

April 2, 2025

Vol. 41, Issue #1

THE BLUEBERRY BULLETIN

A Weekly Update to Growers



Visit the Blueberry Bulletin webpage: njaes.rutgers.edu/blueberry-bulletin
2024 Commercial Blueberry Pest Control Recommendations for New Jersey: njaes.rutgers.edu/pubs

Weed Science

Take a Quick Survey Regarding your Needs for Novel Weed Management in Perennial Crops!

Dr. Thierry E. Besançon, Associate Extension Weed Science Specialist, Rutgers University

Our interdisciplinary team of weed scientists and sociologists is conducting research under a Specialty Crop Research Initiative (SCRI) grant to understand perennial crop growers' priorities regarding novel weed control technologies. This survey aims to identify drivers and barriers to implementing robotic weeding systems in your operations.

We seek to understand your:

- Perspectives on robotic technologies for weed management
- Specific needs and challenges in weed control
- Preferences and limitations when considering new technology adoption



This anonymous, voluntary survey takes approximately 10 minutes to complete. All information collected will be used solely to inform future research questions and outreach activities and will not be published or distributed.

Your participation is invaluable to future developments in the industry regarding new technologies for weed management. We need more inputs from New Jersey perennial crops growers so that they have a say on the direction that weed science research will take in the future!

To contribute, scan the QR code or visit:

iastate.qualtrics.com/jfe/form/SV_eqzMrFKtlcDjgO

If you have questions, comments or concerns contact Dr. Thierry Besançon at thierry.besancon@rutgers.edu.



2025 Update on Weed Control with Residual Herbicides for Highbush Blueberry

Dr. Thierry E. Besançon, Associate Extension Weed Science Specialist, Rutgers University

Apply soil-based preemergence herbicides before T3 stage blueberry bud break to prevent crop injury and allow activation time. Apply before weed seed germination; these herbicides typically won't control emerged weeds unless tank-mixed with postemergence products like glufosinate (Rely 280), paraquat (Gramoxone), or carfentrazone (Aim).

At least 0.5" rainfall or irrigation within 7 days post-application is required to activate most residual herbicides in soil. Delayed activation may reduce effectiveness if weeds germinate under low moisture or if surface herbicide degrades from sunlight exposure.

Verify herbicide effectiveness against target weed species via product labels. Residual herbicides typically suppress weeds for 5-8 weeks depending on irrigation, soil, and weather conditions. Additional residual application may be needed pre-harvest, potentially mixed with postemergence herbicides for emerged weeds. To minimize herbicide resistance, always mix herbicides from two different WSSA groups when applying preemergence treatments.

Please, refer to the 2024-2025 New Jersey Commercial Blueberry Pest Control Recommendations for more information on herbicide rates and use restrictions.

<https://njaes.rutgers.edu/pubs/publication.php?pid=E265>

WSSA group 0 – Unknown Site of Action

Devrinol 50DF-XT or **Devrinol 2-XT** (napropamide) will provide good control of annual grasses and should therefore be tank mixed with a PSII or a PPO inhibitor for controlling broadleaf weeds. Devrinol is rapidly degraded if left exposed on the soil surface, so it should be applied less than 24 hours before a rain event to incorporate the herbicide in the soil.

WSSA group 2 - Acetolactate Synthase (ALS) Inhibitors

Solida 25WDG or **Matrix 25SG** (rimsulfuron) or **Sandea 75DF** (halosulfuron) are ALS-inhibiting herbicides that have both preemergence and postemergence activity. They control most annual broadleaves but are weak on common groundsel, common lambsquarters and eastern black nightshade. Sandea is **ONLY** recommended for postemergence control of yellow nutsedge.

However, these two herbicides will **NOT** control ALS resistant weeds (horseweed, ragweed) already widespread in New Jersey. Thus, these herbicides should always be tank mixed with a partner effective at controlling these weeds.

WSSA group 3 - Mitosis Inhibitors

Kerb 50WP or **Kerb 3.3SC** (pronamide) is effective at controlling many annual grass species for 4 to 6 weeks after application. Surflan should not be applied to soils containing more than 5% organic matter. Kerb also helps controlling perennial quackgrass as well as annual bluegrass. If applied to warm soils, Kerb persistence and weed control can be severely reduced; therefore, keep Kerb for fall/winter application when soil temperature remains under 55°F. Do not use Kerb on blueberries that have not been established for about a year.



WSSA group 5 and 7 - Photosystem II (PS II) Inhibitors

PS II inhibitors have a broad spectrum of control and will be effective against many broadleaves and annual grasses when applied in spring. **Karmex 80DF** or **Diuron 4L** (diuron) and **Princep 4L** or **Princep Caliber 90WDG** (simazine) have relatively low solubility and have been very safe on blueberries. **Sinbar 80WDG** (terbacil) has a longer residual life in the soil and also is more soluble, so it should be used infrequently on light, wet soils. These herbicides are effective on many broadleaf weed species, including common chickweed, common lambsquarters, common groundsel, henbit, nightshade, redroot pigweed, pineapple weed, shepherd's-purse, smartweed, and some mustards. Princep and Sinbar will also control many annual grasses and help suppressing quackgrass. **Do not exceed more than 1 lb/A of Sinbar** to minimize the risk of crop injury.

