

# The Blueberry Bulletin

*A Weekly Update to Growers*

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## **Special Alert**

*Mr. Dean Polk, IPM Agent – Fruit*

*Ms. Carrie Denson, IPM Program Associate – Fruit*

*Dr. Gary Pavlis, Ph.D. - Atlantic County Agricultural Agent*

**Oakworm Alert:** We have had several reports of large striped worms feeding on blueberry bushes. Upon examination, these are orangestriped oakworms. These are larvae of a fairly large Saturnid moth that feeds primarily on oaks, but can fall out of the trees late in the season and then search for alternative food sources. Evidently the larvae can crawl some distance, since in some cases larvae were found in the middle of some large fields. Most larvae have been seen on the field edges near woods.

Larvae have longitudinal yellow to orange stripes alternating with black, and at the present time are from 1" to 2+'' long. They can be voracious feeders and strip whole sections of a bush in a day. These insects will probably feed for another week, possibly longer with cool weather. See accompanying photos from Carrie Denson and Nick Freeman:



**Figure 1. Clock wise: Large 4th instar larva about 2" long on cane, Molting larvae and cast skins on twig, and insect frass (excrement) on ground.**

**Recommendations:** These infestations when present are spotty and seen in groups of 6-8 larvae. However it appears that a half dozen larvae can quickly do some major defoliation. If you see these at any more than 2 bushes per acre it makes sense that economic damage may be done if significant defoliation occurs. If you are treating with a ground sprayer (or air), then Lannate @ 1 lb (or 2-3 pt)/A would work. It may also be helpful to add a spreader/sticker to the tank. High rates of pyrethroids would also be helpful. When spot spraying with a backpack sprayer, high rates of Delegate may also be helpful. For safety reasons we suggest not using Lannate in a backpack sprayer.

**Significance of defoliation at this time of year:** Growers should know that the defoliation of blueberry plants even at this time of year has significant negative effects. First of all, flower buds for next year's crop are forming now. The lack of leaves on the bush will decrease the number of buds formed due to decreased photosynthesis. In addition, at this time of year, carbohydrates from the leaves are moving down to the roots where they are stored in the winter. These carbohydrates are the source of energy for cane production next spring. If the plant is defoliated, less carbohydrates will result in fewer canes produced. That will have a negative effect on yield. Lastly, premature defoliation will decrease winter hardiness. Bottom line, severe defoliation must be avoided.

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## Fall Herbicide Applications are Critical for Controlling These Troublesome Weeds....

Thierry Besancon, Ph.D., Weed Science Extension Specialist

### Annual Bluegrass

Annual bluegrass (*Poa annua* L.) is an increasingly troublesome winter annual weed in some New Jersey blueberry fields. Native to Europe, this species is now worldwide distributed.

### Identification and Life Cycle



*Annual bluegrass tuft in December*

Annual bluegrass starts germinating in late summer as soil temperature drops below 70°F. If conditions are favorable, it will continue germinating throughout the winter. Annual bluegrass has light green leaves with a typical boat-shaped tip. Leaf blades are often crinkled part way down. It will produce greenish white inflorescences (seed heads) during the spring months. Annual bluegrass is a prolific and rapid seed-producing weed. Each plant can produce up to 100 seeds that are viable just a few days after pollination, allowing multiple germination flushes during the cool season.



**Annual bluegrass leaf tip – Joseph DiTommaso**

Annual bluegrass tends to form dense clumps in areas with moist and/or compacted soil. Poor soil drainage, frequent irrigation, excessive fertilization, use of heavy equipment causing compaction, and shade are conditions that will encourage the development of annual bluegrass.

While annual bluegrass may not be a strong competitor for blueberry bushes, it forms a dense mat that will persist until late spring. This mat will prevent proper application of residual herbicides in spring by intercepting the spray solution and

reducing the amount of residual herbicide penetrating into the soil. Thus, control of established sod of annual bluegrass prior to spring herbicide applications is essential for successful residual weed control in spring and early summer.

### **Management**

As for any other weed species, preventing the release of viable seeds that will replenish the soil seedbank is a primary objective for controlling this species. Cultivation or manual digging before annual bluegrass patches become well established and before the development of inflorescence will provide control of limited infestations if continued throughout the germination period. However, the use of chemical control may be required for large infested areas or where the species has become established for several seasons.

