

The Blueberry Bulletin

A Weekly Update to Growers

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BLUEBERRY CULTURE

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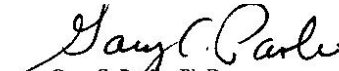
Dear Blueberry Grower:

As we begin the new season it must be understood that Rutgers faculty is limited in the way we deliver information to the growers. In person meetings are still not allowed at this time. I thank all growers for their continued support and patience during this time.

The attendance at the blueberry session in the Atlantic City Vegetable Conference and the Blueberry Open House virtual meetings was outstanding. It appears that this mode of information delivery is convenient to all of you and so when things get back to normal, meetings of this kind should be utilized to some degree.

At this point, we are planning on a virtual twilight meeting on April 22 and May 20th. Of course, Rutgers faculty is still available via phone and e-mail if you have any questions. Hopefully on farm visits will be allowed soon. The 2021 Blueberry Pesticide recommendations will be available very soon on the Rutgers website.

Lastly, I stated that the 2020 IPM soil tests revealed that 27% of farms had a soil pH below 4.0, 71% of farms were below 4.4, and only 24% were in the optimum range of 4.5 to 5.0. Very low pH greatly decreases microbial soil activity and nutrient uptake. There needs to be an increase in the application of lime. Research we conducted years ago showed that for every tenth increase in pH desired, 100lbs./A of lime should be applied. Thus to go from 4.0 to 4.5, 500lbs./A lime should be applied. It is still not too late to apply this lime at this time.


Gary C. Pavlis, Ph.D.
Atlantic County Agricultural Agent

EVALUATING BLACK SHADOW FOR 2021

Peter Oudemans and Matt Hamilton. Professor and graduate student, Dept. of Plant Biology, Rutgers University

How is Black Shadow this year? Is it spreading? How will it affect the crop yield?

As you know, Matt Hamilton (a new graduate student) and I are working on a project examining these and other questions regarding this troubling disease. In this article, I want to update you on some of the progress we are making and describe a little of what we are beginning to understand about this problem.

The first question, is it spreading, is one worth looking at a little more in depth. To understand spread we first need to understand where it comes from. A small galaxy of fungi that is getting bigger the more we look, are the causes of Black Shadow. These fungi spread from older growth to younger growth, presumably via rainwater, dew and possibly overhead irrigation.

A learning experience for us has been to classify the growth patterns of the blueberry bush. In the spring as buds begin to break, vegetative or shoot buds develop small leaves and then continue to grow into shoots. Towards the end of summer additional shoots may form from these shoots. We are calling these first and second flush of shoots.

The black shadow fungi spread onto this new growth after it has formed. Therefore, first flush shoots are exposed to infection first and the second flush later. In 2020, when we sprayed the bushes for black shadow we were protecting the second flush more than the first because infections had already spread to the first flush. Therefore, when we are evaluating performance of fungicides we are looking at the second flush growth.

The yield (following year) of blueberries is determined by the health and productivity of these vegetative flushes. The number and size of buds are the key components of yield. Thus, the number of fruiting (inflorescence) buds that form on a shoot and how efficiently those buds develop into fruit is key. We are continuing to improve our understanding of how black shadow alters these yield components and how we can manage this problem.



Second flush growth showing black shadow symptoms (left) versus second flush without black shadow (right).

2021 Recommendations for Preemergence Weed Control in Established Highbush Blueberry



Thierry Besancon, Asst. Extension Specialist in Weed Science

With T3 stage scheduled for early April it's now time to consider your residual herbicide application before bud-break!

Residual herbicides should be applied prior to weed seed germination. If applied to weeds that are already out of the ground, most of these products will not control them.

Keep also in mind that these herbicides should receive at least ½" rainfall or irrigation one to seven days after application (depending on herbicides) to move the herbicide into the soil

In order to reduce the potential of selecting for herbicide-resistant weeds, it is highly recommended mixing two residual herbicides with different MOA whenever you apply preemergence herbicides. Make sure the herbicides you plan to apply will be effective at controlling the weed species in your field by checking the herbicide label. Usually, residual herbicides will suppress weed for 6 to 8 weeks depending on irrigation as well as soil and weather conditions. After this period, another residual herbicide can be needed to control weeds through harvest and could be mixed with a postemergence herbicides to control emerged weeds. Roundup (glyphosate), Rely 280 (glufosinate,) and Gramoxone (paraquat) are postemergence herbicides that may be applied with preemergence herbicides before bud break with little risk for crop injury.

- ⇒ **MOA 2: Solida** (rimsulfuron) and **Sandea** (halosulfuron) are ALS inhibitors 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
- ⇒ **MOA 3: Kerb** (pronamide) and **Surflan** (oryzalin) are mitosis inhibitor that will be effective at controlling many annual grass species for 4 to 6 weeks after application. **Kerb** also help controlling perennial quackgrass. If applied to warm soils (> 55°F), **Kerb** persistence (and weed control) is much reduced; therefore, reserve **Kerb** for fall/winter application. Do not use Kerb on blueberries that have not been established for about a year.

