



**JANUARY 14, 2021**

1 State Bog Road  
East Wareham, MA 02538  
508-295-2212  
[ag.umass.edu/cranberry](http://ag.umass.edu/cranberry)

Vol. 22:1

## *UMass Cranberry Management Update*

Our January 2021 Update Meeting has been scheduled as two morning Zoom sessions January 26<sup>th</sup> and January 27<sup>th</sup> from 7:30-11:00 AM. You will need to register online for each, and you will need to answer poll questions during the 8:00-10:00 AM sessions to be awarded pesticide credits. Payment will be processed separately - Cost will be \$20/each day, or discount of \$30 for both days. To attend, see page 2.

### **Preliminary Agenda**

**DAY ONE: Tuesday, January 26, 2021, 7:30-11:00 AM (2 credits, \$20)**

- 7:30 Online check in starts
- 8:00 What's New? And Weed Work – Hilary Sandler, Director
- 8:30 Pesticide and MDAR Updates – Marty Sylvia
- 9:00 Changing Trends in Insect Problems – Anne Averill
- 9:30 Optimizing Fruit Rot Management – Leela Uppala
- quick 5-minute stretch break----
- 10:05 PGR's – Fruit Color – Giverson Mupambi
- 10:20 Frost, Irrigation and Nitrogen Fertilizer – Peter Jeranyama
- 10:40 Water Quality and Tile Drainage – David Millar, UMass/USDA
- 10:50 Costs and Benefits of Renovation – Casey Kennedy, UMass/USDA

**DAY TWO: Wednesday, January 27, 2021, 7:30-11:00 AM (2 credits, \$20)**

- 7:30 Online check in starts
- 8:00 Herbicide Research Update - Katie Ghantous
- 8:30 Weevil Problems and New Leaf Beetle - Marty Sylvia
- 9:00 Evaluation of Novel Fungicides - Leela Uppala
- 9:30 New Pest – Spotted Lanternfly – Tawny Simisky, UMass Extension
- quick 5-minute stretch break----
- 10:05 Cold Hardiness of Cranberry Buds – Amaya Atucha, UWI, Horticulture
- 10:20 Root Growth Dynamics in Cranberry – Amaya Atucha – UWI, Horticulture
- 10:50 PGR's – Fruit Set, New Project – Evaluate New Hybrids – Giverson Mupambi

## Meeting Payment Form

To sign up for the UMass Cranberry Management Update meeting please complete the information below. Once your payment is received, a confirmation email will be sent with a link to register your email online. **All** meeting attendees **MUST** pay to register your email whether receiving credits or not.

NAME: \_\_\_\_\_

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EMAIL (required): \_\_\_\_\_

PLEASE CHECK:

\_\_\_\_\_ **DAY ONE:** Tuesday, January 26, 2020 (\$20)

\_\_\_\_\_ **DAY TWO:** Wednesday, January 27, 2020 (\$20)

\_\_\_\_\_ **BOTH:** (\$30)

ADDITIONAL ATTENDEES:

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Please make checks payable to **UMass** and return payment by 1/22/21 to:

UMass Cranberry Station  
1 State Bog Road  
East Wareham, MA 02538

If you have any questions, contact Robyn Hardy 508-295-2212 x10 or [rmhardy@umass.edu](mailto:rmhardy@umass.edu).

## Notes from the 19<sup>th</sup> Annual Crop Summit

The 19th Crop Summit was held virtually on December 8, 2020 with 45 people in attendance. Growers, UMass Cranberry Station (UMCS) staff, ag suppliers and representatives from various handlers were present. The focus of the meeting was to debrief on the season, facilitate discussion about concerns or issues, and to provide information for the CCCGA Research Committee's priorities for 2021.

**Weather Update.** Peter Jeranyama talked briefly about spring frost, summer temperatures, and the rainfall patterns that we saw this year compared to the past two years.

Regarding spring frost, we had a season that was 67 days long, starting April 10 and ending June 15. Out of those 67 days, 40 nights were frost nights. Six out of every 10 days were frost nights. Out of those 40 days, 20 of them were dangerous or very dangerous frosts, meaning that three of 10 days were dangerous frosts. Frost management was complicated due to Covid-19. Glenn Reid (A.D. Makepeace) and the frost committee did a great job by using Zoom to discuss conditions and assess the buds. Glenn reported that ADM ran 28 nights out of those 40, so there were 12 nights that frost was called when they did not run.

