



## CRANBERRY STATION NEWSLETTER

December 31, 2018

UMass Cranberry Station

1 State Bog Road

PO Box 569

East Wareham, MA 02538

508-295-2212

[ag.umass.edu/cranberry](http://ag.umass.edu/cranberry)

## UMASS CRANBERRY MANAGEMENT UPDATE

Wednesday, January 30, 2019

7:30 AM – 4:00 PM

Hotel 1620 at Plymouth Harbor

Regency Ballroom

180 Water Street, Plymouth, MA

Early registration  
\$30 per person

Registration form  
on page 6

### Tentative Schedule of Events (4 contact hours)

- 7:30 Registration (with coffee)
- 8:00 What's New? – Hilary Sandler, Director
- 8:15 New Pathology Directions in MA – Sai Sree Uppala
- 9:00 Weed Management – Hilary Sandler
- 9:30 Herbicide Research Update – Katie Ghantous
- 10:00 COFFEE BREAK**
- 10:30 Climate Change and Cranberry – Hilary Sandler/Katie Ghantous
- 10:45 Kettle Holes, Cranberry and Climate Change – Steve Smith, CCNS
- 11:15 New Visions in Plant Physiology – Giverson Mupambi
- 11:30 Setting the (Fertilizer) Record Straight – Casey Kennedy, USDA
- 11:45 New USDA Project, Weweantic Water Quality Project – Chris Neal, WHRC
- 12:00 LUNCH BREAK (on your own)**
- 1:00 Using Drones to Infer Soil Moisture from Imagery (near surface temp) – Rebecca Brennan
- 1:20 TBD
- 1:40 Revisiting Adjuvants – Spreader, Stickers, or NIS – Hilary Sandler
- 2:10 The Latest in State and Federal Regs – Marty Sylvia
- 2:30 Scale Not Made Simple – Anne Averill
- 2:55 Weevil Lab and Field Trials – Marty Sylvia
- 3:30 Wrap-up and Paperwork

## *Notes from the 17<sup>th</sup> Annual Crop Summit*

---

On December 7<sup>th</sup>, 2018, 36 growers, industry representatives and Cranberry Station personnel met to discuss and reflect on the 2018 season at the 17<sup>th</sup> Annual Summit meeting held at the Cranberry Station in East Wareham. Although it was a good crop year for 2018, the theme of the meeting was the impact of weather events regarding color development and fruit quality making for a much later harvest season.

Additionally, we decided to change the format of the meeting. We began with introductions and continued with the weather summary, handler perspectives, ag supplier perspectives, and industry trends and issues. We finished with a short summary from each discipline from the Station with growers being able to share their perspectives after each topic. Those thoughts are summarized below.

### **Weather Summary**

Winter 2017-2018 (Dec 2017-Feb 2018) was warm and wet with below average snowfall. The seasonal average was 34°F, 2°F above the 30-year average (aka normal). January had both the maximum and minimum temperatures. Rainfall was 15.82", 3.61" above normal; snowfall was 18.5", 8.9" below normal. February was the warmest month and January was the wettest. The spring (March-May) had average temperatures, but the rainfall was approximately 4" above normal at 17.7". Summer 2018 (June-Aug) was dry, warm and sunny. The average temperature was 71.8°F, 2.6°F above average and the rainfall was 8.5", 2.5" below normal. September was warm with an average temperature of 67.5°F, 4.6°F above normal. October was 0.1°F higher for average temperature; November was 1.6°F cooler. September nighttime temperatures were 62.6°F, 8.7°F degrees warmer than normal; 6 nights never went below 71°F. September rainfall was slightly high at 4.86' (0.37" above normal). October and November were wet and very wet, respectively, with 2.36" and 4.34" above normal (6.57" and 9.04", respectively). November also saw 1.2" snowfall.

### **Handler Perspectives**

Decas Carver Receiving Station comments: Overall volume was up 42% over 2017 and 3.5% over 2016. The early season started off a little later due to growers waiting for color. Large Ben Lear crops from some growers resulted in higher than normal early season volumes. Large volumes of Stevens delivered by growers resulted in high daily volumes over a longer number of days than normal for mid-season. Daily volumes were not large in late season but the season dragged on late as some fresh fruit growers elected to water harvest due to weather challenges experienced in October. Dried fruit volume was short this year by 40%.

Rot coming off the bogs was higher this year, particularly on Stevens. Packed-out rot levels in the bins were identical to last year, but it took a lot of extra effort at the bog and at the receiving station to achieve this. During the high-volume days, some waiting times were longer than ideal due to having to run the fruit more slowly to clean it up.

