensive rings on Early Black. However, Frank noted that while *Phytophthora* root rot often shows up in as young as two-year-old beds, fairy ring generally does not show up until a bed is quite mature so it may be too soon to see this disease on Crimson Queen beds. For example, Rocky Pond bog was renovated in 2002 and 2012 was the first appearance of fairy ring on that bog.

Peter Oudemans explained that the fairy ring fungus exists in two stages (forms). The first is an airborne fungus that infects the rust disease occurring on briars. That infection then produces larger spores that fall to the soil and cause fairy ring. So if briars on the bog are infected with rust, they can serve as host to the fungus that will then cause fairy ring. The best way to manage this disease is to prevent rust infections on briars on the bog (or, of course, eliminate the briars)! Even renovation to remove fairy ring is challenging as the fungal spores can exist as deep as 5-10 inches below the soil surface.

Phytophthora root rot. This disease was very prevalent this year with many acres treated with fungicides for its control. Many also are also increasing their installed drainage for managing *Phytophthora*. Frank noted that this step is critical if one expects fungicides to be effective. *Phytophthora* is particularly a problem on Early Black. Incidence was very high in 2010 after the numerous frosts in 2009 and because there was record rainfall in March of that year, Frank predicts that we will see a similar occurrence in 2013 after the extensive spring frost season in 2012.

Other diseases. Upright dieback has become almost exclusively a problem of Early Black and was seen on that variety in 2012. Peter Oudemans noted that false blossom was increasing in New Jersey.

Weeds

The most commonly reported weed problems were with poverty grass, dodder, and poison ivy.

Poverty grass. This was reported as the #1 weed problem and some speculated that it has increased due to an industry wide reduction in the use of spring Casoron. However, it has previously been speculated that the use of Callisto has controlled other weeds that previously competed with poverty grass. Regardless, most reported difficulty in managing this weed. 'Poverty grass' is likely more than one species, complicating efforts to manage it. One grower reported success with a spring Devrinol DF followed by Poast [Mike Utley of Crop Protection Service suggested that Select Max would be a better choice compared to Poast]. Mowing of bog edges to limit seed was suggested but it was noted that this conflicts with trying to increase bee habitat on edges.

Dodder. Some growers reported success in controlling dodder with Casoron, others were less successful. In general, dodder was less of a problem in 2012 compared to the previous year. Applying the Casoron later into May seemed to increase effectiveness, with a split application of 60 pounds early in the month and 30 pounds later being an option. However, later applications have resulted in yellow vine symptoms on the cranberries. Hilary Sandler is experimenting with split and later Casoron applications to document the impact on cranberry over time (repeated annual applications). A split using the 60 pounds in April and the 30 pounds early in May was not effective. One grower reported effective control with 40 pounds of Casoron by air between May 10-14th; in 2012 he moved that timing up to the first week of May due to the early season. One grower used Quinstar effectively.

Other weeds. A combination of Callisto and Poast applied annually apparently knocks back poison ivy. Callisto is not working that well on dewberries, although whitening was observed after application. A fresh fruit grower reported that the pruning action of the Furford harvester could trim back dewberry runners before they could root from the tips to make new daughter plants. However, the timing only worked out for Early Black, by Howes harvest, the tips had already rooted.

Insects - insecticides

Winter Moth. We are observing a later than usual flight of the moths this fall, however flight has begun at most locations. Entomology scouted this spring for winter moth on cranberry. Late March and early April populations could not be detected on cranberry. Blueberry populations, however, could be detected under the microscope at that time. Only in the last week of April could winter moth larvae be seen and swept on cranberry. By the beginning of May, larvae ranged in size from 2 mm all the way to 15 mm. Larvae under 8 mm ate 1 to 2 cranberry buds in 2 days, while larvae larger than 8 mm ate 2 to 3 cranberry buds in 2 days. When larvae were small, populations were difficult to detect, but once larvae were large, they were easy to find in a sweep net. Many growers applied prophylactic insecticide applications, mid-late April being the best timing. Populations that were not managed resulted in heavy damage. Three populations of 100 pupae each were "seeded" on State bog, but none-to-date have emerged. Perhaps the standing water from Hurricane Sandy and other rains successfully managed, killed, or delayed their emergence.

Anne Averill noted that the winter moth parasite releases, coordinated by her colleague Joe Elkinton (UMass Amherst), are showing effectiveness and that based on experiences in maritime Canada, he expects that winter moth populations will crash, perhaps within a few years. In the meantime, growers should be vigilant in scouting for this pest.

Cranberry fruitworm (CFW). On a number of bogs, cranberry fruitworm pressure was high. Almost universally, Altacor was successful as a CFW compound with many using it for the first spray followed by Delegate. Altacor is an excellent first application choice since it is bee-friendly; Delegate is toxic to honeybees (but not bumble bees) and must be used with extreme caution during bloom; it is not toxic once it has dried. Growers have adopted the new spray recommendations [first application at about 50% OOB, see the Chart book for details] but were challenged to accurately calculate OOB in 2012 (see weather section above), making timing of the critical first spray difficult. Some growers had lengthy moth emergence, finding eggs though the season leading to as many as 5 insecticide applications. Hybrid cultivars size so quickly,

that coverage as the fruit form is critical. There was discussion of using mist blowers on the earlier edge populations and to avoid lack of coverage on edges, particularly when using pop-up sprinklers. With the new materials and diligent timing, Anne has found a trend of many sites that have no CFW at all. Growers who have low pressure may consider eggs checks before treating or after only one application. However, there remain other sites with very high pressure.

