



Cranberry Station Newsletter

APRIL 7, 2016

UMass Cranberry Station

1 State Bog Road

P.O. Box 569

East Wareham, MA 02538

ag.umass.edu/cranberry

(508) 295-2212

UMass Pesticide Safety Training

TownePlace Suites Marriott, Wareham, MA

Tuesday - April 26, 2016, 8 AM - 12 NOON

\$50 if signed up before 4/19/16, \$60 if after, sign-up is on page 7

4 pesticide recertification credits offered

- 8:00 – 8:20 Chemigation and New Application Technology – John Mason, Slocum-Gibbs
- 8:20 – 8:50 The New WPS Requirements – Marty Sylvia
- 8:50 – 9:10 Frost, MRL Update, Zones Too – Carolyn DeMoranville
- 9:10 – 9:30 New Stuff on the Farm – Hilary Sandler
- 9:30 – 10:00 Pesticide Safety Review – Marty Sylvia
- 10:00 – 10:30 Coffee Break
- 10:30 – 10:50 Farm Safety and More – Hilary Sandler
- 10:50 – 11:10 Herbicide Spot Treatment: Poverty Grass, PI, and Dodder - Katie Ghantous
- 11:10 – 11:30 Fruit Rot Management – Erika Saalau Rojas
- 11:30 – 12:00 Insect Update, CFW, WM and Scale, State of the Bees – Marty Sylvia, Anne Averill

4 pesticide recertification credits offered

NEW VENUE!!

TownePlace Suites Marriott, Wareham, MA

WILL YOU HELP US HELP FARMS IN MASSACHUSETTS?

The Massachusetts Office of Public Collaboration is seeking your help in learning about the conflicts farmers face and their impact.

Help us learn more about your needs and where the most needs exist across the state.

This information will be used to advocate for additional funding to provide broader low or no cost mediation services to the Massachusetts farming community through our Agricultural Mediation Program.

Please fill out our very brief survey at <https://www.surveymonkey.com/r/AgMed> by **May 31, 2016**. Your responses will be kept confidential. **(If you're having trouble opening the survey, please type the web address into the browser.)**

For more information on this survey or the services provided by the Massachusetts Agricultural Mediation Program, please contact:

Program Manager, Courtney Breese at 617-287-4046 or Courtney.breese@umb.edu.

FIRST STEP FOR CONSERVING NATIVE BUMBLE BEES

For cranberry pollination, the most important natural pollinator is the bumble bee. We have several species in Southeast MA. Right about now, the very large queen bumble bees that have overwintered will emerge and form new colonies with 50-400 workers, often in underground nesting sites. The queen plus her young in these new nests need nectar for carbohydrate and pollen for protein. Thus, early-season plants that provide these resources are critical to the success of bumble bee populations.

Last spring, the Entomology Laboratory at UMASS Amherst Cranberry Station conducted a study looking at pollen host plants of queen bumble bees. We did this by removing the pollen loads that were carried on the back legs of 78 queen bumble bees. 32% of the sample had mixed pollen loads, which means that some bees were gathering pollen from multiple sources. For the data we are presenting here we are focused on the main source, or what comprised most of the load.

Right off the bat, it was obvious to us that **rhododendrons** are important. 37% of queens were using rhododendrons as a pollen host. Azaleas are included in this grouping. The other important hosts were **Prunus** (10% of the sample), **pear** (8%), **honeysuckle** (8%), **blueberry** (6%), **Rubus** (4%), **apple** (4%), **rose** (3%), and **andromeda** (3%). Other hosts were used, but at much lower rates so were not included here. Pollen identification is difficult, so the *Prunus* pollen could be from any one of a number of trees, including plum, cherry or peach while *Rubus* pollen could be from blackberry, raspberry or dewberry.

Bombus impatiens, the common Eastern bumble bee, is our most common bumble bee species, and the species used in the commercial Koppert hives in MA. This species favored rhododendron, pear, and *Prunus* as its main pollen hosts.