Color developed slowly but the long harvest and mid-season cold nights produced a season color average equal to 2017. However, both 2017 and 2018 were significantly lower than average. The average TAcY for 2018 was 32 and 2017 was 31. The average TAcY for 2016 was 38.

Quebec's overall production was 2.5 million barrels (bbl), up 57% from 2017 mostly driven by large yield increases (2017 was a low production year). Organic production was 705,000 bbl, up from 255,000 bbl

in 2017. This increase was driven by a largescale conversion of acres from conventional to organic coupled with the largest organic yield on record. The organic average was 207 bbl/A and there are now 3,404 organic acres in Quebec.

Ocean Spray comments: In terms of overall production, British Columbia was up, Wisconsin was down, and Massachusetts had a good year being up 25%. New Jersey and Massachusetts had some rot issues. Berry size in MA was larger with 82% being over a ½ inch compared to 65% last year. Massachusetts TAcY was 32 for 2018, which was the same as 2017 but lower than 2014 which was 41. Firmness at 610 was down from 650 in 2017. Percent poor for Crimson Queen was 9.5% and 8% for Stevens. Yield for Mullica Queen was 375 bbl vs. 300 bbl in 2017. Yield in Massachusetts for all varieties was up for 2018.

The delivery pattern for Massachusetts was equal to the last 5 years but had the highest volume come in later in the season.

Refresco comments: Jonathan Ashley was not at the meeting but sent us the following to be included in this report: "Refresco handles very little early varieties of cranberries (not by choice) but I've seen the harvest shifting each year towards a later date. We did not see any significant volume until the week of October 15<sup>th</sup>. Warm weather and color (TAcY) had a role in this (for 2018) we have a 25 minimum and growers had trouble reaching acceptable color until late October."

Fruit was softer than last year. I didn't see much rot but what I did see seemed more like scale damage. We refused only one load due to rot all season. There was no bug damage. The bulk of our crop came in in a two-week period starting October 22<sup>nd</sup>. Pesticide usage continues to drop, and in my opinion, I relate this to the low price of fruit."

### **Ag Supplier Perspectives**

Mike Utley representing Nutrien Ag provided these comments:

Herbicides: Casoron sales have slipped to approximately 30% of what they used to be in the 80's, 90's, and early 2000's to 2015. Devrinol is still a marketable item, however sales are much less than when we had Devrinol 10G. In years when sanding is done, or when a large number of new acres are planted, Devrinol sales are reasonable. In non-sanding years, Devrinol sales are way down. 2018 was a fairly reasonable year. Evital is similar to Casoron, sales here have diminished by at least 50% per year.

Insecticides: Many factors, (too many too explain here), contribute to why sales of most of the insecticides we sell here are down. Avaunt and Delegate sales down 30-40% in 2018, vs. 2017. Diazinon AG500 / 600 sales down 10-15 % in 2018, vs 2017, and those sales were down 20-25% from 2016. When compared to the early to mid-2000's and earlier these sales are likely down 80%. Sevin XLR Plus, Carbaryl are up and down every couple of years. They were way down this year as winter moths and gypsy moths never really showed up. Actara and Altacor sales were both up considerably from last year. Altacor sales have been climbing every year since it has been registered for cranberry, some of these sales are likely due to less Delegate being used. Actara sales increased last year, and nearly doubled this year as applications of Avaunt were not as effective this year as they have been in the past (in my opinion, not all of this ineffectiveness is due to "Avaunt not working anymore").

Intrepid 2F (Dow) and Invertid 2F (Loveland) are pretty much identical products (active ingredient methoxyfenozide). The difference between the two is that Intrepid 2F has no additional adjuvants built in, and Invertid has added adjuvants which help with superior coverage, greater spreading and sticking capabilities as well as penetration. This allows Invertid 2F to last longer, and also provide a faster kill than Intrepid 2F. Sales of Intrepid 2F, were down from a good year last year by approximately 25%,

however, sales of Invertid 2F more than made up the difference, as growers were quick to try it.

Most other insecticides, including (Acephate / Orthene, Assail, Belay, DiPel, Lorsban, Imidan) are used so infrequently they do not earn mention here.