Hot July temperatures (*see Figure Temp.*) demanded the attention for the grower to either cool the vines or to do a pre-dawn irrigation or to do an intermittent cooling off of the vines. Thankfully at this stage, the berries were not yet red enough to be too affected but high temperatures remained a concern for the summer season.

Rainfall in 2020 lagged behind the two previous years and more so in July (*see Figure Rainfall*), where we received only 0.5 inches of precipitation, and the 2020 season never caught up to the levels of 2019 or 2018. As a matter of fact, by November 2020, we received 30.97 inches of rainfall in 2020. If you compare that to 2019, by November 30th we received 51.54 inches (2020 was only 60% of the rainfall received in 2019). Rainfall received by November 30, 2020 was 52% of that received at the same period in 2018. As a result, we know that some growers could not even frost protect in the fall because they did not have adequate water, and some could not water harvest because they did not have adequate water. This was quite severe in many cases.

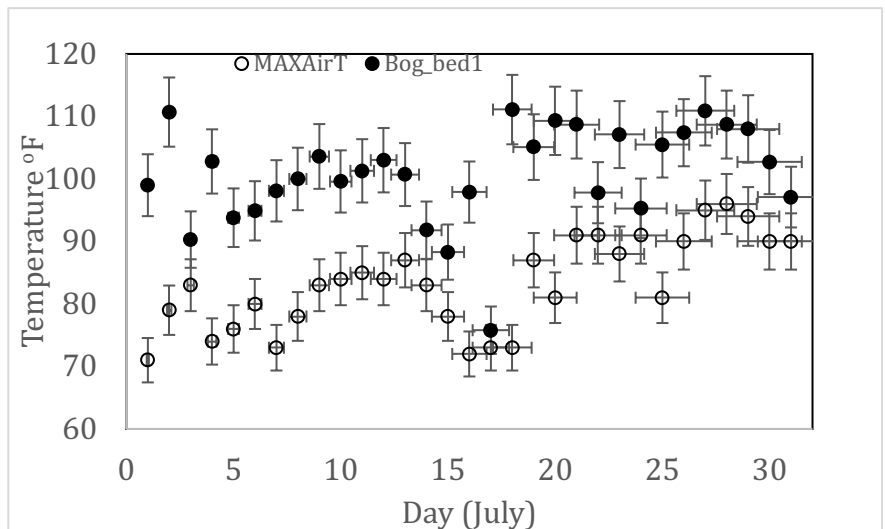


Figure Temp. Bog and maximum air temperatures in East Wareham, MA during July 2020.

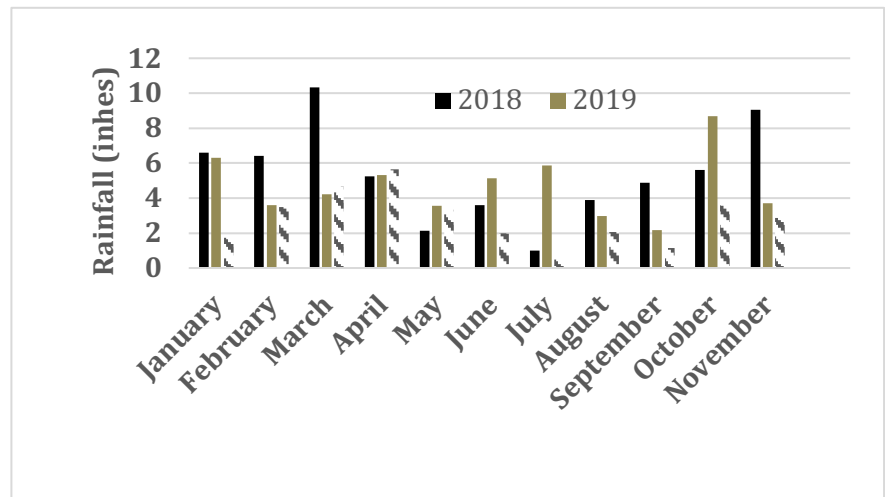


Figure Rainfall. Rainfall totals by month for East Wareham, MA 2018-2020.

*Poll Questions (25 growers responded).* The poll indicated that impacts on yield were overall “down a little” but there was huge variability. The trend was 53% down. We cannot say it was a good year, an even year or a bad year; there were different results for every grower.

A comment in the chat was that stronger bogs were even, or up and weaker bogs were down. Another comment was that at \$20 a barrel, growers may not want to put too much money into the bog as well. So that would have an impact on what kind of yield was seen.

