Extension
UNIVERSITY OF WISCONSIN-MADISON

Cranberry Crop Management Journal

Volume 32 • Issue 4

IN THIS ISSUE:

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LEAFHOPPERS IN CRANBERRY

by ***Christelle Guédot***
UW-Madison, Department of Entomology

Leafhoppers are common insects throughout the landscape, whether you walk in grass at home or in a public park, or grow a crop, such as cranberry, you will likely see little insects jumping off in front of you when you walk by them. There are many species of leafhoppers (Hemiptera: Cicadellidae), about 22,000 species described worldwide and about 3,000 species in North America. Leafhoppers are small insects (couple millimeters in length) with modified hind legs adapted for jumping. They are often generalist feeders, sucking on plant sap usually on the underside of leaves. There are several species of leafhoppers that you may encounter in cranberry, including the cranberry blunt nosed leafhopper (BLNH), *Limotettix vaccinii* (figure 1), the sharp nosed leafhoppers, *Scaphytopius* sp., and the cranberry vinehopper, *Amphiscepa bivittata* (Averill and Sylvia, 1998). In Wisconsin, leafhoppers do not usually warrant the use of an insecticide as their feeding has not by itself resulted in economic damage in recent years. According to the University of Maine, only in very high numbers (100 to 200 per 25 sweeps), have leafhoppers been reported to drain the water and sugar out of cranberry vines significantly (https://extension.umaine.edu/cranberries/grower-services/insects/blunt-nosed-leafhopper/). The primary concern with many species of leafhoppers, and particularly the BNLH in cranberry, is their ability to vector disease through sap feeding. One such disease, vectored by BNLH, you most likely heard about from Patty McManus (and others), is the cranberry false blossom disease that Patty discussed in a previous issue of CCMJ (1). Also for more detailed information about cranberry false blossom disease, please refer to this publication by Patty McManus (2). If you are interested in learning more about BNLF, see this publication from Rutgers University (3).

At this time, we have not detected any BNLF on dikes or pollinator gardens in our 2018 sampling for pests and pollinators as part of a North Central IPM funded study. Lindsay Wells-Hansen at Ocean Spray has been monitoring the presence of BNLF and reports that she has not found any BNLF in 2019, nor did any of the other cranberry consultants (thanks ladies for your timely reports!)

Happy growing season!

References:

(1) https://njaes.rutgers.edu/fs1248/

(2) https://wood.extension.wisc.edu/files/2019/05/Issue-5.pdf

(3) https://cdn.shopify.com/s/

Figure 1. Nymph (left) and adult (right) blunt nosed leafhopper. Photo credit: Elvira de Lange, Rutgers University.

FERTILIZATION RECOMMENDATIONS
FOR THIS SEASON

by *Amaya Atucha*
Department of Horticulture and
Division of Extension UW-Madison

This spring has been cold and wet, and we are considerably behind in terms of plant development compared to last year, but how does this impact fertilizer applications? Fertilizer application will have to be done later, because the timing of these applications is related to the vines' phenological status. Based on the root research project we completed a couple of years ago, we observed that new root growth in cranberry vines begins at bloom time. This means that applying fertilizer earlier than bloom will not benefit yield and fruit growth, but rather will be a waste of resources and will result in more vegetative growth (i.e., longer uprights and more runners) than desired. In addition to waiting until bloom to fertilizer, many growers delay the first application of nitrogen fertilizer until most berries per upright are set and upright elongation has stopped (Figure 1). Once the uprights stop elongating, and no more leaves are formed in the apical meristem, the nutrients supplied by the fertilizer applications will go directly to the developing fruits, as they will be a stronger sink for those nutrients than the upright. It is very important to watch closely how uprights and newly set berries are developing during this period, as things can move very fast if the weather is warm, which leaves a narrow window of time to be able to apply the fertilizer needed to support fruit growth at the most effective and efficient timing. Growers should split the fertilizer applications in to 4-6 small doses and fertilize every 5-7 days to apply all the fertilizer in a 3 to 6 weeks period. Fertilizer applications should start once most fruits have been set (~ 70% off bloom) and uprights have stopped elongating and become "stiffer" (not bending easily when flicked with the finger). These cues are signalizing that nutrient allocation priority is shifting from the vegetative growth to fruit growth, and this is the most effective timing to apply fertilizer to achieve large fruit size.