Bombus bimaculatus, the two-spotted bumble bee seemed to only favor rhododendron and used other plants in very small numbers.

Bombus perplexus, the perplexing bumble bee, tended to favor rhododendrons and honeysuckle. This species is interesting because from our data they tend to be more flower constant than the other species. This means that they have fewer individuals with mixed pollen loads.

Conclusion:

In order to support bumble bee populations in spring, we recommend planting non-invasive early blooming species/varieties of rhododendron/azaleas, *Prunus* (including cherries or beach plum), pear, and honeysuckle that bloom in early spring.

In our pollinator garden at the Cranberry Station, we chose early blooming varieties of rhododendron/azalea: azalea ‘Elsie Lee’, azalea ‘Karen’, rhododendron x ‘PJM’, rhododendron ‘Purple Gem’, azalea ‘Tradition’. They can be found at Sylvan or Weston Nurseries, and at many other local suppliers.

Keep in mind that bumble bee colonies need a succession of flowering plants until late summer, at which time the colony produces new queens that overwinter and then, all others die. We are currently working on identifying these later season host pollen plants and will report on our progress.

Andrea Couto, Research Assistant, Entomology Lab

References:

Cane, J. 2014. Conference: Entomological Society of America Annual Meeting 2014.

Duchateau M.J. 1989. Ovarian development and egg laying in workers of *Bombus terrestris*, *Entomol. Exp. Appl.* 51, 199–213.

Goulson, D., Hanley, M.E., Darvill, B., Ellis, J.S. & Knight, M.E. 2005. Causes of rarity in bumblebees. *Biological Conservation*, 122, 1–8.

Goulson, D., Lye, G.C. & Darvill, B. 2008. Decline and conservation of bumblebees. *Annual Review of Entomology*, **53**, 191–208.

Robertson, C. 1926. Revised list of oligolectic Bees. *Ecology* 7:378–380.

Correctly ID your Weeds

Make sure that the weeds you have out on the bog will be controlled by the herbicides you are applying. Consult the new Weed ID Guide (available at the Station for \$25). If you are in doubt, take pictures and email them or bring in samples for ID. This is the best way to manage your money and your weeds!!

TIME TO PLAN FOR DODDER CONTROL

Biology and Control. Dodder is an abundant seed producer. All management efforts should be directed towards minimizing or eliminating seed production. The seed bank is very long-lived (>15 yr), so do everything possible to reduce this. Dodder is an obligate parasite and must have a host plant to survive. The best management strategy for dodder control is prevention.

Scouting. Scout in areas where infestations have occurred and in bare areas previously infested. Newly emerged seedlings are usually yellow in color, very slender, and 0.5 to 3 inches long. If the canopy is dense, move the vines aside so that you can see the duff layer; this is where early emerging seedlings will be seen.



Depending on the spring temperatures, early seedlings are usually seen late April through early May. Dodder populations emerge slowly at first, but then quickly peak; 50% and 90% of the seedlings emerged from about 30 and 45 days after first emergence, respectively. The most vigorous population is the one most recently seeded (from last year).

Control early emerging hosts and hand-remove dodder. Control succulent weeds (such as goldenrod, loosestrife and asters)

early in the season; if dodder seedlings cannot find a host fairly quickly, they will die. Where dodder infestations are just beginning, scout carefully. Hand removal of dodder seedlings prior to infection is a good practice, if you have the time. Infected vine tips can be cut off and thrown away. Infected weeds should be completely removed from the bed; dodder stems will re-grow if haustoria (the part of dodder that penetrates the stem) remain embedded in the weed.

Preemergence (PRE) Herbicides.

Casoron, Callisto, and QuinStar may be used as PRE options. Apply 10-14 days after early emergence (applications go out usually around May 10). Apply Casoron when air temperatures are below 60°F and water in immediately to minimize volatilization. Split applications of 40 lb/A each (3 weeks apart) improved control in demonstration trials. A single application of 60-80 lb/A improved control on a farm where one application of 40 lb/A did not work.