**What was the SINGLE most important driver affecting your yield (negative or positive)?**

Drought	50%
Rot Control	25%
Insect Control	13%
Frost	8%
Other	1%
Weed Control	0%

**Compared to the last year, was your yield?**

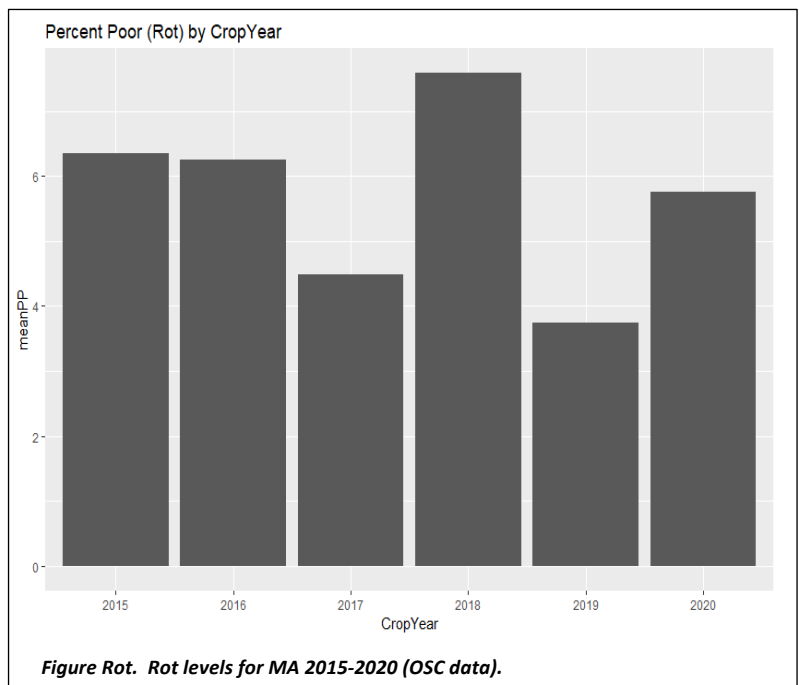
Down a little	40%
Up a little	23%
Down a lot	13%
Up a lot	13%
Same	10%

*Vine Discoloration.* A grower reported that after harvest, the vine coloration (or pigmentation) just did not have that same dormancy vibrancy, or even transitioning where it was going from the healthy green pigment to the dormant color. It looked like there was vine stress. The concern is for bud development next year. And what's going to happen this winter? If we have wind and other stresses, how will the vines fare?

The response from UMCS was that as with other perennial plants, drought stress like that does impact the pigmentation and/or some of the other secondary pigments or metabolites that could affect the transition into dormancy. Peter mentioned that he took some samples to do a stress test on the vines.

**Handler Perspectives.** *Adam Korejwa and Rod Serres (Ocean Spray) reported:* Despite the drought, in general, the crop in Massachusetts appeared to be fairly average. It was slightly down but within the margin of error. Rot was higher year on year (YOY). Yield is approaching, but maybe slightly less than, the average for the last five years or so.

Rot was higher YOY (see *Figure Rot*), but this was a return to the average over the past 5 years. By variety (see *Figure Poor*), we can see the trend in all the popular varieties in Massachusetts. There are at least 100 acres of each of these varieties (varieties with less than 100 acres were not reported). 2018 was a very high year for rot for most of these varieties.



In the beginning of the season, people were saying the fruit looked small but by mid-season and late, those comments dropped off. People were suggesting that the EB's were smaller, but the data does not bear that out. A grower suggested that maybe growers are just getting better at cleaning the fruit at the farm before it gets delivered and maybe that is why the comment on small fruit did not carry forward. EB are more uniformly delivered because growers are cleaning them out at the bog level. (See *Figure Poor*).

It was an average year, despite the huge challenges. Fruit size (see *Figure Size*) was actually slightly larger YOY in this trend, just like with the percent rot. This shows in the popular varieties almost exactly. The first bar is the very, very small berries and as you go across, the larger the berry. YOY, there were slightly less of the really small ones compared to last year for EB's, and that trend is similar for Howes, Mullica Queen and Ben Lear. Massachusetts fruit was slightly larger YOY. Even with the drought, size did not seem to be affected, and yield was minimally affected.

A grower commented on the size for their EB: Could it be that with the severity of the drought, the smalls and extra smalls that would have made it last year, got aborted so you wouldn't necessarily see them at the receiving station? AK responded: I would expect that to be the case, but I did not look at EB beds by yield class, whether they were strong or weak beds, but with EBs and our more stringent screening methods, I think that might contribute to the reduction in the percent poor. You may have gotten rid of some rot by getting rid of the smalls, but it is hard to definitely confirm.

