RUTGERS
New Jersey Agricultural Experiment Station

The Blueberry Bulletin

A Weekly Update to Growers

August 26, 2020 **Vol. 36, No. 23**

- *Visit the Blueberry Bulletin webpage at njaes.rutgers.edu/blueberry-bulletin*
- *The 2020 Commercial Blueberry Pest Control Recommendations for New Jersey is available on njaes.rutgers.edu*

BLUEBERRY CULTURE

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

It has been some time since I discussed the use of mulch with highbush blueberries and since the season is winding down I finally have the time. The first question is why do we mulch blueberries? We mulch because we are trying to duplicate the natural soil conditions that exist where the highbush blueberry is native and thrives such as the Pine Barrens of New Jersey. Mulch has many benefits not the least of which is increasing the organic matter of the soil. Mulching increases the soil's ability to hold water and nutrients and lowers root temperature in the summer. There was no need to mulch on most south Jersey blueberry farms years ago because the soil was the perfect pH for blueberries and the organic matter was high. It was rare to find a Jersey farm that mulched before the mid 90's. Today, most farms mulch their blueberries. Why the change? We have to look at how we grow blueberries here. We use herbicides under the plants and we rototill the middles to control the weeds which are practices that are very effective but the lack of weeds does not allow organic matter to accumulate and rototilling burns up the natural organic matter. In addition, we routinely use a 10-10-10 fertilizer which usually contains nitrogen in the form of ammonium sulfate. The ammonium slowly drives the pH down, out of the optimum range for blueberries. With decades of these practices we now have to add lime to get the pH up and we have to mulch to replace the organic matter.

DISADVANTAGES:

Growers should realize that there are also a few disadvantages to applying mulch. Many growers experience rodent problems under the blueberry plants when mulch is used because of the perfect environment created by the mulch for these animals. In addition, mulch creates the perfect environment for the grub larva of Japanese, Oriental, and Asiatic beetles. These larvae can be very destructive to blueberries and many plantings have been damaged by these insects. Mulch can also be expensive to purchase and also to apply. Lastly, I am often asked what kind of mulch is best for blueberries. I always answer, "Whatever material the grower can get for free." Often a grower can work with a local township to receive deliveries of wood chips from their utilities authority. Realize however that no matter what mulch is used, it is going to affect nutrient availability because the breakdown process ties up nitrogen. As a result, a higher application rate of nitrogen will be required and could be as high as double the rate without mulch. It is not possible to make a recommendation as to what the additional application should be because every mulch is different and breakdown varies with soil type, temperature, micro-organism activity, etc. Nitrogen levels in the plants should be

monitored with yearly leaf analysis to determine how the mulch has affected nitrogen levels in the plant.

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

Sharpnosed Leafhopper (SNLH): The main thing we are watching for now is a significant increase in adult activity, which would indicate the second generation flight. However, we have still not seen this, and therefore it is too early to think about second generation SNLH treatments.

Putnam Scale: Crawlers are still active. So if you had first generation damage and still have not treated this second generation, you still have a little time to do so. The clock is running out though, so this may be the last week. Options for control include: Esteem 35W @ 5oz/A, or Diazinon @ 1-2 lb/A (50W). The diazinon label specifies that there is a maximum of 2 lb of formulated product allowed per season, and a maximum of only 1 in-season foliar application per year. The application volume is just, if not more important that the rate. The insecticide must contact the insect as it crawls up the cane and onto the branches. Make sure to use as much water as possible, or close to 50 gal/A or more. Use of a non-ionic spreader will help slightly to increase coverage. Scale applications **Will Not Work** if done by air. Good pruning that eliminates the old canes that harbor the highest populations is another management tactic that should always be practiced.

Blueberry Trap Counts

Week Ending	CBFW-AC		CBFW-BC		SWD-AC		SWD-BC		OB-BC		OB-AC	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
5/11	0.1	1	0	0								
5/18	0	0	0	0								
5/25	0.1	1	0.25	1	0.8	7	0	0				
5/30	0	0	0.25	1	.75	5	.55	1				
6/6	5.5	34	0.75	3	2	8	2.1	5				
6/13	5.6	22	3.5	8	4	14	7.7	20	3.2	11	18	340
6/19	7.2	48	6.5	18	4.64	30	4.9	16	71.75	675	21.4	68
6/27	0	0	3.5	8	2.8	12	4.3	25	1834	13750	462	2025
7/4	0.22	1	1	3	4.17	16	11.3	46	2421	8775	976	5062
7/11	0.11	1	0.25	1	5.8	27	6.6	22	1093	5000	1997	6075
7/18	0.11	1	0.5	2	5.3	19	4.6	14	769	5000	1575	6750
7/25	0.11	1	0.25	1	12.2	41	5.5	20	443	3500	920	4050
8/1	0	0	0	0	8	42	11	37	179	2025	520	4025
8/8	.	.	.	.	8.9	62	5.6	23	31.5	340	231	4025
8/15	.	.	.	.	13	46	3.5	17	2.5	15	25	675
8/22	.	.	.	.	.	.	.	.	0.375	4	8.7	58