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- ⇒ **MOA 5 and 7:** The photosynthesis 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** (diuron) and **Princep** (simazine) have relatively low solubility and have been very safe on blueberries. **Sinbar** (terbacil) has a longer residual life in the soil and also is more soluble, so it should be used infrequently on light, wet soils. **Velpar (hexazinone) is very soluble and should not be used on New Jersey sandy soils.** These herbicides are effective on a many broadleaf weed species, including common chickweed, common lambsquarters, common groundsel, henbit, nightshade, redroot pigweed, pineappleweed, shepherd's-purse, smartweed, and some mustards. **Sinbar** and **Princep** will also control most of the annual grasses and help suppressing quackgrass.
- ⇒ **MOA 12: Solicam** (norflurazon) is a pigment inhibitor that may 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. **Do not exceed 2.5 lb/a on sandy or loamy sand soils.**
- ⇒ **MOA 14: Chateau** (flumioxazin), **Zeus XC** (sulfentrazone), and **Zeus Prime XC** (sulfentrazone plus carfentrazone) are PPO inhibitors with activity against many broadleaves (including redroot pigweed, catchweed bedstraw, common mallow, common lambsquarters, ladythumb, wild mustard, and 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. Zeus products may also provide some suppression of yellow nutsedge. **Chateau** has a 7 day preharvest interval (PHI) and **Zeus Prime XC** have 3 day PHI, and can therefore be applied later in the season to extend preemergence broadleaves control into late summer. Blueberry plants must have been established at least two years prior to use of these herbicides.
- ⇒ **MOA 15: Devrinol** (napropamide) and **Dual Magnum** (s-metolachlor) are long chain fatty acid inhibitor. **Devrinol** 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. **Dual Magnum** has a 24c Special Local Need label for blueberry in New Jersey. This herbicide controls 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.
- ⇒ **MOA 20: Casoron** (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 dichlobenil formulation), **Casoron** can lose much of its activity. So, reserve this herbicide ONLY for fall/winter applications. Plants must be at least one year old before **Casoron** should be used.
- ⇒ **MOA 21: Trellis SC** (isoxaben) is a cell wall synthesis inhibitor currently currently registered for bearing and non-bearing blueberry. **Trellis SC** primarily controls annual broadleaf weeds, such as horseweed, common lambsquarters, wild mustards, shepherd's-purse, purslane, and common chickweed; higher rates may also suppress field bindweed and

curly dock. However, **Trellis SC** will have to be mixed with a Group 3, 12, or 15 residual herbicide for controlling annual grasses.

- ⇒ **MOA 27: Callisto** (mesotrione) is an HPPD inhibitor recommended for spring application to 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. **Callisto** has both preemergence and postemergence activity, and can therefore be used in spring to control ALS-resistant horseweed at the rosette stage.
- ⇒ **MOA 29: Alion** (indaziflam) is a cellulose biosynthesis inhibitor recommended for fall or spring application to control annual broadleaf and grassy weeds. **Alion** has no effect on emerged weeds or established perennials. It should be applied before weeds emerge or tank-mixed with a postemergence (POST) herbicide to control emerged weeds. **Do not use Alion on soil classed as sand, or with more than 20% gravel.**

Preemergence Herbicide Rates (in Active Ingredients) for Common Soil Types

Soil Type	Sand		Loamy Sand		Sandy Loam		
	0 - 1	1 - 2	0 - 1	1 - 2	0 - 1	1 - 2	2 - 4
Preemergence (residual)							
Alion	N/A	N/A	0.045	0.065	0.045	0.065	0.065
Callisto ¹	0.09 - 0.19						
Casoron 4G	4 - 6						
Casoron CS	1.96 - 3.12						
Devrinol ¹	2 - 4						
Chateau ¹	0.19 - 0.38						
Dual Magnum	0.64	0.64	0.64	0.95	0.64	0.95	1.26
Karmex ²	N/A	N/A	N/A	N/A	N/A	1.5	1.5
Kerb	1 - 2						
Princep ²	N/A	2	N/A	2	2	2	2
Sandea	0.024 - 0.048						
Sinbar ²	N/A	N/A	N/A	N/A	N/A	1	1.5
Solicam	N/A	N/A	N/A	2	N/A	2	2.5
Solida	0.063						
Surflan ¹	2 - 4						
Trellis	0.75	0.75	0.75	0.75	0.75	0.75	1
Zeus XC	0.375						

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N/A = NOT LABELED (**DO NOT USE**).

¹Use the lower recommended rate when tank-mixing with another pre-emergence herbicide, unless annual grass pressure is severe.

²Use one-half the recommended rate when tank-mixing with another pre-emergence herbicide.

The 2021 Commercial Blueberry Pest Control Recommendations for New Jersey will soon be available on <https://njaes.rutgers.edu> for rates and additional information. The information above is correct to the best of our knowledge. Other formulations with the same active ingredient as some of the products listed above may exist that may or not may be labeled for the same uses. **Always consult the label before making pesticide applications.** Information was current as of March 23, 2021.