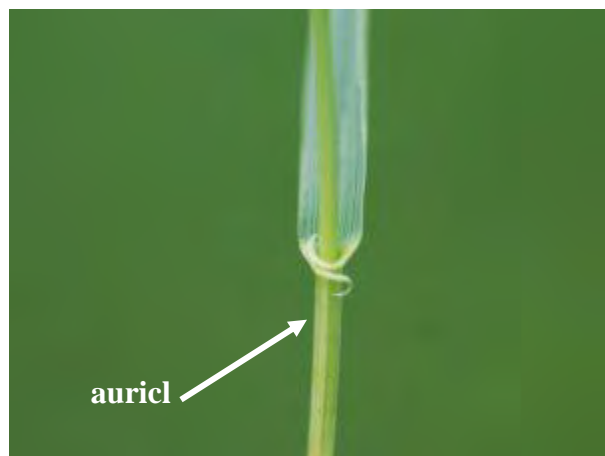
Application of effective preemergence herbicides may prevent annual bluegrass seedling survival. However, preemergence herbicides do not effectively control emerged plants. Timely application of preemergence herbicides is very important for effective control of annual bluegrass. Herbicides should ideally be applied in late-summer / early fall before annual bluegrass seeds germinate. However, crop injury may result if pre-emergence herbicides are applied at this time when blueberry bushes are not dormant. Therefore, a fall application of a preemergence herbicide tankmix with a postemergence herbicide is often the most practical solution and should be considered when blueberry leaves start dropping.

- Preemergence herbicides such as **oryzalin** (Surflan), **norflurazon** (Solicam), or **napropamide** (Devrinol) may effectively control annual bluegrass. Application of these herbicides can be split between fall and spring applications with half of the yearly rate applied in fall and the second half in spring.
- **Simazine** (Princep) can provide early post-emergence control of leaf stage plants in addition to its residual activity.
- **Pronamide** (Kerb SC) is also an excellent option that will provide both residual and postemergence control of annual bluegrass. Optimum pronamide activity occurs when applications are made cool soil temperature conditions (35 to 55°F).
- **S-metolachlor** (Dual Magnum) is also effective at controlling annual bluegrass prior to germination. However, Dual Magnum can only be applied once per cropping season and will require grower to agree to the conditions of the indemnified label (<https://www.syngenta-us.com/labels/indemnified-label-search>).

When annual bluegrass has emerged before residual herbicide is applied, a postemergence herbicide should be included in the tank. Use paraquat (Gramoxone or other labeled generic formulation) plus a nonionic surfactant at 0.25% v/v of the spray solution. Glufosinate (Rely 280) is also effective at controlling emerged annual bluegrass, especially when applied under bright sunlight, warm temperature, and high humidity conditions. Do not allow glufosinate spray mist to contact green bark, as injury will occur. None of the graminicides labeled on blueberry (Select, Poast) have sufficient activity for controlling annual bluegrass. The use of glyphosate (Roundup or other labeled generic formulation) is not recommended as failure to control emerged annual bluegrass has been reported in various New Jersey blueberry fields.

## Quackgrass

### Identification and Life Cycle



*Quackgrass auricle*

The weed reproduces sexually by seed and vegetatively by rhizomes, horizontal underground stems that eventually curve upward and make new shoots. The rhizomes are about one-eighth inch in diameter and may grow horizontally for up to several feet in length before curving upward and making a new shoot.

A typical features of quackgrass is the presence of a small clasping hook (auricle) at the base of the leaf blade. The seedhead, which appears in June, resembles ryegrass, except each floret is rotated one quarter turn compared to ryegrass.

Quackgrass (*Elymus repens*) is a perennial grass that grows actively in the late spring and early fall when daily high temperatures range between 65° and 80°F. High midsummer temperatures, above 85°F, and/or low soil moisture cause the weed to become dormant or semi-dormant until moisture and cooler weather return.