**Fungicides:** This was a surprise to me! In a year where a fair to poor keeping quality forecast was issued, we saw a fair decline in fungicide sales. Both Bravo formulations were in short supply, as well as other substitute chlorothalonil formulations. In the end, only a very small amount of Bravo was actually available. We were able to secure approximately 70% of our liquid chlorothalonil needs in the form of Initiate 720. This product is essentially identical to the liquid formulations of Bravo, except it has Loveland's own adjuvant package. As for the dry Bravo formulation, we only recorded about 25% of our usual sales amounts. This would lead you to think that sales of other fungicides would hold their own, or increase to a certain degree. But this was not the case: both Abound and Indar sales were down 25-30%. EBDC fungicides (Dithane, Mancozeb) were down 25-30%. Proline 480 SC sales were up slightly. As for all others (all coppers, all Phytophthora fungicides, Oso, etc.), sales were similar and at least down slightly.

### Industry Trends and Issues

Brian Wick from the CCCGA gave us his update: Massachusetts SMART Solar Program (dual use: 50% covered, 50% growing cranberries) is offered by MA Department of Energy and Department of Agriculture if you are interested in more information, please contact Brian Wick at the Cape Cod Cranberry Growers Association (CCCGA).

Kerb Section 18 for 2019 emergency exemption for dodder was submitted to EPA by Hilary Sandler. Documenting an "emergency condition" and the "non-routine nature" of the problem are significant hurdles for us as we have had Kerb before and have been "living" with dodder for the past many years. The Pesticide Subcommittee of MDAR was very supportive. They approved the package and sent it to EPA. The University, industry groups and Dow are pushing forward for a full label (hopefully sometime in 2019). *[We have since received a negative determination from EPA regarding the Emergency Exemption request. For more details, please see full article on Page 7.]*

**Regulations:** The Trump trade wars have resulted in retaliatory tariffs on cranberries and cranberry products shipped to the EU, China, Canada, and Mexico. As a result, the federal government has agreed to buy \$32 million in cranberry for school lunches and food banks. There is still a push for additional monies that will be direct payment to farmers, but that issue remains to be determined. We are trying every angle to get direct grower payments, which some commodities have but cranberries does not. We went directly to USDA in DC to make our case, we have the Congressional Cranberry Caucus sending in letters from both the House and Senate, asking for payments and working every angle we can to try and make this happen. It's a long shot but we're giving it a solid try.

Nutrient management should be to follow the recommendations in the UMass Cranberry Chart Book. You should have a copy of the 2018-2020 Chart Book to show you are compliant. Keep good records of what fertilizers you are putting on your bog as audits may happen.

### General Discussion

**Weeds:** Hilary received several calls this summer regarding vine injury near poverty grass (PG). The cause was Evital damage, most likely due to movement of the herbicide away from the PG to the surrounding vines. If you are using a coffee scoop to apply Evital at the base of a plant, be sure to

“calibrate” the scoop so you know how much is going out. Spring application (dry conditions) can help to manage PG. Growers report good to very good control when chemigating Intensity/Intensity One for control of PG. We are working with Loveland to amend the current label for Intensity and Intensity One to more accurately reflect the proper application window for this postemergence herbicide. Our research indicates roughneck is the susceptible growth phase that leads to fused flower petals. One grower mentioned that the State is including little blue stem in its roadside mix.

We saw yellow vine injury late in the season, mostly likely due to the dry conditions. Plant (vine) stress also contributed to “flashing” symptoms following Callisto applications. Moss is an on-going (increasing) problems across a wide variety of habitats (dry and wet). It is now in NJ, WI, and Quebec. It is hard to know exactly why moss is an emerging problem on bogs. Theories include loss of Kerb (although this product has not been shown to control moss in studies, and is likely not a factor), climate shifts, chemical patterns, and drainage. Dodder seems to be emerging later (past 2 years). Scout your bog to know when to time herbicide applications. We are working with a UMass biologist to investigate the genetic diversity of dodder in the hopes of understanding why control “works here but not there”. New emerging weeds this season include red sorrel infestations. Deer tongue grass continues to be an issue and is hard to kill. The weed conversation concluded with a discussion about future plans should we lose glyphosate.

**Insects:** We had stunning scale populations on a number of bogs in 2018. There are now 65 documented sites in MA. Many growers dealt with the challenge of treating with diazinon just as we were going into bloom. With a short window to spray, timing is difficult with bees coming in and some growers tried to hold back delivery of bees at that point. An additional half dozen sites observed July populations that were outrageous with significant damage. Late water does work for scale and is an excellent option. A new species has been identified as *Latania* scale (not greedy) on 3 sites. This species is a tropical scale that is found across all kinds of plants; it has explosive populations, has no natural enemies, and may sweep through the industry.