Massachusetts had slightly less uncolored fruit than the average of all regions (no data shown). Ocean Spray changed how color is measured (Digi-eye) for this year so it is difficult to compare this year to previous years (measured by TAcy). But in comparison to other regions, Massachusetts was slightly less than the average for all of the other regions for the amount of uncolored fruit.

Was drought a factor for color? (AK): The data that I have seen suggest that the harvest was a little bit earlier than usual. This is again a reason to think that the size would be affected, but it was not (and the color compared favorably to other regions). So, color was not negatively impacted by the timing of harvest.

Did DigiEye have an impact on color? (AK and RS): Since this is the first year, we cannot compare between years and that is why MA % uncolored fruit was compared with other regions (MA was slightly below). Some growers noted

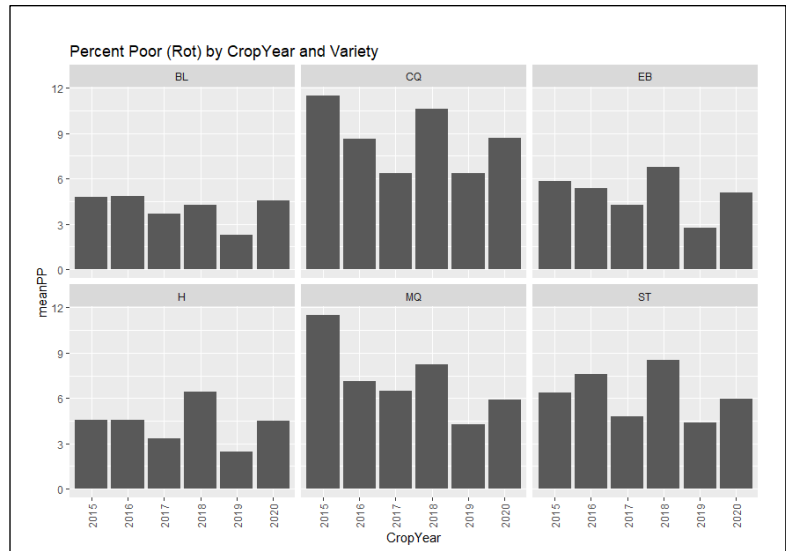


Figure Poor. Percent poor for MA 2015-2020 (OSC data).

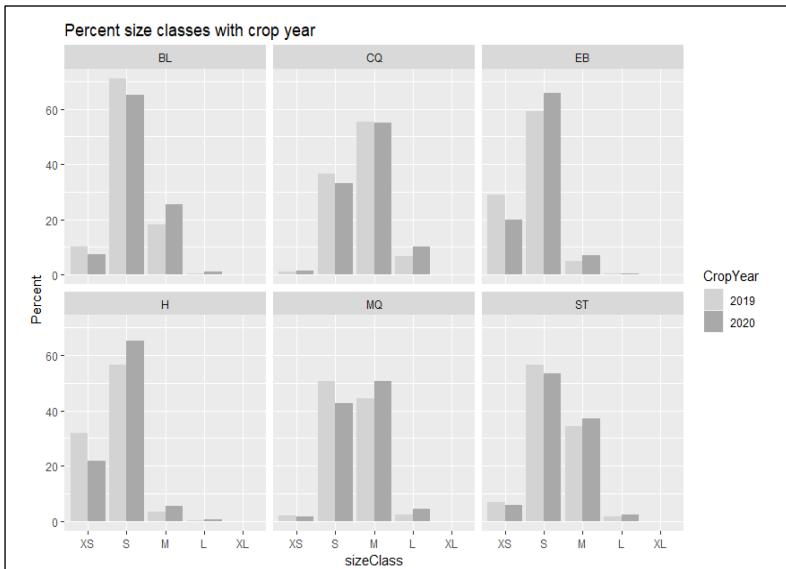
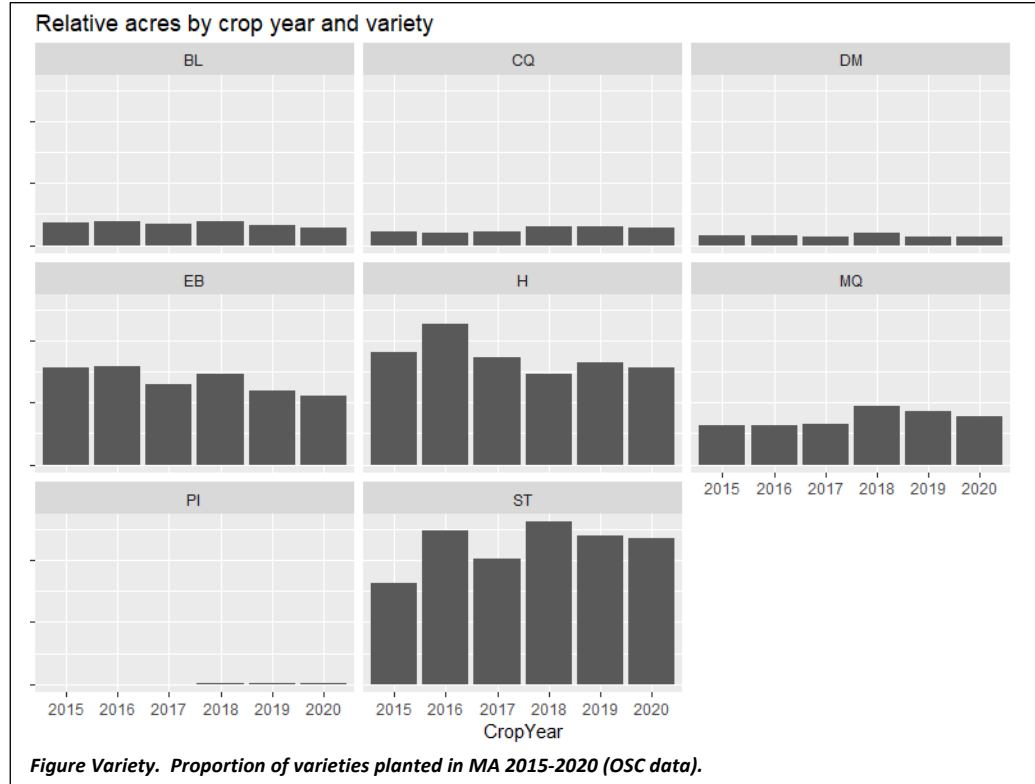