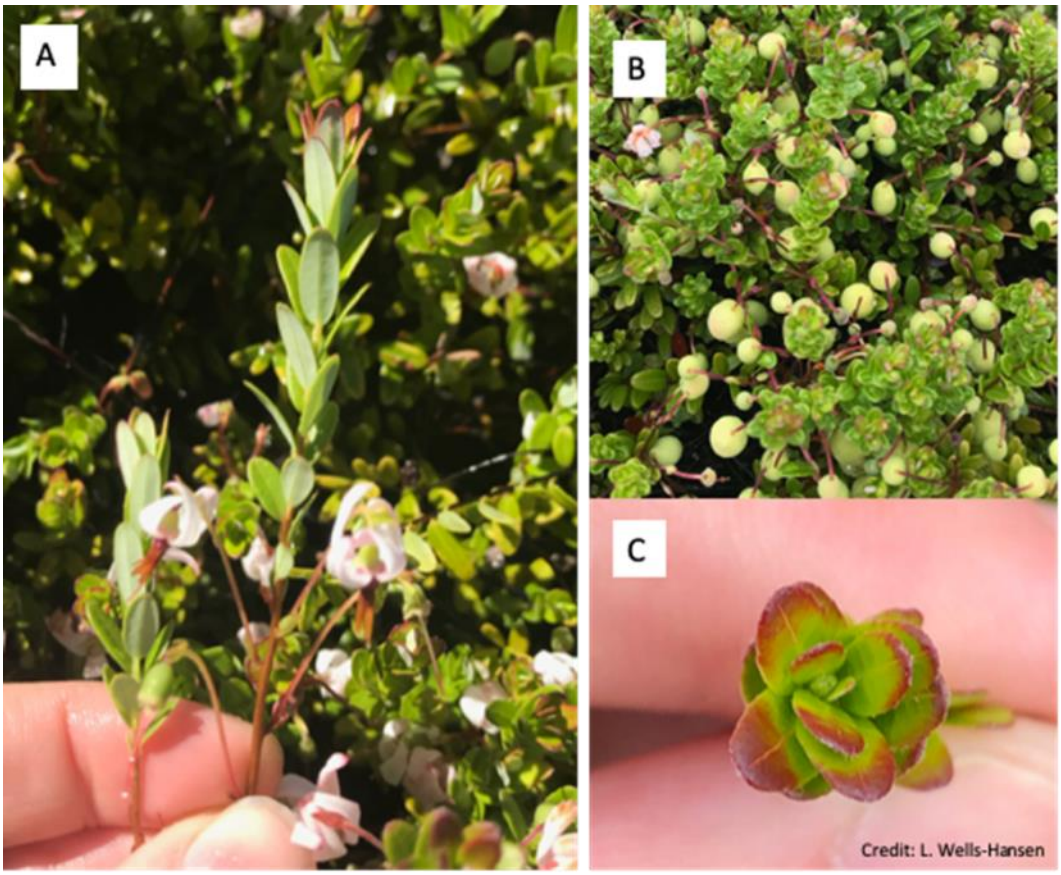

Figure 1. Timing of fertilizer application: A) Early bloom and active shoot elongation, this is too early to fertilize; B) Most fruits have been set and uprights have stop elongating and no more leaves are being produced; C) Close up to the early formation of terminal buds that happens with the cessation of upright elongation.

A couple of other comments related to fertilizer application on this wet and cool spring:

1) Applying fertilizer earlier will not make the vines move faster in development! Plant development is regulated by temperature. So, if vines are healthy, applying fertilizer will not make them bloom earlier.
2) Due to the excessive rain, sections of beds maybe saturated and vines will be stress turning reddish and/or yellow color. Applying fertilizer will not make them green up, instead make sure the dikes and ditches around the beds are clean to facilitate drainage.
3) Application of potassium fertilizer before fruit set will not increase fruit size. Yes, potassium is a very important nutrient for fruit production and fruit size, that's why it should be applied during fruit growth and not before fruit set or after harvest. Again, you are wasting resources with early or late applications of potash, as well as creating imbalances among competing cations such as calcium and magnesium.
4) Over fertilizing to compensate for small fruit size will not have the desired effect. The last time we had a wet cool spring there was a lot of small fruit during harvest, this is because cell division during the initial stages of fruit set is driven by temperature. Cool weather during bloom and fruit set results in a slower rate of cell division and thus fruits will be smaller. There is not much that can be done in this scenario and increasing fertilizer application **will not** result in bigger size fruit.

WISCONSIN CRANBERRY RESEARCH STATION UPDATE

by *Wade Brockman*
Wisconsin Cranberry Research Station

It looks like we have hopefully ended our rain streak. The end of June was very wet for us, with 6 inches of rain in 4 days it pretty much shut renovation down to a crawl.

As of July 8th, we are down to plowing in irrigation lines and saddles which I hope to have done by the end of this week.

The production side of things has moved very fast; we are currently about 80% out of bloom and looking at spraying Altacor by the end of the week.