Some growers report success using Callisto PRE through chemigation for dodder control (usually followed by spot-treatment for the second application). Time QuinStar applications as described for Casoron, targeting the majority of the seeds as they are germinating and emerging. Two applications are permitted but a minimum of 30 days must elapse between applications. Handlers may be restricting QuinStar so check before using!

Spring Floods. Short (24-48 hr) floods in early to mid-May may be effective for reducing dodder infestations. Floods should cover vine tips adequately. Dodder floods may coincide with floods used to control black-headed fireworm. Flooding dodder 3-4 weeks after early seedling emergence seems to be a good timing. Floods seem to impact seedlings, not seeds, so timing is

important (wait until seedlings are emerging)! Late water floods do NOT control dodder.

Postemergence (POST) Control. POST applications of Callisto by chemigation seem to control dodder, especially if the host is a weed that Callisto can damage. However, dodder may just turn white after application and then re-grow. Spot-treatment with concentrated solutions (1-1.5 oz/gallon water) of Callisto is very effective. You cannot exceed 8 oz/A with the spot treatment; using 1.5 oz/gallon would allow treatment with a maximum of 5.3 gallons of solution. With spot-treatment or chemigation, results are best when dodder is treated before flowering. Growers also report better success with non-ionic surfactants compared to crop oils.

Hand-held flame cultivators (FC) may control dodder with non-fatal injury to cranberry (effects similar to mowing). Spot treat small dodder patches with FC before seeds are set for best outcomes.

Raking seems most beneficial for heavy infestations. Raking is more effective at reducing seed production if it is done before the seeds are formed (flowering) as compared to later in the season. No benefit is gained from raking more than once.

Clean harvest or other equipment as you move from bog to bog to minimize spread. A good trash flow after harvest is also helpful in removing seed capsules from the bed, but is not a replacement for prevention since subsequent infestation occurs.

MOSS CONTROL

Moss infestations seem to be on the rise and the spring is a good time to treat with our available control options. Moss is an

indication of poor drainage, although if moss infestations are large enough, correcting drainage may not eliminate moss once it is established. As with Phytophthora infestations, improve drainage before starting chemical treatments.

Dry Spot Applications. If you want to do sphagnum or haircap moss control, applications of iron sulfate (also known as ferrous sulfate) can be made in the spring once the bog is dry. Our experience has shown that when moss (the haircap predominates on State Bog) is treated early, it often recovers later in the season. Repeat applications may be needed if moss recovers (re-greens).

We have used rates 25-50% of the traditional rate of 3 oz/sq. ft. with good results; summer applications worked well with little or no vine injury. Use with caution, as very high rates of iron sulfate can damage cranberry vines. Iron sulfate comes in both powdered and pelletized (fertilizer) form. The pelletized form is much easier to work with, but seems to be less effective than the powder. Treatments can be hand sprinkled for small patches, or applied with fertilizer spreader.

When moss is treated with iron sulfate, the moss will turn black within a few hours to a day of application. High rates of ammonium sulfate (15 oz/100 sq. ft.) reportedly can control haircap moss but our recent experience was not very positive. Be sure to take into account the extra nitrogen (for your fertilizer plan) if you use ammonium sulfate on active plants and/or on warm soil.

Chemigating Iron Sulfate. Folks in the Pacific Northwest have had good luck chemigating iron sulfate, but we have no experience with it in MA. They have used the powdered form at 80-100 lb/A. It is best to dissolve it in warm water and constant

agitation is necessary. A slow injection time is needed as it can clog intakes, valves, and/or sprinklers. We plan to try chemigating iron sulfate on State Bog this year. Last year we did a trial using 100-gallon spray tank with a hose to simulate chemigating 80-100 lb/A and had no vine injury and good moss control

Wet Spot Treatment. We think spot spraying with an iron sulfate solution could be challenging as it is difficult to keep in solution and you would need a lot of water to simulate chemigation rates. However, if you try it, let us know how it works for you.

