CRANBERRY CROP MANAGEMENT JOURNAL
DIVISION OF EXTENSION
Volume 33 • Issue 8 UNIVERSITY OF WISCONSIN-MADISON September 9, 2020

Managing Weeds in Pollinator Gardens

By Nolan Amon, Jed Colquhoun, and Christelle Guédot

Pollinator plantings can certainly add both natural beauty and valuable wildlife habitat on or near the cranberry marsh, but occasionally unwanted species can begin to creep in. As our pollinator gardens become fully established on participating cranberry marshes, we have noticed several weed species, i.e., spotted knapweed (Centaurea stoebe), horseweed (Conyza canadensis), sedges (Carex spp.), common mullein (Verbacsum thaspus) and ragweeds (Ambrosia spp.), commonly making their way into the plantings. Of these weeds, spotted knapweed is of the most concern. An invasive species from eastern Europe, spotted knapweed roots grow quickly and release growth inhibiting chemicals into the soil. Spotted knapweed is also distasteful to grazing wildlife and thrives in disturbed soil, making it a strong competitor to native plant species.

Figure 1. A pollinator planting in midsummer, showing several desirable wildflower species and invasive spotted knapweed. Photo by Nolan Amon, UW-Madison.

Interestingly, spotted knapweed, common mullein, and ragweeds are attractive to bees, particularly honey bees and the many bumble bee species we have in Wisconsin. Spotted knapweed is prized by apiarists as a "honey plant", as it provides ample pollen and nectar resources in mid to late summer, when other nectar sources large enough to support numerous honey bee colonies are difficult to find. Common mullein likewise blooms in midsummer, and the towering yellow flower spikes (sometimes 5-10 feet tall!) are often found covered in bees. Ragweeds are also valuable sources for pollen and nectar in the late summer/early fall. Despite their apparent usefulness, it is recommended that those managing pollinator plantings remove these species to promote the growth of desirable wildflower species.

These unwanted species, typically biennials or perennials with similar growing requirements as the desired plant species, can be extremely difficult to control if they become established and

widespread, and could potentially take over your pollinator garden. The first line of defense against weeds in a pollinator planting is yearly mowing/burning, typically between mid-April and mid-May. Mowing or burning at this point removes new weedy growth at a time when most of the wildflower species in pollinator plantings are still dormant. Careful scouting and early intervention are critical in maintaining a desirable plant community. In established pollinator plantings during the growing season, the best strategy for coping with weeds is to hand-pull them as soon as you see them. This prevents weeds from becoming well-established, producing seeds or spreading by vegetative tissues. Keep in mind before handling them that some of these species may pose human health hazards and it is recommended to take appropriate precautions. For example, spotted knapweed can act as a skin irritant for some people, and ragweeds are common culprits for seasonal pollen allergies.

Unfortunately, most herbicides just aren't selective enough to control one unwanted species without adversely impacting the desirables in a mixed-species planting. Thus, early intervention by mowing/burning and hand-pulling the early invaders is very important. In addition, some species such as horseweed may be resistant to several herbicides.

The only herbicide option to control broadleaf weeds in a pollinator planting would be to use the non-selective herbicide glyphosate (sold as Roundup and many other trade names; look for a label that includes Habitat Management as an application site) as a spot application to suppress or control unwanted species. In general terms with many perennial unwanted plants in particular, this can be an effective time of year for such spot applications as the herbicide will be translocated to the root system as the plants "pack it in" for winter from the flower bud growth stage until the first hard frost. As always, be sure to read and follow the herbicide label and keep in mind that glyphosate is a non-selective herbicide – any plant that you contact with it will likely be injured or killed.

Happy harvest!

Figure 2. Spot application of glyphosate to control an invasive patch of wild parsnip. Photo by Jed Colquhoun, UW-Madison.

Update from the Wisconsin Cranberry Research Station

By Wade Brockman

On August 28, the research station received 6.8″ of rain over a 10 hour period. Once again, I find myself ditching and fixing washouts. Hopefully we are done with the heavy rains for the year.

Dr. Leslie Holland Here—Your New Extension Fruit Pathologist

By Leslie Holland

Hello, Wisconsin Cranberry Growers and Industry Members!

Leslie Holland here—your new extension fruit pathologist! I wanted to make an official introduction as I start up my research and extension program. I look forward to working with you to understand the unique challenges of this industry and to provide management solutions for current and emerging diseases.

