RUTGERS
New Jersey Agricultural Experiment Station

The BLUEBERRY BULLETIN

A Weekly Update to Growers
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CULTURE

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Atlantic County Agricultural Agent

Stunt Disease: The removal of a bush with stunt disease should never be attempted before some effort has been made to control the leafhoppers in it. The removal process could actually facilitate the spreading of the disease. The agitation of the bush will dislodge the leafhoppers, causing them to hop to another healthy bush, thereby transmitting the virus from a diseased bush to a healthy bush. Spray each diseased bush with a garden knapsack sprayer before it is rogued out. Malathion is safe to use and is effective against all stages of leafhopper. Spraying the entire field is not necessary at this time. In fields severely infected with stunt disease and in nurseries seeking NJ Department of Agriculture Certification, a special spray for leafhopper adults is needed. The leafhoppers are still in the wingless nymph stage and usually do not start the flight period until late in August.

Stunt Symptoms are described as an overall dwarfing of the bush, hence the name stunt. Small leaves that are cupped downward or puckered are characteristic symptoms. Leaves on infected bushes are often chlorotic, with chlorosis most pronounced among the leaf margins and between lateral veins. Midribs and lateral veins usually retain normal green coloration. Chlorotic areas often turn a brilliant red in the later summer. Stem internodes become shortened, and growth of normally dormant buds caused twiggy branching.

Another good practice to get into after harvest is to survey how well your herbicide program worked this year. The weeds are probably at their worst right now and a survey of your fields could be beneficial next year. Samples of weeds that you cannot identify should be taken and placed in a zip-lock bag with a little water and brought to your county extension office. In this way, an effective program can be recommended.

A few grower questions came in this week that I would like to answer. The first asked what beetles are present when a planting has grub problems? Actually, there are likely to be regional differences in the white grub species that can be found in blueberry fields. The species listed below have all been found in New Jersey.

White Grubs
Japanese Beetle, *Popillia japonica* Newman
Rose Chafer, *Macrodactylus subspinosus* Fabr.
Asiatic Garden Beetle, *Maladera castanea* Arrow
May Beetles, *Phyllophaga* spp.
Northern Masked Chafer, *Cyclocephala borealis* Arrow
European Chafer, *Rhiztrogus majalis* Razoumowsky

Oriental Beetle, *Anomala orientalis* Waterhouse
Possible other species

Another question came in asking about the amount of sulfur needed to lower the pH in a blueberry field. The table below should provide the answer. Note: Do not use aluminum sulfate, blueberries do not like aluminum.

Approximate amount of sulfur (pounds per acre) required to lower soil pH to 4.5.

	SOIL TYPE		
Current pH	**Sand**	**Loam**	**Clay**
5.0	175	530	800
5.5	350	1050	1600
6.0	530	1540	2310
6.5	660	2020	3030
7.0	840	2550	3830

INSECTS

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

Putnam Scale: Second generation scale crawlers have emerged over the last couple of weeks. Newly emerged crawlers are being found on black tape traps in known infested bushes (Figure 1). Activity has increased over the last 7 days where scale was present during the first generation in late June. Where scale is present, applications of Esteem are suggested. If Diazinon has not yet been used this year, then 1 application of this material is permitted. Applications for scale control need to be made with as much water volume as possible in order to cover the entire surface of exposed wood. Physical contact with the small scale insects on the wood is required for control. If left uncontrolled, high scale populations will weaken canes and downgrade the fruit for next year.

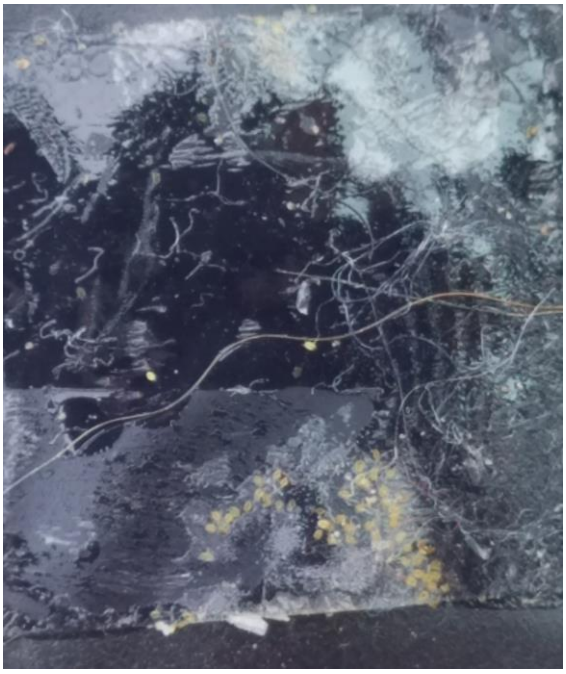

Figure 1. Newly emerged scale crawlers on black tape trap. See small yellow insects at bottom of photo.