Figure Size. Distribution of size classes for MA fruit 2019-2020 (OSC data).

that with the DigiEye, they could bring in the fruit earlier because the emphasis is on surface color that would not have showed up in a TACY. We had some nice cool nights in the fall and that did increase our color overall, at least anecdotally, and yes, we think the DigiEye did allow growers to bring their crop in a little bit earlier.

For acreage demographics in Massachusetts, there are Stevens, Pilgrims, Mullica Queens, Howes, EB, Demoranville, Crimson Queen and Ben Lear (see Figure Variety). No significant changes are noted for the past 5 years,

but as a trend, the number of EB acres continues a slow decline. ST, BL, CQ, and MQ all saw small increases in acreage.



*Parker Mauck representing Decas.* For us, overall Massachusetts was down about 2% from 2019, so pretty similar numbers to what was reported by other handlers. I frequently got comments from growers that they were down 15 to 20% in some cases, especially early in the season but we did have some larger than usual crops so that impacted our overall intake. Small berry size was mentioned a bit, recognizing that the small fruit are likely going in the trash truck. For us, small fruit were removed before we saw the loads.

Anecdotal notes from other growing regions. Wisconsin: They were down considerably from their August estimates according to the experts, perhaps ending up between 4.6 and 4.7 million barrels. There were some poor crops in northern Wisconsin (averages below 100 barrels per acre). New Jersey and the West Coast states did pretty well, but because of the impact that MA and WI have on the crop, the US crop is likely going to be about 7.6 million barrels. Quebec: Their conventional crop was about 1.65 million barrels, so down 13% or so from last year. The organic crop was 653,000 barrels, down about 10% from last year.

Quality started off looking good but by the end of the season we saw a lot of poor fruit. Some of that might have been a lack of water limiting growers' ability to frost protect. Color was not as good as last year, but we saw the same thing as Adam noted that it was pretty close to our 5-year average. Fresh fruit was really good this year compared to past years; field and storage rot levels were down.

We did see a lot of small fruit in EB and Howes (just observations not measurements). Growers were waiting for color for incentives, but also water this year. I think water had a huge impact on the timing of harvest this year. All the extra work needed to move water around made harvest particularly difficult this year.

In 2019, we had some insect challenges with some of the fresh food deliveries, but we did not see really anything this year. So, whatever caused that last year, we did not see that same problem this year.

*Chip Mathew for Lassonde* (echoed Parker's comments): But we saw a little bit more reduction in overall yield maybe around 6 to 8%. We tend more towards some of the early varieties and they were down. We expected them to start later but we had an early start, and the peak was kind of pushed out; it was a relatively even drag through to the end of the season.