Once again, I'm hoping to hear the sound of my irrigation motor instead of thunder and rain.

Photos courtesy of Matt Lippert

HEARING PROTECTION
WHAT'S THAT?

by *Matt Lippert*
Agriculture Agent, Wood County

Many of us don't take care of ourselves - we know that. We don't always eat right, brush, floss, we over indulge, don't sleep and do many other things we shouldn't. Let's add to the list of awareness, protection of our hearing.

In the workplace, many risk loss of hearing with chronic and acute exposure to loud noise; too much exposure (volume and time exposed) to excessive noise, engines, moving equipment, noise in enclosed spaces such as the shop.

To give you an idea of how many decibels are involved with many day to day activities consult the following chart:

Table 1. Decibel levels of common sounds at typical distance from source.

20	Whisper
30	Leaves rustling, very soft music
40	Average residence
60	Normal speech, background music
70	Noisy office, inside auto at 60 mph
80	Heavy traffic, windo air conditioner unit
85	Inside acoustically insulated protective tractor cab in fiel
90	OSHA limit- hearing damage on excess exposure to noise above 90 dB
100	Noisy tractor, power mower, ATV, snowmobile, motorcycle
120	Thunder clap, jack-hammer, basketball crowd, amplified rock music
140	Threshold of pain – shot gun, near jet taking off 5 –hp siren (100')

Source: National Ag Safety Database (NASD)

You don't have to consult this chart and guess to know the decibels, there is an app for that! Smartphones can be equipped with a Sound Level Meter App. I suggest the National Institute for Occupational Safety and Health (NIOSH) app. You can download it at this site (or at an App store): https://www.cdc.gov/niosh/topics/noise/app.html

Maintenance of equipment, lubrication, muffling and vibration isolation pads can reduce noise. Noise can be isolated as with tractor cabs. There is also Personal Protective Equipment (PPE).

Personal Protective Equipment (PPE)

This equipment is measured according to tits noise reduction rating (NRR). Look for a reduction rating of at least 25 decibels. Make sure the equipment is properly fitted and used for the entire time of potential exposure.

- **Disposable earplugs:** should be one-time use, not shared can be fitted to the ear. This is your cheapest alternative, usually about 15 cents for a pair.
- **Reusable plugs:** Can be pre-molded or moldable or custom fit. They still have a limited life and should be disposed of when they are cracked, dirty or have lost their pliability.
- **Ear Muffs:** These can last for years and may also work with goggles, respiratory protection or hard hats. They can even come with their own replacement noise- radio stations, audio books, etc.

To get to the target of where you should be you likely need hearing protection even if you are in the cab of a tractor. If you are an employer you should require use of hearing PPE when needed, if you work for yourself you should do the same. Playing music or not hearing the equipment as well does require you to be attentive to observe any changes that are happening with the equipment that you use. Using these tools provides protection for your entire lifetime, you likely will feel less fatigued immediately after the noisy work is done.

Have a safe season on your marsh!

SUMMER MEETING, FIELD DAY & TRADE SHOW

Wednesday - August 14, 2019

DUBAY CRANBERRY CO.

4040D County Hwy E, Junction City, WI 54443

AGENDA:

8:30AM	*Exhibits Open*
8:30–11:00 AM	*Registration*
8:30AM–3:00PM	*Marsh Tours*
10:00–11:00AM	*Mini-Clinics*
11:00AM–1:00PM	*Lunch*
1:30PM	*WSCGA Business Meeting*
3:00PM	*Exhibits Close*

1:30PM WSCGA Business Meeting Agenda:

- *Welcome & Introductions – Tyler Walker*
- *Recognition*
- *Introduction of Special Guests*
- *Old Business*
- *New Business*
- *Other Business*
- *Introduction of Class V of the Cranberry Leadership Development Program*

LOCATION: DuBay Cranberry Co. is located at 4040D County Hwy E in Junction City. Trade Show exhibits, mini-clinics, lunch, and the WSCGA Summer meeting will be held buildings on the property.

PARKING: General parking and handicap parking will be available on-site.

LUNCH TICKETS: Tickets are $12.00 each for orders paid and received at the WSCGA office by Monday, July 22. Lunch includes entrée, salad, and dessert. Lunch orders received on or after July 23 are $15.00 each.

❖ **No lunch ticket orders will be taken by email or phone – completed form is required** ❖

LUNCH TICKET PICK-UP: Please pick up tickets on-site at the WSCGA Registration Table between 8:30-11:00AM on Wednesday, August 14.