Week Ending	SNLH – AC	SNLH-BC	BBM-AC	BBM-BC	Scale-AC	Scale-BC

	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
6/27	0.14	3	0.8	4	0	0	0	0				
7/4	0.08	1	0.8	5	0.009	1	0	0				
7/11	0.12	1	1.82	6	0	0	0	0				
7/18	0.11	2	1.16	5	0	0	0	0				
7/25	0	0	0	0	0.02	1	0	0				
8/1	0.04	1	0.3	2	0	0	0	0				
8/8	0.152	3	0.14	2	0.03	2	0	0	9.25	57	0.5	1
8/15	0.37	3	0	0	0	0	0	0	27	89	9	18
8/22	0.08	2	0.07	1	.	.	.	.	20.6	73	7	14

Key: PC=plum curculio, Scale=Putnam scale, CBFW=cranberry fruitworm, SWD=spotted wing drosophila, OB=oriental beetle, SNLH-sharpnosed leafhopper, BBM=blueberry maggot, BC=Burlington County, AC=Atlantic County

BLACK SHADOW MANAGEMENT ON BLUEBERRIES FOR NEW JERSEY

Peter V. Oudemans, Rutgers University

Fig. 1

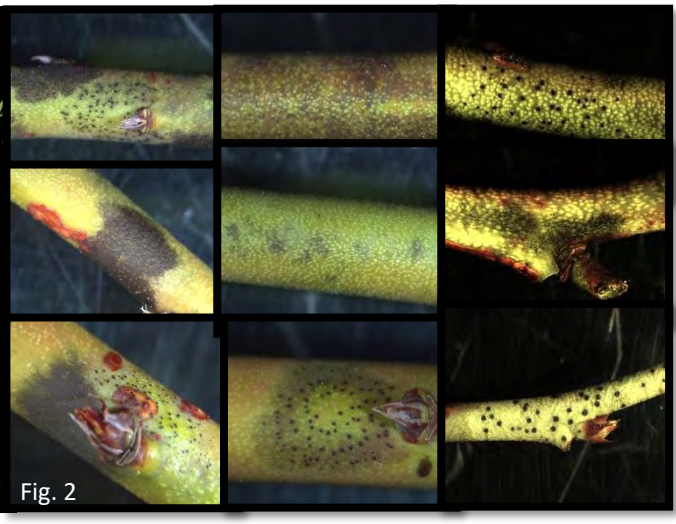

Fig. 2

Black shadow commonly known as sooty blotch is a widespread disease of the cultivated blueberry in New Jersey (Fig. 1). The symptoms generally appear as a discoloration of the stem, however, there are a number of different fungal species involved and each one produces consistent differences in symptomology (Fig. 2). At this stage we do not know which ones are the most destructive.

Fig. 3

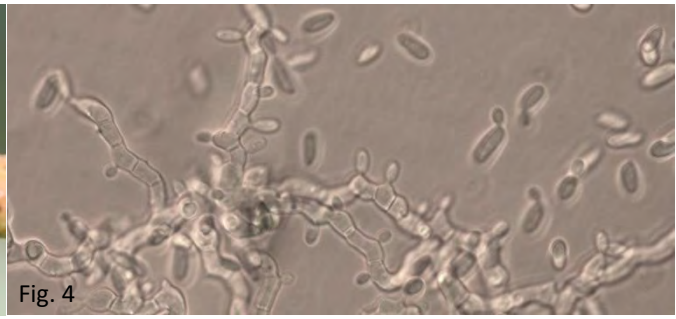

Fig. 4

We have found spores of these pathogens in water droplets inside the canopy (Fig. 3). Since the majority of the pathogens are yeast-like, the spores are produced through budding (Fig. 4) spore production can occur over a long period of time.

The effects of the “black shadow” fungi on blueberry are complex and there is no established threshold for damage. In other words, we do not know what level of coverage or blackening results in a crop loss. However, it is clear that spread begins in late summer and continues throughout the fall and spread occurs from older tissues to the young (current season) tissues or infections may originate from other plant species such as pine, briar and possibly some deciduous species.