Casoron and Evital. Casoron can be effective against both haircap and Sphagnum, but you must use high rates (90-100 lb/A). Our experience indicates that 60 lb/A is not enough to control moss. Casoron is better against Sphagnum when applied in the fall. Spring applications of Evital at 100

lb/A may also be helpful. As always, be careful if vines look stressed! Evaluate the state of your vines before making any herbicide application.

Acetic Acid. Horticultural acetic acid (20%) has given good control of moss. We applied it (mid-May) full strength with a backpack sprayer, then followed the application with water to rinse the acetic acid off the vines into the moss. Actively growing cranberry vines were damaged, but recovered. Less injury occurred on dormant vines.

We are pursuing other options for moss control and will keep you informed as effective products become available. If you have tried other successful methods not listed here, please let us know.

**Hilary Sandler (x21) and
Katie Ghantous (x43)**

FROST TOLERANCES

The first scouting for spring frost tolerances took place on March 29th. This is a collaborative effort between the Cape Cod Cranberry Growers Association frost service and the Cranberry Station. I have been doing tolerance checks for some years and in 2016, Erika Saalau Rojas is learning the ropes; look for her tweets (@esaalau) as we go through the season. Reports for each tolerance check with photos, along with reports from past seasons, can be found on the web under the Quick Link section on the Station's home page. At present, all varieties seem to be at the spring dormant stage. The next check will be on April 8th.

CAROLYN DEMORANVILLE, x25



Carolyn DeMoranville, Station Director

NUTRIENT MANAGEMENT IN 2016

Massachusetts state-wide plant nutrient regulations (330 CMR 31.00) have established standards for application of plant nutrients to agricultural land and non-agricultural turf and lawns. The regulations for agricultural land became effective on December 5, 2015.

Information, documents and resources can be accessed through the “Plant Nutrient Management” link on the MDAR main webpage or directly through the following link: <http://www.mass.gov/eea/agencies/agr/pesticides/plant-nutrient-management.html>. The Cape Cod Cranberry Growers Association also offers Nutrient Management Planning via their BOGs Software tool.

Templates and tools that growers can use for developing a Nutrient Management Plan as required by the regulations have been developed by the Cranberry Station and can be downloaded from our website. Look for 'Nutrient Management for Cranberries' under Quick Links on the home page. **CAROLYN DEMORANVILLE, x25**

REGISTRATION FORM FOR UMASS PESTICIDE SAFETY TRAINING

Tuesday - April 26, 2016, 8:00 AM - 12:00 PM

TownePlace Suites Marriott, Wareham, MA

Please register for the meeting using this form. (PLEASE PRINT)

COMPANY NAME _____

COMPANY CONTACT PERSON _____

EMAIL _____

PHONE _____

NUMBER OF ATTENDEES _____

NAMES OF ALL ATTENDEES:

**Return with payment by:
April 19, 2016**

Include check made out to:
UMass

In the amount of:
\$50.00 PER PERSON
IF POSTMARKED BY 4/19/16

After that date, registration increases to
\$60.00 per person

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

**** All persons attending the meeting
must register and pay, regardless if
receiving pesticide credits or not. ****

PRELIMINARY KEEPING QUALITY FORECAST

The preliminary forecast is for **POOR** keeping quality.

As of April 1, there is only 1 of 10 possible points that favor keeping quality for the 2016 Massachusetts cranberry crop. The single point was awarded for the less than 4.4 inches of rainfall recorded during March. The final keeping quality forecast (available after June 1) may improve if temperature and rainfall conditions during April and May remain cool and dry.

This preliminary forecast suggests that fungicide applications should not be reduced this year. Additionally, fungicide efficacy can be enhanced by properly timing your applications and applying the maximum rate of fungicide recommended on the product label.

You may also consider holding late water to enhance fruit quality if cranberry buds have not yet broken dormancy. As of now, buds in the Wareham area appear to remain dormant.

Follow me on Twitter @esaalau for weekly updates and pictures on bud dormancy starting next week, or call me (Extension 18) with any questions about fungicide programs for this year.

Erika Saalau Rojas (Extension Plant Pathologist)

OFFICIAL BUSINESS

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