Other insects. Grub damage and reports increased significantly this year, surely as a result of the mild winter, with oriental beetle the most prevalent. Flights of Sparganothis were high but few worms were found in the berries in 2012. Concern was expressed regarding having only Actara as an option for summer generation cranberry weevil (since Belay has been excluded by handlers due to residue and trade issues). Flea beetle populations were down in 2012 but concern remains that the only control options are old-line organophosphate insecticides. Finally, Anne and Marty Sylvia discussed the reappearance of an old insect pest, **cranberry scale**, at 2 sites. This insect looks like a tiny clam shell attached to the stem of the cranberry plant. There is no material registered for its control and this pest can kill out the vines it infests. This will be a big concern for the future.

Other items/comments

- Early Black fruit was extremely small and the plants appeared stressed through the season.
- Hybrids need regular pruning.
- Early Black crop yields were the worst, fruit rot was the worst on Howes.
- A grower that used late water 2 years running reported a good crop in 2012.
- Many growers are installing drainage.
- When should irrigation stop? Should we irrigate in the day for heat? Is poor understanding in this area partially responsible for the increase in fruit rot? [Peter Jeranyama is working on the development of trigger recommendations on when to stop to go with his recommendations for triggering the start of irrigation]. There is a general recognition that bogs are too wet but how do we remedy that while avoiding heat stress?

- When switching from 12-24-12 fertilizer to 18-8-18, a decline in tissue phosphorus (P) was observed. Is this related to small fruit? **From Carolyn:** This is unlikely to be the cause of small fruit – that was pretty universal in 2012 and likely related to weather. However, growers should monitor tissue P and add P, perhaps as a pre-bloom foliar, as necessary.

Note: Product trade names are used for convenience and are not meant as an endorsement of any particular product.

CAROLYN DEMORANVILLE AND STAFF

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 **February 5 - 6 and April 9 - 10, 2013**. To register for workshops contact Natalia Clifton at 413-545-1044.

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CAROLYN DEMORANVILLE
STATION DIRECTOR

UMASS CRANBERRY MANAGEMENT UPDATE
Wednesday, JANUARY 16, 2013 Radisson Hotel Plymouth Harbor

4 Pesticide Recertification Credits
\$30 for early sign-up, \$40 for late

- 7:30 Check-In (with coffee)
- 8:00 - 8:15 Station Update - Carolyn DeMoranville
- 8:15 - 8:45 Weed Management Update - Hilary Sandler
- 8:45 - 9:15 Pathological Observations for the 2012 Season – Frank Caruso
- 9:15 - 10:00 The NJ Perspective: Fairy Ring and Fruit Rot – Peter Oudemans, Rutgers University
- 10:00 - 10:30 Coffee break
- 10:30 - 11:00 Phosphorous Discharge in the Harvest Flood, Casey Kennedy
- 11:00 –12:00 Updates and Emerging Issues
 - Dewberry Update
 - Winter Moth research
 - MRL’s and continued restrictions
 - Managing New Pests
 - Water Quality and the biggest worries
- 12:00 - 1:15 LUNCH BREAK (on your own)
- 1:15 - 1:40 Plant Physiology Research - Peter Jeranyama
- 1:40 - 2:00 Fruitworm and the New Compounds - Anne Averill
- 2:00 - 2:30 Protecting Native Pollinators - Anne Averill
- 2:30 - 3:00 Nutrient Management - Carolyn DeMoranville
- 3:00 Wrap-up and Paperwork

Registration Form for UMass Cranberry Management Update
Wednesday, January 16, 2013 7:30 AM - 3:30 PM
Radisson Hotel Plymouth Harbor

Please register for the meeting using this form.

NAME _____

EMAIL _____

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ADDITIONAL ATTENDEES _____

Return with payment by:
January 7th, 2013

Include check made out to:
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BY 1/7/13
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Attach additional sheets as necessary. PLEASE NOTE: Registration fee is **non-refundable** after 1/9/13

CRANBERRY STATION NEWSLETTER & REVISED 2013 CHART BOOK RENEWAL

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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. All out-of-state or industry personnel must include a check (made out to UMass) with the renewal form. **All subscriptions sent by email, including out-of-state and/or industry personnel are FREE.**

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ADDITIONAL INFORMATION TO HELP THE CRANBERRY STATION !

TOTAL NUMBER OF PRODUCING ACRES _____

TOTAL NUMBER OF ACRES BY VARIETY:

AVIATOR _____	BEN LEAR _____	BERGMAN _____
BLACK VEIL _____	BUGLE _____	CENTENNIAL _____
CN _____	CRIMSON QUEEN _____	CROWLEY _____
DEMORANVILLE _____	EARLY BLACK _____	EARLY RED _____
FRANKLIN+ _____	GRYGLESKI _____	HOWES _____
HYRED _____	MCFARLIN _____	MATTHEWS _____
MULLICA QUEEN _____	PILGRIM _____	ROUND HOWES _____
SCARLET KNIGHT _____	SHAW'S SUCCESS _____	SMALLEY HOWES _____
STEVENS _____	VOSE'S PRIDE _____	WALES HENRY _____
WILCOX _____	PARADISE MEADOW _____	

****Schedule and Signup Inside****

UMass Cranberry Management Update

WEDNESDAY, JANUARY 16, 2013

Radisson Hotel Plymouth Harbor

Be sure to mail back Registration on Page 6

Year in Review from the Tenth Annual Cranberry Summit

UMASS EXTENSION
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