

The Blueberry Bulletin

A Weekly Update to Growers

June 6, 2019

Vol. 35, No. 7

Visit the Blueberry Bulletin webpage at
www.njaes.rutgers.edu/blueberry-bulletin

CULTURE

Dr. Gary Pavlis, Ph.D.

Atlantic County Agricultural Agent

No leaves: Growers visits have revealed fields with plants that have canes with fruit but no leaves. This is not Scorch. The lack of leaves usually points to a root problem. It could be grubs, it could be root rot. In non-irrigated fields, the lack of leaves is due to root damage due to lack of water. This fruit probably will not ripen and the plant may not survive. In irrigated fields, I have seen many plants damaged by grubs. Admire is the control of choice in this case. Plants that have been damaged by grubs will pull out of the ground readily. Lastly, toxic levels of Boron can also result in no leaves. Do not apply Boron unless leaf analysis indicates a deficiency.

INSECTS

Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University

Mr. Dean Polk, IPM Agent – Fruit

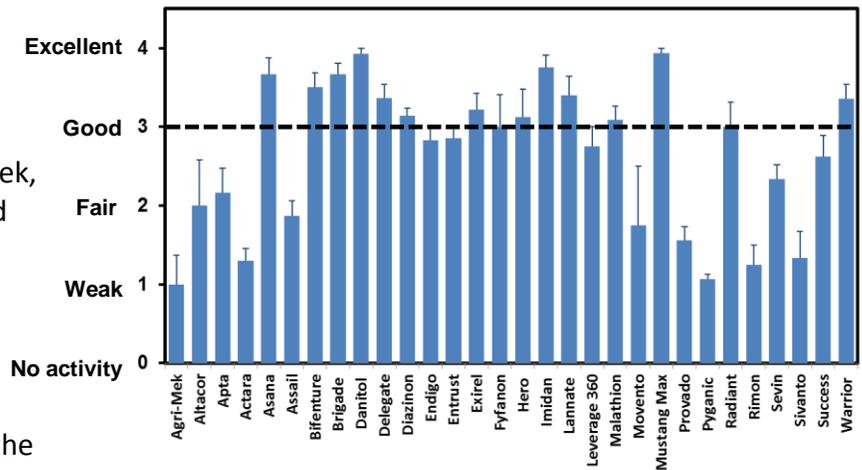
Ms. Carrie Denson, IPM Program Associate – Fruit

Plum Curculio (PC): PC adult counts are low, and early-injured fruit is dropping to the ground. Some late-injured fruit can still be found with live larvae, but most of these should be gone by the time the first fruit is picked. A little fresh injury is being seen in a few locations. While PC treatments are done for most growers, fresh injury deserves a material that includes some PC activity.

Aphids: Aphid populations have increased some over the last week. This insect is the primary target to control at the present time. Colonies are small with an average of 2.3% of lower shoots infested and a high of 22%. Growers will find it easier to get rid of the aphids before starting an effective SWD program. The best materials for aphid control include the neonicotinoids (Group 4A materials): Assail (1 day PHI), Actara (3 day PHI), and Admire (7 day PHI); and the 4D material Sivanto (3 day PHI), and the Group 23 material Movento (7 day PHI). If you have fresh PC injury and aphids, then use the Actara.

Spotted Wing Drosophila (SWD): The first adult flies were captured this past week, with only scattered numbers on a couple of traps. The average number of SWD males per trap is only about 0.35 SWD/trap with a high of 5 per trap.

Given the time between the first capture and the first Duke picking, we could have an entire generation of population increase. Starting late this week and next week, growers who have either controlled their aphids or don't have aphids, should begin their SWD programs. Very effective materials include: a) any pyrethroid (Group 3A) – Brigade/Bifenture, Asana, Danitol, Hero, Mustang/Mustang Maxx; b) the organophosphates (Group 1B) – Imidan,



Information provided by Michigan State University, North Carolina State University, Washington State University, University of Maine, University of California Berkeley, Rutgers University, Oregon State University, University of Georgia, Cornell University, and University of Florida.