Quality was pretty good on the earlies but it tended to drop off later. We did see a fairly significant increase in field rot coming in, and we actually had to turn away a few trucks. Rot in the bins and freezers is up about 1% from normal and 0.5% different from last year, which was a really good year. Overall, we have been seeing a downward trend in yield per acre. It was definitely a challenging year for our growers with several growers battling low water supply.

**Crops and General Fruit Quality.** Growers were split on their yield reports (see poll). For one grower, EB were certainly down, Howes and Stevens did well to make up for it. Quality was good. The cool fall temperatures helped to hasten color development, which was very helpful. Cool fall nights also helped to trigger dormancy nicely. Growers felt poor fruit (when present) was likely due to drought stress. One report was Mullica Queens fared very well through the drought and had very little scald or poor fruit. If growers waited until October to harvest early varieties, one grower thought some of their fruit might have even been over-ripened. People thought that growers might be doing a better job screening out bad fruit bogside, prior to delivering to their handlers. One grower reported quality issues with Scarlet Knights and Demoranvilles and was hoping to hear from others if they had similar experiences. Some Ocean Spray growers lamented not having early sequencing options.

**Rescuing Rejected Loads.** AD Makepeace constructed a rot processing station for cleaning rejected fruit loads. It is a 3-acre rectangle dug into the ground and gravity filled with water. It has a pad where a tractor trailer (with cranberries) backs up to the end of this pad. It is offloaded with a four-inch hose into a corral, then the corral is dragged to a hydraulic powered conveyor ladder which carries the fruit up into a rinse bay with a series of jets and sprayer bars. This pushes the fruit into a set of cylindrical drum brushes. The brushes push the fruit up against a series of 3/8" space bars. The good fruit passes through the brushes and over the tines, unharmed to an open load truck. The rotten fruit is pushed through into a water course leading to a trash truck. Over the course of the season, 80 loads were cleaned from 31 different bogs. Each load arrived at or near the point of failure by Ocean Spray standards (i.e., 25-30% poor fruit). Each load had a turnaround time of about 2 hours with a result generally under 12% rot. Anything coming in between 35-45% took a lot longer, and sometimes struggled to get below 15% and usually hovered closer to 18 to 20%. If the rejected load was at or above 50%, it was a struggle to clean it. Even though the brushes were very much doing the work of pushing out the rot, it was coming up so thick and heavy that it was overwhelming the system and gumming up the load.

A couple of observations: 1) cranberries seemed to withstand being underwater for quite a long time; one bog's fruit was in the pool for about 7-10 days. In the end, some value was able to be squeezed out of a bad crop, but it took time. It took 4 hours to clean the last load from a bad crop. The trash truck had to be dumped five times, so crop was definitely deteriorating, but even the last load got in at about 13% poor fruit. Based on that single load, after 4 or 5 days in the late September sun, that load was probably losing 3 to 5% per day; 2) It was very hard to clean fall frosted fruit. Unlike regular rotted fruit that passed through the bars very well, berries damaged by red frost (rubbery pliable exterior) but having some firmness to them, did not pass through the bars easily and tumbled into the load. Loads with that kind of damage were a struggle to get in under 20% regardless of what the initial rejection level was. Some improvement was found after compressing the brushes down against the bars (or tines) to the maximum tolerance, but the process was really slowed down.

Makepeace did process a few loads for other growers this year for a fee and they anticipate this will remain an available option if needed in 2021.

**Weather/Irrigation.** Some growers felt that their bogs never really got dormant last winter and looked stressed in the spring. Some bogs never made it under a winter flood at all. One grower reported doing all evening irrigating: pretty

much every other day for three hours across the whole farm. A grower reminded the group how wet it was in the spring. For one grower who planted around April 20, they did not think those vines even knew they were in the ground for another five weeks.

When we finally got some warm weather for a couple of days, everything was green again and looked all right, but the grower thought that wet spring really hurt things. And then, once it stopped raining, it (pretty much) never rained again. Rainfall across the growing area was very spotty; some areas would get “inches” and some nearby locations would receive no rain.

Growers did run periodically during hot spells to cool the vines. One grower thought they had as many ‘over 90’ days as spring frost nights. One grower reported heat injury (burned tissue) during the summer when they ran out of water.

**Spring Frost.** It was a tough spring with a lot of frost nights and the water used for frost protection meant there was less water around for growers during the season (due to the drought). Some growers were running 2 degrees above tolerance, but some were doing 3 degrees. A Cape grower reported having only 7 frost nights, so there were certainly regional differences in 2020. An inland (Freetown area) grower reported 20 possible frost nights, ran for 10 with no evidence of any frost injury. Many growers cycled in the spring and were thankful to have done so and they needed the water in the summer and fall.