2019 SUMMER FIELD DAY- LUNCH TICKET ORDER

Company Name: _____

Contact Person: _____ Phone: _____

Address: _____ City: _____ State: _____ Zip Code: _____

Email: _____

QUANTITY		TOTAL DUE
_____	Early Bird Lunch Tickets – payment received by July 22	X $12.00 = _____
_____	Standard Lunch Tickets – payment received on or after July 23	X $15.00 = _____

TIME PERIOD	RANK PREFERENCE (1-2-3-4)
11:00 – 11:30AM	_____
11:30 – 12:00PM	_____
12:00 – 12:30PM	_____
12:30 – 1:00PM	_____

We look forward to seeing you at the 2019 WSCGA Summer Field Day & Trade Show!

MAKE CHECKS PAYABLE & MAIL TO: WSCGA, PO BOX 365, WISCONSIN RAPIDS, WI 54495

OBSERVATIONS FROM THE FIELD

by Jayne Sojka and Pam Verhulst
Lady Bug IPM, LLC

Many growers will remember 2019 as Full Bloom by the 4th of July. Stevens vines in Babcock and City Point were peak bloom on July 4th, 2019. (ST Full Bloom—Image 1)

The week of July 8th is GO TIME. The rain has stopped and the bees are busy pollinating. Flower petals are falling fast! Growers are busy applying their fungicides, fertilizer and insecticides.

Cottonball is showing up on properties more than previous years. With the moisture and humidity, we can understand why. Early symptoms were recorded and addressed in June but the treatment is on going through bloom with fungicide applications. (Cottonball June 19, 2019—Image 2)

We are also seeing a lot of environmental stresses. (Image 3—next page) These stresses are not caused from insects, known pathogens or pesticides. A wet or dry area of the bed does not always correlate with where the stress is.

Image 1

Image 2

Continued on page 7

In observing these vines on several marshes and numerous varieties we ruled many things out. We ruled out a disease as we are not finding any symptomatic leaves or fruit within the stressed area. As of late this week, we have found some stem gall/canker.

We dug in the soil looking for white grub or any kind of insect feeding on the vines and we found none. We swept thru that areas and ruled out any leaf feeding insect.

We asked questions like:

- *Did you roll snow?*
- *How many times did you roll snow?*
- *Did you plow snow off areas?*
- *Did you make good ice?*
- *In the areas of concern how many times did you re-flood in the spring?*

<u>The only common bond we discovered in all the scenarios is this:</u>

Our exceptional winter – water flow on and off the marsh – unable to sand beds for 4 or more years (sanding is way out of rotation).

In any event, the vines are hurt. If anyone has a pinpoint suggestion of what may have happened, please share your thoughts will all of us.

Image 3

GROWER UPDATES

GARDNER CRANBERRY

Peak bloom by the 4th of July could be considered an outdated timeline in our world due to hybrids and innovation, kind of like knee-high corn by the 4th of July. There are many corn fields that are under water, ankle high and some above the hip high. Similar to cranberries, I am seeing beds that have blushing peas on the edge and coming out of bloom and other beds that are just hitting the 50% in bloom mark. The end of June brought us some serious rain events that accumulated close to four inches within a four-day period in City Point, and other properties received around two inches or more. Most of our properties haven't had to irrigate at all yet! Wet, cold growing seasons like this one keeps the farmer humble.

Our properties that apply fungicide have both applications on and we have all of our fruitworm chemical on hand. All of our properties have been fertilizing and will continue to keep fertilizing during fruit development. Besides fertilizing, our crews are busy ditching, mowing, wiping weeds and repairing what breaks along the way.

Let's hope it stays dry for awhile so our honey bees can do their job!

Willow Eastling

RUSSELL REZIN & SON INC.

Even though the forecast has been calling for rain every single day, for what seems to be the entire spring/summer, we were lucky enough to have a few nice growing days and the bloom took off. With just over one week left in June, we had scattered bloom and we are expected to be over 50% out of bloom by the second week of July. We are beginning to find pinheads and peas in our early varieties.

With the excess of moisture, we have been busy maintaining the levels of our ponds, keeping our ditches clean, and mowing the entire marsh in between pop up showers. The rain not only puts a damping on our work, but it also slows our honeybees down. It is important for us to keep all the clover down to a minimum, so the bees are forced to go into the beds and not whatever food supply is closest to the hives. We are starting to keep a close eye on bugs and are working closely with our IPM team to plan our fruitworm spray.

Let's hope the second half of summer brings a little more sunshine and a little fewer grey skies!

Amber Bristow

References to products in this publication are for your convenience and are not an endorsement of one product over similar products. You are responsible for using pesticides according to the manufacturer's current label directions. Follow directions exactly to protect the environment and people from pesticide exposure. Failure to do so violates the law.

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