Trellis 4.2SC (isoxaben) is registered for bearing and **non-bearing blueberry**. Trellis will be most useful in new plantings for preemergence control of annual broadleaf weeds such as common lambsquarters, ragweed, black nightshade, horseweed and smartweed. It does not control grasses.

Velpar 2L or **Velossa 2.4L** (hexazinone) is very soluble and **should not be used on blueberries grown on sandy soils** as the risk of crop injury is high with this herbicide.

WSSA group 12 and 27 - Carotenoid Biosynthesis Inhibitors

Solicam 80DF (norflurazon) can be applied in fall or early spring primarily for annual grass control and quackgrass suppression. Solicam may also provide partial control of many broadleaf weeds as well as of yellow nutsedge. Do not use Solicam on blueberries that have not been established for about a year.

Callisto 4SC or **Motif 4L (mesotrione)** will control many annual broadleaf weeds as well as annual sedges. It controls large crabgrass but no other grasses, such as goosegrass. Callisto may be used as a broadcast spray between rows to control broadleaves and crabgrass without injuring the fescue sod. However, Callisto **CANNOT** be applied after the onset of bloom.

WSSA group 14 - Protoporphyrinogen Oxidase (PPO) Inhibitors

Chateau EZ (flumioxazin) and **Zeus 4XC** or **Zeus Prime 3.5XC** (sulfentrazone) have activity against many annual broadleaf weeds (pigweeds, common lambsquarters, ladythumb, mallow, shepherd's-purse) when applied preemergence in spring. Chateau and Zeus Prime XC also have some postemergence activity on newly emerged seedlings of annual weeds. Herbicides containing sulfentrazone will also provide suppression of yellow nutsedge. Chateau has a 7 days pre-harvest interval (PHI) and Zeus Prime XC has a 3 days PHI, allowing these herbicides to be applied later in the season to extend preemergence broadleaves control into summer. Blueberry plants must have been established at least two years prior to use of these herbicides.

WSSA group 15 - Protoporphyrinogen Oxidase (PPO) Inhibitors

Dual Magnum 7.6ec (S-metolachlor) has a 24(c) Special Local Need label for blueberry in New Jersey. This herbicide provides preemergence control of many annual grasses and some small-seeded broadleaf annual weeds such as redroot pigweed, nightshade and common purslane. Dual Magnum also suppresses emergence of yellow nutsedge. Use Dual Magnum only on plants established for more than one year, and lower rates are suggested on 2- to 3-year-old plantings.

WSSA group 29 – Cellulose Synthesis Inhibitors

Casoron 4G (dichlobenil) is a cellulose synthesis inhibitor recommended for fall application to control many annual and perennial broadleaves, grasses and yellow nutsedge. **If left on the soil surface or if applied to warm soil (> 55°F or 70°F depending on Casoron formulation), Casoron can lose much of its activity.**

Alion 1.67SC (indaziflam) **IS NOT LABELED FOR USE ON Highbush Blueberry grown on sandy soils and/or in soils with ≥20% gravel content.** Additionally, Alion requires significant rainfall for being activated which is not guaranteed with spring applications. Field trials at the Marucci Center have consistently shown better weed control efficacy with fall applications than spring applications.

Casoron 4G and Alion 1.67SC should be used ONLY for fall/winter applications. Plants must be at least one year old before Casoron 4G or Alion 1.67SC should be used.



Pest Management

Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University

Dr. Janine Spies, IPM Agent – Fruit

Ms. Carrie Mansue, IPM Sr. Program Coordinator – Fruit

The table below shows the activity periods of the major insect pests of blueberries in New Jersey. Bars show the period when scouting (in grey) and management (in black) of the pest is most important.

Insect Pest	dormant	budbreak- prebloom	bloom	1 st post - pollination	fruit maturation	post- harvest
Scale	█			█		
Cranberry weevil		█				
Leafrollers		█	█	█	█	
Spanworms		█	█	█		
Spongy moth		█	█	█		
Cranberry Fruitworm				█	█	
Thrips			█	█		
Gall midge			█	█		
Leafminers				█	█	
Plum curculio			█	█		
Aphids				█	█	█
Leafhoppers				█	█	█
Blueberry maggot					█	█
Oriental beetle					█	█
Spotted-wing drosophila				█	█	█
Japanese beetle					█	█
Bud mite						█

Cranberry Weevil

Scouting for cranberry weevil has been minimal until this past week. Warmer weather over the weekend has led to an increase in weevil numbers. The average number in Burlington County was 1.1 weevils per bush, with a high of 8.3 per bush. The average number in Atlantic County was 1.35 weevils per bush, with a high of 9.3 per bush. With warmer weather ahead, consider treating areas of concern on your farm. Recommended insecticides are listed below.

