RUTGERS
New Jersey Agricultural Experiment Station

The Blueberry Bulletin

A Weekly Update to Growers

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BLUEBERRY CULTURE

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Atlantic County Agricultural Agent

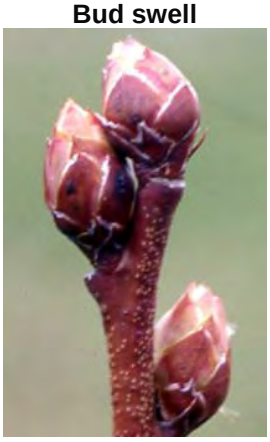
I have gotten a lot of calls in the past few days due to the challenging weather we are experiencing. Growers have asked as what temperatures can they expect damage to the blueberry fruit buds and blooms. The information below should give growers some guidance. Farm visits this week have showed all levels of damage. The majority of fields are showing corolla browning but when I pull off the corolla the pistil is still green. This means that the flower can still be pollinated and produce fruit. However, there are fields where the pistil and ovary are damaged and in that case, no fruit will set.

Growth Stages

Dormant or tight bud

Plant part: Flower bud. **Description:** No visible swelling of the fruit buds. Bud scales tightly closed. No visible signs of growth.

Bud swell



Plant part: Flower bud. **Description:** First sign of growth as plant growth begins in the spring. Visible swelling of the flower buds; outer bud scales begin to separate at the tip revealing paler interior bud scales. **This bud stage can usually tolerate cold temperatures of 10 to 15^{0}F (-12 to -9^{0}C).**

Early green tip

Plant part: Leaf bud. **Description:** Bud scales are separating at leaf bud tips. Green leaf tissue is emerging from the leaf bud tips. From 1/16 to 3/16 inch (2 to 5 mm) of green tissue is exposed. Leaves are tightly rolled.

Bud break or bud burst

Plant part: Flower bud. **Description:** Flower buds open and the individual flowers can be seen between the bud scales. **Can tolerate cold temperatures of about 20^{0}F (-7^{0}C).**

Late green tip

Plant part: Leaf bud. **Description:** Leaves are beginning to unfold. More green leaf tissue is visible, ¼ to ½ inch (6 – 13 mm). This stage generally occurs around flower bud burst.

Tight cluster

Plant part: Flower. **Description:** Individual flowers are distinguishable in the flower cluster. **This bud stage can tolerate 20 to 23^{0}F (-7 to -5^{0}C).**

Shoot expansion

Plant part: Shoot expansion. **Description:** Multiple leaves have emerged from the vegetative buds and unfolded. Leaves are enlarging and shoot growth has begun.

Early pink bud

Plant part: Flower. **Description:** Expanding flowers are readily visible and have separated. The pink corolla tubes (petals) are short and closed. **This bud stage can tolerate 23 to 25^{0}F (-5 to -4^{0}C).**

Late pink bud

Plant part: Flower. **Description:** Individual flowers fully developed. Expanded corollas are now white but still closed. **This bud stage can tolerate 24 to 27^{0}F (-4.4 to -2.8^{0}C).**

Early bloom

Plant part: Flower. **Description:** Some of the corollas are completely expanded and open. Many flowers are still closed. **The bloom stages can tolerate 25 to 28^{0}F (-4 to -2.2^{0}C).**

Full bloom

Plant part: Flower. **Description:** Most of the flowers on the bush have opened. **The bloom stages can tolerate 28^0 F (-2.2^{0}C).**

Petal fall

Plant part: Flower**. Description:** The corolla tubes are falling off the flowers, revealing small green fruit. This is the most vulnerable stage to freeze injury. **Damage can occur at 32^{0}F (0^{0}C).**

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BLUEBERRY INSECT

Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University
Mr. Dean Polk, IPM Agent – Fruit
Ms. Carrie Denson, IPM Program Associate – Fruit

Cranberry Weevil: As of the week ending on 4/17, cranberry weevil was still the main pest of concern. Adult weevil counts averaged 1.5 adults per bush with a high of 6.6. Most activity was recorded in Atlantic County. Since most growers have already treated for weevils, and bees are coming into the fields, treatments are no longer recommended.