Malathion, and Diazinon; c) the carbamate (Group 1A) – Lannate; d) the spinosyns (Group 5) – Delegate and Entrust; and e) the diamide (Group 28) – Exirel (Figure 1). As a general rule, the neonicotinoids and other materials meant for sucking insects like aphids, do not work well against SWD. Assail does have some activity, and if used early in the season on very light populations, can suffice as the first SWD spray if primarily targeting aphids.

Figure 1. Ranking of insecticides based on efficacy against SWD (data provided by Dr. Rufus Isaacs, Michigan State University)

Oriental Beetle (OB): The first OB adults were captured in traps late last week in Atlantic County. OB adults will continue to emerge throughout June and the first half of July. They will mate and lay eggs shortly after emergence. After the larvae hatch from eggs, they burrow down into the shallow root system. Admire/imidacloprid needs to be applied so it is in the soil when young and newly hatching larvae are present. This would be now and any time before early July. There is a 7 day PHI for this material. A survey done during the fall of 2018 showed that the majority of fields sampled had OB present around the root systems. Growers who do not wish to use Admire can also use mating disruption (see below). Mating disruption dispensers should have already been applied, but can still be effective if placed in the field over the next week.

Life cycle. OB completes a single generation per year. Adults (Figure 2) start to emerge in early June, and flight peaks in early July. Females lay eggs in the soil at the base of bushes. Most larvae reach first and second instars by the end of July. Third-instars (Figure 3) appear by the end of August, they remain in the soil during winter, resume feeding the following spring, and enter the pre-pupal stage in late May.



Figure 2. OB adult



Figure 3. OB 3rd instar

Monitoring. To monitor OB populations and initiation of male flight, use Japanese beetle sex pheromone traps (Trécé, Adair, OK), baited with septa lures containing the sex pheromone.

Control. Admire Pro (imidacloprid) is recommended to manage OB grubs infesting blueberries. Other formulations are also available in generic brands; these include Alias, Nuprid, Couraze, and others. Imidacloprid is most effective if targeted against early instar grubs. It should be applied in June to mid-July, at least 7 days before the first picking, or applied as a post harvest material. Grubs should be targeted at their youngest stage or as they hatch and are at the 1st and 2nd instars, and while still close to the soil surface. Imidacloprid has little effect on 3rd instars and older larvae. Older 3rd instars start to appear by early to mid August. Therefore, applications should be made well in advance of that date. Applications will degrade if exposed to the sun. Therefore, imidacloprid should be immediately irrigated into the soil to form a layer of insecticide just below the soil surface. Imidacloprid has a long residual activity (>100 days) as long as the insecticide is not exposed directly to the sun. If Duke picks by the 3rd week of June, then application should be conducted during the 2nd week of June or after harvest, between mid to the end of July. Applications for Bluecrop are recommended 7 days before the first picking, in late June or early July. Similarly, applications for late season varieties like Elliott should be conducted no later than end of July. Please read and follow all the conditions and restrictions on the container label for these insecticides. Remember to irrigate the field with at least .5 to 1" of water immediately after application. If the soil is dry, then also water just previous to application. Begin applications late in the evening hours because this insecticide is sensitive to breakdown by UV radiation.



Figure 4. OB dispensers

Oriental Beetle Mating Disruption: As an alternative to insecticides, we recommend the use of mating disruption for OB control. Dispensers (Figure 4), containing the OB sex pheromone, are now available to growers.

These dispensers are being sold by AgBio:
Mr. Jan Meneley, Ph.D.
AgBio Inc.
9915 Raleigh St.
Westminster, CO 80031
www.agbio-inc.com
ph 303-469-9221
fx 303-469-9598

To use, simply attach the dispensers to a lower blueberry branch at a density of 20-40 dispensers per acre in a grid pattern, depending on the size of the area to be treated. Please see label for information on restrictions, spacing, timing, etc.

Cherry Fruitworm and Cranberry Fruitworm: Larvae have been seen on a few farms this season. What is a little unusual is that infestations from cherry fruitworm larvae are slightly more common than cranberry fruitworm. Most of the fruit will drop prior to picking, and any remaining larvae will be kicked out in the packing line.