For chemical control of “black shadow” we have tested several fungicides against several of the black shadow fungi and have developed a “short list” of effective materials. These are all in field trials at three locations this season. These fungicides have not been used commercially for black shadow control and therefore recommendations are preliminary. The fungicides I have selected are as follows:

Fungicide	Usage information	Rates (approximate cost)
Luna Tranquility	PHI = 0 days; REI = 12 hr; FRAC 7 and 9; 2 apps max/season	13.6-27 fl.oz./acre ($3.40/fl.oz.)
Miravis Prime	PHI = 0 days; REI = 12 hr; FRAC 7 and 12; 2 apps max/season	13.4 fl.oz./acre ($3.80/fl.oz.)
Proline	PHI = 7 days; REI = 12 hr; FRAC 3; 2 apps max/season	5.7 fl.oz./acre ($4.90/fl.oz)

When spraying for black shadow it is very important to understand the target for control. The target includes those tissues in the canopy that you want to protect and achieve maximum coverage with fungicides. For this disease the susceptible tissues include the new growth where the majority of next years

crop will be formed. In Fig. 5 you can clearly see the fresh green stems produced this growing season (circled in white). If you look carefully you may see some black shadow infection just beginning in some fields. The goal of a spray program targeting this disease is to optimize your spray pattern to cover these tissues and especially the stems. In Fig. 6 you can see how a much of the spray material is on the leaf tissue while in Fig. 7 both leaves and stems are covered. This effect can be achieved through adjusting the pressure and speed that the spray particles are delivered to the canopy. Typically a slower speed (i.e. lower pressure or buffered fan on air assisted sprayers such as air blast) will improved the amount of material covering the stem. This is critical since the materials will only be effective if they reach the stems. It is possible to optimize your sprayer using various fluorescent dyes that are commercially available.

In terms of timing the recommendations will likely change, however, my best estimation at this stage is to apply twice with a 3-4 week interval. In other words if you apply Aug. 27 a second application is recommended between Sept. 17-24.

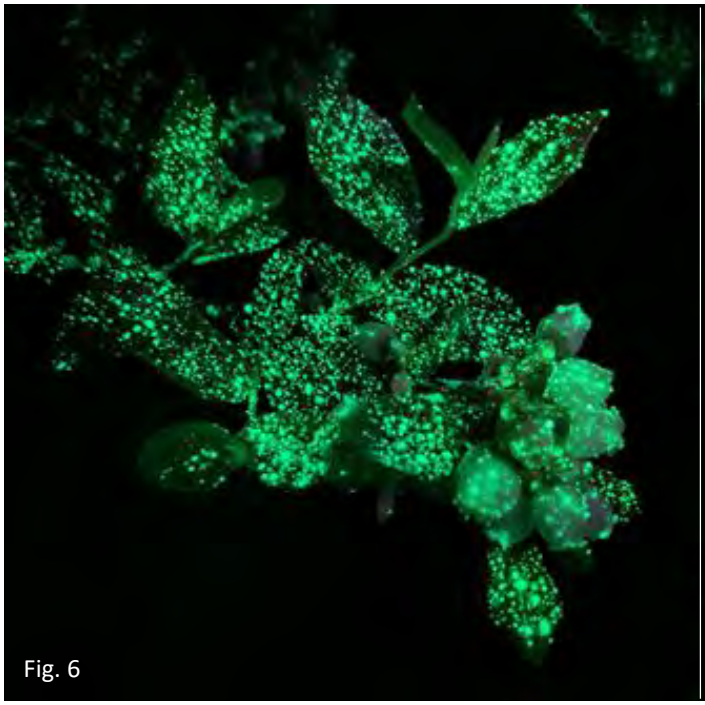

Fig. 6

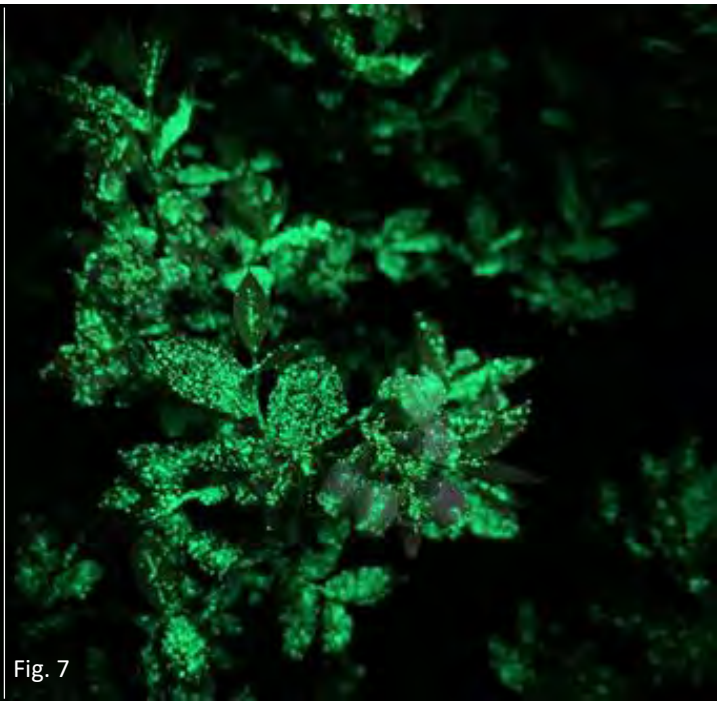

Fig. 7