Life cycle: Adults typically move from wooded areas, where they overwinter, into blueberry fields. However, if fields are left unmanaged, some adults may overwinter within them. These beetles are small (1/16 inch long), dark reddish-brown, with a few whitish bands on their wings and a distinctive long snout (see Picture 1). Females lay eggs individually through feeding holes in flower buds. Upon hatching, larvae feed inside the buds until pupation. Pupation occurs within the infested flowers, and adults emerge by late May. Infested flowers develop a purplish hue, fail to open, and eventually drop to the ground.

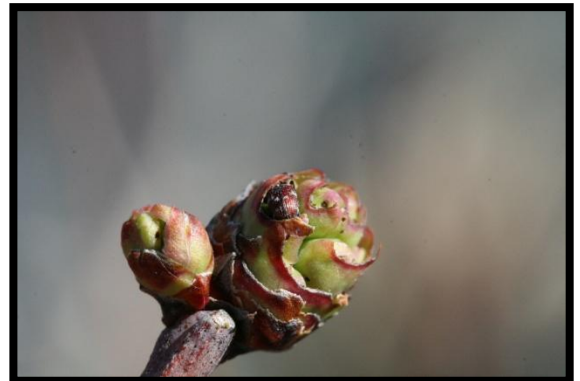


Scouting and Control: To monitor adults, use a beating tray under each bush and tap the branches to dislodge weevils. Repeat on both sides of the bush to obtain an accurate count per bush. Since weevils are most abundant near wooded areas where they overwinter, sampling should be focused along edge rows adjacent to the woods. Adults are most active on sunny days. Monitor at least 10 bushes per sample site. Spraying should be targeted at these "hot spots" along edge rows.

The treatment threshold is 5 weevils per bush or 20% of blossom clusters showing feeding injury (i.e., at least one feeding puncture per five clusters) (see Picture 2). For cranberry weevil control, recommended insecticides include Asana, Avaunt, Imidan, or Mustang Maxx.



Picture 1: Cranberry Weevil on a Blueberry Flower Bud (Photo by D. Polk)



Picture 2: Cranberry Weevil Feeding Injury to Buds (Photo by D. Polk)

Bee Hives and Quad Health

Dr. Beth Ferguson, Postdoctoral Researcher, Rutgers University

Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University



Bloom is expected to start in the next two-and-a-half weeks, which means you should be finalizing the arrival time of hives and quads with your beekeeper. Honey bee hives should arrive between 5-25% bloom and bumblebee quads 0-5% to get the most out of the pollination service. Arrival before the recommended time could result in starvation and need for supplemental feeding for honey bees. While bumblebees can arrive before bloom, confirm how many days of food is included so they do not run out before bloom start. The number of hives per acre needed depends on the varieties grown (see table on the left). If you use bumblebees, a quad is equivalent to a hive. Maintain your stocking number per acre, but vary the ratio of honey bee hives to bumblebee quads (e.g. 3 hives per acre would have 2 honey bee and 1 bumblebee).

Cultivar	Hives per Acre		
	Low	High	Bumblebee
Bluecrop, Duke*	1.5	3	1-3
Elliott, Coville, Berkeley, Stanley	2	4	1-3
Jersey, Earliblue	2.5	5	1-3



Once the hives/quads arrive and have 3-5 days to settle in and establish foraging on your blueberries, you can estimate their health. A ‘drive-by assessment’ can be performed for both types of bees while sitting in your car. You want to be close enough that you can count individual bees and have a clear, unobstructed view of the hive entrance. It is also important to make sure the weather conditions are good, otherwise you may underestimate the health.

Refer to the table on the right to make sure you have adequate conditions to conduct the assessment.

	 Honey Bee	 Bumblebee
Time of Day	9am-5pm	Early Morning to Evening
Temperature	>50 ° F	>40°F
Cloud Cover	Sunny to Partly Cloudy	No Effect
Wind Speed	<10mph	>18mph

The instructions for carrying out honey bee or bumblebee health is detailed below. For honey bees, using a phone to video the entrance, then going back to count may be easier than performing the assessment in real-time. For both bees, the observation time is 1 minute.

What to Count	Honey Bee	Bumblebee
	Workers Entering the Hive	Workers Entering and Exiting the Quad
Strength of the Colony		
Stronger	90 or more	3 or more
Average	60-89	1-2
Weaker	40-59	<1
Dying/Abandoned	<39 or no activity	No activity

Most of your hives/quads should be in the ‘average’ category with the occasional stronger hive/quad. If you are regularly seeing weaker or dying honey bee hives, consider reaching out to your beekeeper or speaking to the hive inspector when they visit your farm. To avoid dead bumblebee colonies, make sure the quads are not stacked, have some sort of shade cover and/or are elevated. If quads are grouped too close to each other (more than 2 quads right next to each other) or honey bee hives (less than 50 yds away), they may die out from competing with neighboring bees.