So far, I have had the opportunity to visit several marshes and speak with growers about production practices, disease challenges, and future directions for cranberry production. For those of you I have not met I look forward to meeting soon, and perhaps I'll see you in a few weeks during my first cranberry harvest experience!

Goals of the UW Fruit Pathology program for cranberry disease management:

- Study the epidemiology of cranberry fruit rot pathogens to develop a disease forecasting system to aid in management decisions
- Re-investigate older diseases such as cranberry false blossom and upright dieback
- Determine the impacts of changing weather conditions on disease incidence
- Optimize fungicide programs for new and established marshes

I am excited to visit your marsh and collect/receive samples for diagnosis. Please do not hesitate to contact me.

Email: laholland@wisc.edu

Office: 608-265-2047

Mailing address:

Leslie Holland

Department of Plant Pathology
University of Wisconsin-Madison

Russell Labs 374
1630 Linden Drive
Madison, Wisconsin 53706-1598

I look forward to meeting with everyone (hopefully in person) this winter at Cranberry School.

Happy Harvesting!

Leslie

Coloring Up

By Allison Jonjak

As temperatures cool, cranberries darken up. Color and total anthocyanin content (TAcy) increase together, and both TAcy and color contribute to the active market for our crop. As dark color for juices and medium color sweetened dried cranberries suit consumer preferences, anthocyanin content is linked with positive health outcomes and may lead to future specialized demand [4].

Processors all care about fruit color so that they can blend to create consistent products ideal for market. The measurements handlers use to assess berry color and TAcy for their internal use, and for grower bonuses or penalties, can vary as new technologies are proven out. For 2020, some handlers are using photospectrometry, and others are using non-desctructive imagery. Nondestructive imagery enables larger samples to be taken from each load than is possible with photospectometry [3]. See Link 3, figure 5 for a chart relating TAcy and color as measured by machine vision.

Harvest logistics can be driven by color and fruit quality—harvesting at the sweet spot of desired color but before a deterioration of quality follows a consistent pattern year to year for each variety. From year to year, we observe changes in the overall coloration timeline varying by sunlight and by overnight low temperatures. Managing temperature reduction to enhance color and TAcy without suffering cold injury is an area where attentive management can shine. The pictures included show some differences between the coloration of upper-upright berries on northern and southern exposure berries.

Though you may not have a spectrophotometer or machine vision setup on your farm, assessing your own color can guide frost protection tolerance decisions and harvest logistic decisions. Use a consistent background and consistent lighting from day to day, so that environmental variation doesn't influence your assessments. In the northern and southern exposure comparisons, I've compared my two samples in the same image at the same time. When I need to compare color development on different days, the white and wooden backgrounds below illustrate the importance of consistence—those are the same berries.

A final note on quality that isn't impacted by color—remember to remind your harvest crew about the

importance of keeping foreign materials out of the beds. Soda breaks and smoke breaks should be taken at trucks or break sites to keep our quality great!

Minimize smoking in the bed: foreign materials, pop bottles, masks. Inch of prevention worth a pound of cure.

Resources

1 SUNRED, a natural extract-based biostimulant, application stimulates anthocyanin production in the skins of grapes

2 Massive phenotyping of multiple cranberry populations reveals novel QTLs for fruit anthocyanin content and other important chemical traits

3 Digital TAcy: Proof of Concept

4 Characterization of bioactive cranberry fractions by mass spectrometry

Northern facing (top) and southern facing (bottom) Ben Lears

Northern-facing (top) and southern facing (bottom) McFarlanes.

Grower Updates

Flying Dollar Cranberry

By Seth Rice

Things are starting to cool down around here and with cooler nights comes everybody's favorite thing to do in the fall…frost watch!

Although the recent rain has helped put some more water in our ponds, we still have lots of prep work to do before harvest. Our early varieties are just about ready but could use a few cold nights to help with the color of our Stevens.

I hope everybody has a safe harvest!

Gardner Cranberry

By Willow Eastling

Mother Nature wasn't afraid to let us know that harvest is here! Chilly nights and cool mornings already.

Here at Gardner's we are starting harvest this week, 9/8 with new varieties and some beds that were hit with hail.

The tempo will only pick up from there and next time we look up it will be November 1st! The crews are eager to get started and see all the work we put into the crop, come to life!

Overall, 2020 was a favorable growing season compared to the past couple years and most of our central properties are looking forward to a better crop then 2019 brought in.

Gardner Cranberry is wishing everyone a safe and successful harvest!