*Quackgrass rhizome*

### Management

- **Pronamide** (Kerb) is a good option for preemergence control of perennial grasses, including quackgrass, bluegrass, ryegrass sp., fescue sp. It will also provide early control of annual grasses the following spring. Optimum pronamide activity occurs in fall (November) when applications are made under cool soil temperature conditions (35 to 55°F). Tank-mix Kerb with paraquat or a glyphosate product and with Princep for postemergence and residual broadleaf weed control.
- Apply **glyphosate** products in the fall, October or November, when the weed has vigorous healthy foliage, a minimum of 4 to 6 leaves. Do NOT till the field or otherwise disrupt the root

and rhizome system of the weeds in the soil for a minimum of 8 months before treatment. Be aware that glyphosate has **NO preemergence activity**, and therefore will not prevent the emergence of new seedlings from seeds.

## Marestail/Horseweed

### Identification and Life Cycle



*Horseweed seedlings before elongation*

Horseweed is a biennial plant that has two primary periods of emergence, from late summer through late fall, and from late March through June.

Some of the most problematic horseweed emerges in the fall and overwinters as small rosettes. If growers do not 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) and rapid growth to a height of 3 to 6 feet. Plants that emerge the previous fall will bolt earlier than spring-emerging plants.

**The key to successful horseweed management is to control it when in the seedling or rosette stage.**

Remember, **most of the horseweed in New Jersey is resistant to glyphosate** and we are seeing more populations that are 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.

### Management

Application of effective preemergence herbicides may prevent horseweed seedling survival. However, preemergence herbicides do not effectively control emerged plants. Thus, a fall application of a preemergence herbicide tankmixed with a postemergence herbicide is often the most practical solution and should be considered when blueberry leaves start dropping.

Fall preemergence options for horseweed control

- **Simazine** (Princep) applied in late fall on **weed-free soil** at 1 to 2 lb ai/A, depending of soil texture and organic matter, will provide excellent residual horseweed control. It can also provide early post-emergence control of seedling stage plants in addition to its residual activity, but will require the addition of a postemergence herbicide if rosettes have already formed.
- **Mesotrione** (Callisto) has both preemergence and postemergence activity. When applied in the late fall after leaf drop, mesotrione will control many annual broadleaf weeds including emerged horseweed seedlings. Mesotrione has little to no grass activity and should therefore be tank-mixed with a residual grass herbicide to improve annual grass control.
- **Dichlobenil** (Casoron) applied late fall, after November 15th, but before the soil freezes, have controlled susceptible weeds more consistently than late winter applications. Treat before weed growth begins and when daily high temperatures do not exceed 50°F. Casoron is volatile in

warm temperatures and must be irrigated or incorporated after application if applied in warm weather to prevent significant loss of the herbicide.

If horseweed emergence already occurred at the time you plan your fall preemergence herbicide application, you will have to include one of the following postemergence option:

- **Paraquat** (Gramoxone SL 2.0) is a contact killer that has no translocation or residual activity. **So, best results are 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 the weed leaf surface in contact with the herbicide and enhance weed control. Paraquat 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.
- **Clopyralid** (Stinger) acts as both a postemergence foliar absorbed herbicide and a residual herbicide. The initial twisting and curling observed after application to susceptible species is due to the foliar absorption. Clopyralid can eventually be tank-mixed with paraquat to increase the spectrum of weeds controlled and defoliate existing foliage of perennial asters, goldenrod species and mugwort. **Only the Stinger formulation of clopyralid is labeled on blueberry since Stinger has a 24(c) Special Local Need label for New Jersey blueberry until Dec. 31, 2020.**
- **Glufosinate** (Rely 280) 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. Contact of glufosinate with parts other than mature callused brown bark will result in extremely severe damages to the blueberry bush. Warm temperature, high humidity, and bright sunlight will improve the performance of glufosinate.

## IMPORTANT

**All preemergence herbicides require incorporation from rainfall so that the herbicide can move into the first few inches of soil where it will be protected from degradation or volatility.**

Consult the New Jersey Commercial Blueberry Pest Control Recommendations for rates and additional information (<https://njaes.rutgers.edu/pubs/publication.php?pid=E265>). As with all herbicides, read and follow all label instructions and precautions.

*Visit the Blueberry Bulletin webpage at*  
[www.njaes.rutgers.edu/blueberry-bulletin](http://www.njaes.rutgers.edu/blueberry-bulletin)