**Fall Frost.** One grower had 3 frost nights in the middle of September, which helped with color. They could harvest a lot of varieties early and did not have a lot of frost nights during that time. However, in early November, they thought there were 8 frost nights, which slowed things down a bit. A grower reported that due to the (lack of) water situation, they cycled a lot more than in the past in probably half of their locations. They started at 3 degrees above tolerance, just to be on the safe side; generally, pumps would not stay down for more than a half hour to 45 minutes. They reported no nights where equipment froze up. On really cold nights, they used a frost flow on everything. Some ‘red frost’ on the fruit was seen. This might have been due to growers with little water cutting things a bit too close.

**Bees.** The hives were okay, on par with last year. The bees didn't get out there to really in full bloom and then all of a sudden, it seemed like they were all out there.

**Insects.** Early insects were fairly low for most growers. Winter moth reports were way down. Anne noted that UMass researcher Joe Elkinton reported that a parasitic fly that his group imported and released has expanded its range and is responsible for winter moth decline.

*Cranberry weevil* was the biggest contender. At the end May, some growers already had weevil counts above threshold. Many growers will wait until double digit counts to spray. Avaunt was still used by some growers (and some reported very reduced efficacy) but most used Actara and efficacy was excellent.

*Cranberry Fruitworm* pressure was very low according to one grower that monitored egg levels, probably because of good timing and high Altacor efficacy. Nonetheless, most growers applied Altacor at 50% out of bloom (generally the beginning of July), followed by a second application 7-14 days later.

*Flea beetle* reports were minimal.

*Green Spanworm.* Growers reported low levels of green spanworm in the spring but could not differentiate them from winter moth and generally did not treat. Many growers reported a big flight of green spanworm mid-June, confirming the actual identity of the spring insect infestation. This was the case at State Bog. Marty is quite concerned about green spanworm reappearance and how it deviates from expected phenology. She believes that we should look more closely at the current activity, damage, and management of the insect.



*Golden Case Bearer*. Populations of this leaf feeding beetle have been building for 5 years, with a dozen infestations in 2020 causing damage right at bloom. One grower reported variable damage across their farm (5-30% affected). Diazinon was the compound of choice for control (end of June, early July). USDA ID confirmed the beetle as *Triachus vacuus*, and there is some information on its hosts and life history. In addition, several infestations of fire beetle, another leaf feeding beetle, were reported – also causing substantial but localized damage

*Scale*. Putnam scale remains a problem on many bogs in 2020. Most growers reported very good control (with Diazinon mid-June) but some reported issues with difficulty of application. Anne noted that yield at State Bog in heavily infested beds was still high, suggesting that expected impacts require more study. Another scale species, Latania scale, which appeared on a few beds in past years, has not been reported widely. Scale is reported in EB, Stevens, and Mullica Queen.

**Weeds**. Dodder is always a problem for some growers and one grower saying they apply 40 pounds of Casoron on every year with the helicopter. This grower skipped the application of Casoron and got yellow fuzz all over the bog in early August, but it all just disappeared. It never grew and just shriveled up. Several growers mentioned not using Casoron (as general pre-emergence) at all for many years and felt pretty good about it in general (better for the vines).

*Poverty grass* continues to be a big problem for many growers. Chemigation with Intensity One seems to be doing well and other growers applied it by boom, with good results.

*Zeus*. Many growers reported good results with Zeus on moss control. Although moss control was good in many areas, growers likely will do repeated annual applications to get better control. Growers reported “knockdown” of other weeds with Zeus but were not always sure which species they were. One grower accidentally over sprayed a new planting. The herbicide definitely hurt the new vines but provided very good control of corn grass. The grass control really helped the new vines establish, and even with the injury from the herbicide, those vines were better at the end of the season than vines that did not get accidentally sprayed with Zeus.

**Diseases**. Growers reported using a 3- or 5-fungicide regimes (with many using a minimum of 4 sprays) including QuadrisTop, Manzate, Proline, which seemed to do pretty well. Ocean Spray growers noted timing Mancozeb application was challenging due to pre-harvest intervals (PHI) restrictions (85 PHI, no use allowed after 50% out-of-bloom, no use allowed after July 15<sup>th</sup>, 2020). They had to apply Mancozeb earlier (either at early or mid-bloom) than they have preferred. Coupling this with the water shortage, harvest decisions got complicated and/or hindered due to the PHI. Some quality issues were due to water logistics and being forced to harvest early fruit late. Several growers reported not using chlorothalonil for several years and felt good about using Proline, Abound, QuadrisTop and Manzate combinations, and achieved good rot control. Two growers also opined that not using Bravo is helpful in dodder control as they did not have issues with dodder during the cropping seasons that did not include Bravo applications. Only one grower reported 5-spray regime with two Bravos followed by one application each of QuadrisTop, Proline and QuadrisTop.