Putnam Scale: Newly settled scales were seen on freshly infested fruit on Monday June 3 (Figure 5). This was a new infestation this year, so crawler traps had not been placed in this field. However, this means that crawlers are active, and have reached the fruit in some plantings. Treatments should be applied in fields which had scale last year and were not treated then, as well as fields with new infestations this year. Esteem is the product of choice and has a 7 day PHI. Therefore it is unlikely that growers can use it in the same fields if infestations are seen in the first picking. It will be easier to make note of the field source of any infested fruit, and treat later during the second generation in early August.



Figure 5. Fruit with scales (Photo N. Freeman)

Miscellaneous and Disease

Hail: Some scattered fields have low levels of hail damage from recent storms (Figure 6). Hail marks will appear as small cuts and dents, sometimes accompanied by cut leaves. Since this happened to green fruit most of it will callous and heal over, and it is likely not going to affect the crop size or quality, although



Figure 6. Recent hail injury on green fruit (Photo C. Denson).

some fruit may drop. If the hail had hit ripening and blue fruit, the story may be different in that the fruit may not be able to heal over. In this case the wound could be colonized by the **Alternaria fruit rot** fungus, which is a wound pathogen. Because of the recent rains, many growers are still applying fungicides for

anthracnose control. Not all fungicides effective for Anthracnose have the same efficacy for Alternaria. Omega is very effective for Alternaria, but has a 30 day PHI. Indar (although not an anthracnose material) also has a 30 day PHI. Other effective materials with short PHIs include: Abound (0), Pristine (0), Quash (7), and Quadris Top (7). A more complete discussion about Alternaria fruit rot can be found in the current [PNW Plant Disease Handbook](#) with an excerpt below for control options if needed in the future:

“**Chemical control** Spray after full bloom when berries are developing. Bloom applications have not been very effective.

- Abound at 6 to 15.5 fl oz/A. Do not apply with silicone-based surfactants. May be applied on the day of harvest. Group 11 fungicide. 4-hr reentry.
- Captan 80 WDG at 1.25 to 3 lb/A. May be applied up to day of harvest. Moderate control ranking. Group M4 fungicide. 48-hr reentry.
- Indar 2F at 6 fl oz/A plus a wetting agent. Do not use within 30 days of harvest. Group 3 fungicide. 12-hr reentry.
- Inspire Super at 16 to 20 fl oz/A. Do not apply within 7 days of harvest. Group 3 + 9 fungicide. 12-hr reentry.
- Luna Tranquility at 13.6 to 27 fl oz/A. May be used day of harvest. Group 7 + 9 fungicide. 12-hr reentry.
- Oso SC at 3.75 to 13 fl oz/A. May be applied on the day of harvest. Group 19 fungicide. 4-hr reentry.
- Ph-D WDG at 6.2 oz/A plus an adjuvant. May be applied on the day of harvest. Group 19 fungicide. 4-hr reentry.
- Pristine at 18.5 to 23 oz/A. Do not use with any other tank additive except Captan. Can be used day of harvest. Group 7 + 11 fungicide. 12-hr reentry.
- Proline 480 SC at 5.7 fl oz/A. Do not use within 7 days of harvest. Group 3 fungicide. 12-hr reentry.
- Quash at 2.5 oz/A. Do not use within 7 days of harvest. 12-hr reentry.
- Quadris Top at 12 to 14 fl oz/A plus a surfactant. Do not apply within 7 days of harvest. Group 3 + 11 fungicide. 12-hr reentry.
- Sil-Matrix at 1 to 4 quarts/100 gal water plus a nonionic surfactant. Can be applied up to the day of harvest. 4-hr reentry.
- Switch 62.5 WG at 11 to 14 oz/A. May be used up to and including the day of harvest. Group 9 + 12 fungicide. 12-hr reentry.
- Vacciplant at 14 to 22 fl oz/A. Can be used day of harvest. Unknown efficacy in the PNW. Group P4 fungicide. 4-hr reentry.
- Ziram 76 DF at 3 lb/A. Do not apply after 3 weeks from full bloom. Moderate control ranking. Group M3 fungicide. 48-hr reentry.”