**Cranberry weevil:** Very high counts of weevil were reported and a number of Avaunt failures reported in May. Cool weather likely impacted management since adult weevils must forage on the vines and feed on Avaunt to acquire a toxic dose. Unfortunately, by June, many growers moved to Actara for management. This sets us up for problems with neonicotinoid residues in our flowers, bee issues, beekeepers; label and politics.

Weather appeared to be the most important factor in our studies that monitored spring weevil movement from overwintering sites in the woods onto bogs, a factor that complicates management decisions. One grower mentioned that Station staff must balance research and economics of those techniques. Another grower questioned if we were seeing the new summer generation? We are looking for new compounds, but the future is not bright.

Winter moth and gypsy moth were reported to be way down. Growers reported starting early (ca. April 7) with their late water floods in 2018.

In the 1990s-2000s, there were 10 species of bumble bees, but now we continue to see only one major species - *Bombus impatiens*.

**Diseases:** New pathologist Sai Sree Uppala presented her thoughts: I would like to thank you all for entrusting me with Cranberry Pathology responsibilities. It’s been little over a month since I started my position here at the UMASS cranberry station. Since I joined, I got opportunities to visit bogs, interact with growers and review existing research and extension literature. I learnt that fruit rot is one of

biggest disease challenge growers face. Thirteen different fungi are known to be associated with cranberry fruit rot and their populations are variable among the years, sites and regions. Until recently, broad-spectrum chlorothalonil fungicides played a significant role in fruit rot management programs. However, European Union's revised MRLs and withdrawal of their approval for chlorothalonil in December 2018, is prompting the cranberry industry to shift towards newer classes of fungicides (Group 3 fungicides- Proline, Indar; and Group 11 -Abound). These newer classes although highly effective and safe, they pose a much higher fungicide resistance selection risk. It is important to preserve their effectiveness and durability by judicious use along with the integration of proper cultural management practices. In the next couple of years, through my research and extension efforts, I would like to screen newer classes of fungicides with different modes of action, evaluate various cultural management methods and develop sustainable management strategies. I am also interested in a multi-disciplinary study focusing on the short-term and long-term effects of Late Water floods on cranberry diseases, pests, weeds and yield.

Regarding the chlorothalonil fungicide Bravo: It may continue to be available for use in the US for the foreseeable future. However, cranberry fruit handlers who market product to the EU will be determining Bravo's status for the upcoming crop. Growers should communicate directly with their handlers regarding the use of Bravo on the 2019 crop.

## MEETING REGISTRATION FORM

### UMass Cranberry Management Update

Wednesday, January 30, 2019

7:30 AM – 4:00 PM

**Hotel 1620 at Plymouth Harbor**

Regency Ballroom

180 Water Street, Plymouth, MA

**\$30.00 per person\*\***

**Must be postmarked by 1/21/19**

After 1/21/19 you are considered a "walk-in": cost will be **\$45.00 per person**. Please contact the Station to be added to the "walk-in" list.

Please make checks payable to **UMass** and return payment to:

**UMass Cranberry Station  
PO Box 569  
East Wareham, MA 02538**

**\*Remember to bring your  
Photo ID and Pesticide Number**

### PLEASE PRINT

**ALL** meeting attendees **MUST** register and pay (whether receiving credits or not)

**Registration Fee is non-refundable after 1/21/19**

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

COMPANY: \_\_\_\_\_

EMAIL: \_\_\_\_\_

PHONE: \_\_\_\_\_

ADDITIONAL ATTENDEES:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**\*\*To keep our registration fee affordable, the Station will not be taking credit cards as a form of payment for this meeting.**

---

## ***Kerb Section 18 Emergency Exemption Request De-railed (but there is hope!)***

---

You may recall that the UMass Cranberry Station, along with support from growers, CCCGA and the Cranberry Institute filed an Emergency Use application (through MDAR) for the use of Kerb for dodder control in 2019. We put together a strong data package, full of details and information. The bad news is I was recently notified that EPA had made an initial determination indicating that we had not met the criteria necessary for them to grant an Emergency Exemption (Section 18). **We must provide more information that establishes an emergency condition, under their criteria.** For example, we need data (and testimonials) that due to a substantial failure of registered pesticides, the pest causes significant economic losses. In order for an unregistered pesticide such as Kerb to be used, a non-routine event must be described and substantiated to confirm that the pest problem rises to the level of an emergency. After consideration of the information we supplied, in their view, they appreciated that dodder may be a difficult pest to manage but felt it is a routine condition. We now need to convince them otherwise.