Week Ending	Adults/Bush (Beating Tray)		Leps./Bush (Beating Tray)		PC/Bush (Beating Tray	
	Avg	Max	Avg	Max	Avg	Max
4/9	2.1	21	-	-	-	-
4/16	1.5	6.6	-	-	-	-

Other Insects: Other insect concerns that should be looked for included early season leps like redbanded leafroller, green fruitworm, gypsy moths around mid-May, and spanworms. During mid to late bloom growers may also be concerned with cherry fruitworms and a little later with cranberry fruitworm.

Anthracnose: Now and over the next 4 weeks is the critical time for controlling blueberry anthracnose, especially on 'Bluecrop" since this is the most susceptible commercial variety to this disease. Please see the 2021 Commercial Blueberry Pest Control Recommendations for fungicide rotation options.

CONTROLLING EMERGED MARESTAIL IN BLUEBERRY

By Thierry Besancon

In spring, one of the first weeds that will break through the residual herbicide coverage provided by preemergence applications is horseweed, aka marestail. Horseweed has two primary periods of emergence, from late March through June and from late summer through late fall. Some of the most problematic horseweed emerges in the fall and overwinters as small rosettes. If growers don't control it with fall-applied residual herbicides, the weed has an excellent head start on the spring growing season, especially after a mild winter. Horseweed plants remain in the rosette stage through mid-April, followed by stem elongation (bolting)

Horseweed seedlings before elongation

and rapid growth to a height of 3 to 6 feet. Plants that emerge the previous fall will bolt earlier than spring-emerging plants. Horseweed is most easily controlled when in the seedling, or rosette stage, and spring postemergence herbicides should be applied before stem elongation.

Treating them early is the key to success. Control of horseweed when it's 2 to 4 inches tall is more likely to succeed than when it's over 10 inches tall. Remember, most of the horseweed in New Jersey is resistant to glyphosate and there is a good probability that our populations are also resistant to ALS herbicides such as halosulfuron (active ingredient in Sandea) or rimsulfuron (active ingredient in Matrix). Therefore, the most consistent options to control emerged horseweed include paraquat, clopyralid or glufosinate applied to small plants.

Paraquat - Use 2.4 to 4.0 pints/A of Gramoxone SL 2.0. Gramoxone is a contact killer that has no translocation or residual activity. So, the best results will be achieved when seedlings are less than 1 inch in diameter. Two applications, two weeks apart are more effective than a single application. Regrowth may occur from the root systems of established weeds. Always use a nonionic surfactant (0.25% v/v) to improve herbicide contact with the weed leaf surface and enhance weed control. Do not allow spray or drift to contact green bark, leaves, or fruit as crop damage may result as shown in the picture. As Gramoxone targets the plant photosystem apparatus, applications made at sunset will increase weed control efficiency by allowing more herbicide to penetrate before being activated by sunlight in the morning.

Injury on blueberry caused by paraquat drift

DANGER: Do not breathe spray mist. Read safety precautions on the label.

Glufosinate – Use Rely 280 at 48 to 56 fl oz/A. Rely is a foliar active, nonselective herbicide that controls a broad spectrum of emerged annual and perennial weeds. Best results are obtained when it is applied to actively growing weeds. Glufosinate does not provide residual weed control but can be tank mixed with residual herbicides for broad spectrum control. Contact of Rely with parts other than mature callused brown bark will result in extremely severe damages to the blueberry bush. Do not apply within 14 days of harvest. Warm temperature, high humidity, and bright sunlight will improve the performance of Rely. Read safety precautions on the label.

Clopyralid – Unfortunately, the 24(c) Special Local Need (SLN) label for use of Stinger in New Jersey highbush blueberry expired on 12/31/2020. **Therefore, Stinger applications are not currently authorized for controlling horseweed in New Jersey blueberries**. We have been working with Corteva to get it renewed for two years, but have not yet heard back from the NJDEP regarding our request. We hope to get the SLN renewed during the season and will let you know as soon as possible.