Sharpnosed Leafhopper (SNLH): Populations are still very low and have not significantly increased. Treatments for the second generations are still NOT suggested at this time. *Life cycle* – SNLH feeds and reproduce on blueberry, huckleberry, cranberry, and other related plants. SNLH feeding causes little direct damage but it transmits the phytoplasma that causes **stunt disease** in blueberries. They are small brown insects with a pointed head. SNLH picks up the disease while feeding on infested bushes and carries it to other plants in subsequent feedings. Usually only adults will carry the disease from plant to plant, since nymphs are wingless and can't fly. This insect completes two generations in New Jersey. Adults (Figure 2) are abundant in the woods, where many alternative hosts are present, and may move to commercial blueberry fields in the spring. Eggs

overwinter inside fallen leaves and hatch in mid-May. Nymphs complete 5 instars. Nymphs from the first generation reach adult stage in mid-June, while nymphs from the second generation reach adulthood in early August. Adults move back to the woods in the fall. Monitoring these generations is critical for timing of control strategies.

Figure 2. Adult sharp-nosed leafhoppers

Monitoring and control – Adults (Figure 2) are monitored using yellow sticky traps. First generation SNLH is often controlled with sprays targeted for plum curculio, aphids, and cranberry fruitworm. Treatment decisions for the 2nd generation should be based on individual population levels, as well as any history of stunt disease on your farm. Because adults disperse from woods, monitoring should be intensified in, and sprays should be directed to, the perimeter of fields to control migrants carrying the disease. Insecticides are usually applied just prior to peak flight, which will probably be sometime near the end of August to early September. If needed, we recommend use of Assail, Actara, imidacloprid (e.g. Admire Pro), Lannate, or Malathion. It is also important to remove all plants that show symptoms of stunt disease. Removal of bushes should be done after insecticide treatment to avoid movement of leafhoppers from infested to healthy plants, thereby facilitating spread of the disease.

Spotted Wing Drosophila (SWD): SWD populations (and BBM) are still present and should still be controlled if any late fruit is still present. This is especially true for smaller operations concerned with SWD and caneberries.

Blueberry Trap Counts

Atlantic County

Week Ending	Cranberry Fruitworm	Plum Curculio	Oriental Beetle	Spotted Wing Drosophila ♂	SNLH	BBM
5/6						
5/13	0.083					
5/20	0.28	2.4				
5/27	0.56	2.8				
6/3	0.24	0.33		0.74		
6/10	0.33	0	4.9	0.79		
6/17	0.50	0	730	1.65	0	0.1
6/24	0.04	0	2672	1.2	0.29	0.1
7/1	0.04	0	3767	1.84	0.13	0.3
7/8	0.0	0.33	3341	5.02	0.09	0.1
7/15	0.0	0.0	2093	7.35	0.77	0.1
7/22	0.0	0.0	1304	8.45	0.28	0.01
7/29		0.5	991	9.6	0.35	0.06
8/5		0.25	267	5.8	.08	0
8/12		0	118	5.6	.07	0

Burlington County

Week Ending	Cranberry	Plum	Oriental	Spotted Wing	SNLH	BBM

	Fruitworm	Curculio	Beetle	Drosophila ♂		
5/6						
5/13	0.33					
5/20	0.14	7				
5/27	0.43	12				
6/3	0.857	2		2.46		
6/10	0.18	0	1.08	1.83		
6/17	0.9	1.0	269	3.08		0
6/24	0.67	-	5460	3.04	1.59	0
7/1	0.36	0	2629	4.64	1.03	0
7/8	0.17	0	4224	5.53	1.07	0.23
7/15	0.0	0.0	3497	7.73	0.19	0.1
7/22	0.0	4.0	2038	4.8	0.16	0.1
7/29		0.0	470	18.3	0.16	0.13
8/5		2	110	8.9	0.0	0.23
8/12		2	14	15.8	0.1	0.1

Partial Key: SNLH – sharpnosed leafhopper, BBM – blueberry maggot

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If you have any comments about this newsletter, please make them in the space below and mail to:
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I would like to see an article on the following subjects:_____

I would like to comment on the following articles:_____

Title:_____
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