The good news is that they have granted us the opportunity to address their concerns. This is where I need your help. I need to gather specific data (highly preferred) as well as testimonials (these could also be acceptable to EPA) regarding what has led to our “non-routine, emergency situation” relative to dodder infestations. We need to correlate LOSS of fruit with LACK of herbicide performance. Specifically, I need to give them additional information that (1) supports a non-routine emergency situation for cranberry growers, (2) addresses the efficacy of registered alternatives, and (3) provides economic yield data that shows significant cranberry loss in recent years.

If you cannot manage dodder with our available herbicides and you have problems On hybrids (e.g., Stevens) and/or the new super hybrids (e.g., Mullicas), would you be willing to provide me with any of the information regarding:

- Yield loss due to dodder infestations compared to uninfested areas?
- What has changed for you in the past 10 years such that dodder is currently an unmanageable and/or non-routine issue?
- Why is Callisto a non-viable option?
- Why is Casoron a non-viable option?

I need to submit our response to MDAR by the end of January. They, in turn, will re-file our request to EPA. Please contact me at the Station (508-295-2212 x21) if you can help address ANY of these issues. If you get my voicemail, please clearly and slowly state your name, phone number and best time to reach you. I will get back to you ASAP. Only with YOUR HELP, can we make a convincing argument and give us the best chance to receive the Emergency Use permit for Kerb in 2019.

*Hilary Sandler*  
508-295-2212 x21

## CRANBERRY STATION NEWS

*Happy 2019!*

### REMINDERS:

- The Cranberry Station published a multiple year Chart Book in 2018 covering 2018 to 2020. Hold on to your copies! Update inserts should be available around April 1<sup>st</sup>; we will keep you posted.
- Save the date! The Cranberry Station Pesticide Safety Training Meeting has been scheduled for Thursday, April 25<sup>th</sup> at the Rosebrook Event Center, TownePlace Suites, Wareham, MA. More information to follow.



*Hilary Sandler, Station Director*

### Welcome Giverson!

We would like to introduce our newest faculty member, Giverson Mupambi. He is our new General Ag Scientist at the station, starting January 7, 2019. Giverson comes to us via Washington State University's Tree Fruit Research and Education Center. As a post-doc, he studied the ecophysiological response of apple trees to netting and water stress. He has worked on other woody perennial fruits including citrus and cherry and is excited to apply his knowledge to issues and concerns in cranberry production. In addition to his academic strengths, Giverson spent a year working for the Washington Tree Fruit Research Commission, whose mission includes promoting and conducting research and administering specific industry service programs, which will or may benefit the planting, production, harvesting, handling, processing or shipment of tree fruit in Washington.

Giverson is eager to meet you and to learn all about cranberries. Please take a few moments to welcome him at our January 30<sup>th</sup> meeting. You can find him in the second lab on the left in the Lab Building or at 508-295-2212 x24.

**CRANBERRY STATION  
NEWSLETTER**

**IT IS THAT TIME OF YEAR AGAIN!  
SIGN UP TO STAY ON THE 2019 MAILING LIST!**

≈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.

≈Annual subscription sent via email is **FREE** including out-of-state and/or industry personnel.

CHECK ONE

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

COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

TOWN: \_\_\_\_\_

STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE: \_\_\_\_\_

EMAIL: \_\_\_\_\_

- Owner
- Employee
- Researcher
- Consultant
- Industry
- Private Sector

POSTAL DELIVERY \_\_\_\_\_ OR EMAIL \_\_\_\_\_ (please choose one)

All out-of-state growers and industry personnel who choose to receive their annual subscription by postal delivery, please include a check payable to **UMass** and return to: UMass Cranberry Station, PO Box 569, East Wareham, MA 02358.

**ADDITIONAL INFORMATION TO HELP THE CRANBERRY STATION SERVE YOU BETTER!  
(please include with newsletter sign-up)**

If you are an owner or manage a cranberry operation, how many acres do you own or manage? \_\_\_\_\_

What varieties of cranberries do you grow?

Please check all that apply:

Variety in acres	<5	5-9	10-19	20+
Stevens				
Howes				
Early Black				
Ben Lear				
Mullica Queen				
Crimson Queen				
Demoranville				
Grygleski (G1)				
Other:				
Other:				
Other:				



**CRANBERRY STATION  
NEWSLETTER**

**Inside this issue:**

- **Registration for January 2019 Cranberry Management Update on page 6**
- **Kerb Update**
- **Newsletter Sign-up**
- **Cranberry Station News**
- **2018 Crop Summit Notes**

**UMass Cranberry Station  
PO Box 569  
East Wareham, MA 02538  
OFFICIAL BUSINESS**