One grower reported more rot in EB this year and attributed it to drought. One grower noticed more upright dieback on EB than in past season (likely related to drought stress). One grower mentioned some blossom damage, but it was thought this was due mainly to thick canopies, poor air circulation and/or poor drainage rather than any disease issue.

**Solar Panels**. Mike Paduch related some experiences with growing vines under solar panels. He used a backpack blower to get some insect control and cranked out some fertilizer. Runners were everywhere (in 2019). In 2020, he applied insecticides and fungicides and got a good crop. They used a Furford to clean up some of the excess runners and he was quite pleased. He thought panels higher off the ground and more widely spaced would do better than his set up (closed to the ground). He did mention having some signs of footprint disease in the solar panel area.

**Grower Grants.** Several growers applied for the granting program offered by the State through MDAR and felt it really helped them improve their operations over the last year.

*Brian Wick representing the CCCGA* talked about the Coronavirus Food Assistance Program CFAP2 program that is the USDA coronavirus response for agriculture. The state grants that were announced during the summer originally were food security grants, then drought assistance was added. Those still have not been awarded and there is probably still about 15 to \$17 million left in that grant pool. They are expecting that will be completely run down by the end of the program.

Pesticide license renewals were due December 30, 2020. They are all online this year and many included audits of credits. Dawn Allen (CCCGA) and Marty Sylvia (UMCS) can help.

Renovation grants closed December 4, 2020 and that was the second round (\$1M each). We will try to get another round for 2021. Since 2020 was oversubscribed, that helps build our case by showing that the demand is not being met. That really helped to get the second round of funding.

**Ag Suppliers.** *Reported by Jeff Utley Nutrien Ag.* Pesticides used in the last 2 years, acres applied, based on sales. Acres treated is an estimate based on volume of chemical sold assuming a single application. Some products may have been applied multiples times on the same acreage.

FUNGICIDES	RATE	ACRES APPLIED 2019	ACRES APPLIED 2020	CHANGE IN USE
Proline	5 oz	10,240 A	7,936 A	down 25%
QuadrisTop	14 oz	1,371 A	4,571 A	up over 200%
Bravo	--	7,712 A	3,064 A	down over 50%
Abound	15.5 oz	2,477 A	2,477 A	even
Indar	12 oz	1,239 A	1,858 A	up 50%

HERBICIDES	RATE	ACRES APPLIED 2019	ACRES APPLIED 2020	CHANGE IN USE
Explorer/Callisto	16 oz	4,320 A	5,200 A	up 25%
Intensity One	16 oz	1,360 A	2,000 A	up 50%
Casoron	6 oz	5,003 A	3,000 A	down 40%
Devrinol	4 oz	3,435 A	3,758 A	up 25%
Glyphosate	--	730 gallons	800 gallons	up 20%

INSECTICIDES	RATE	ACRES APPLIED 2019	ACRES APPLIED 2020	CHANGE IN USE
Altacor	4.5 oz	8,329 A	13,326 A	up over 50%
Delegate	6 oz	5,200 A	5,863 A	up 13%
Avaunt	6 oz	5,003 A	3,000 A	down 40%
Actara	4 oz	3,435 A	3,758 A	up 25%
Intrepid/Invertid	16 oz	2,552 A	3,440 A	up 30%
Diazinon	---	996 A	1,854 A	doubled!

## Cranberry Station News

- As we continue to navigate our way through the pandemic, we appreciate everyone's patience and cooperation. Due to University guidelines and directives, the Station is still closed to the public. If you email or call us, we will do our best to accommodate whatever needs you might have.
- We are currently working on the 2021-2023 Chart Book. You will be able to preorder your copy. Stay tuned for more information and order forms in the February 2021 newsletter.

Stay safe,



Hilary A. Sandler, Director

-detach here-----

## 2021 Cranberry Station Newsletter Mailing List Form

≈ Annual subscription is **FREE** when sent postal delivery for Massachusetts growers, cranberry researchers and IPM consultants.

≈ Annual subscription sent postal delivery for out-of-state growers and industry personnel is \$15.

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**CRANBERRY STATION  
NEWSLETTER**

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