

## Rutgers Cooperative Extension

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# BLUEBERRY IPM FIELD GUIDE

## How to Scout:

Scout weekly for all diseases and insect pests during the growing season. Scout at least two sampling sites for a two acre block, 4 sampling sites for an eight acre block. Within each sampling site, randomly select at least ten bushes. Sample 5 clusters on each of 4 shoots over the 10 bushes for a total of 200 clusters on a two acre block. Refer to specific disease or insect pest for further details.

## Dormant Period (including early regrowth)

Disease/Pest	Sampling	Threshold	Notes
<b>Mummy Berry</b>  (344, 1583)*	From November through February, look underneath bushes for mummies. Scout areas with poor drainage or where soils tend to stay moist. Target “hot spots” where the disease tends to occur every year.	>5 mummies/bush = heavy disease pressure	Use this scouting information to plan for the upcoming growing season.
<b>Anthracnose</b>  (1583)	From November through February, randomly select and clip 100 branches. Place in a bucket of water in a high humidity chamber (cover with a large plastic bag to create high humidity conditions). Maintain in an area of 50 - 80° F. Fluctuating temperatures are best. After 2 weeks, look for orange spores on the branches. These will usually appear on dead wood.	No spores = disease pressure should not be severe.  >20% = heavy disease pressure	Use this information for planning purposes. >20% branches with spores means that control measures must be implemented during the growing season.
<b>Scale Insects</b>  (344)	In early March, scout a minimum of two locations, randomly selecting ten bushes. Look on loose bark.	No thresholds established	If scales were seen on fruit the previous year, scout for scales at this time. Scales overwinter on loose bark. If plants are properly pruned, this old wood is removed. If treatment is required, spray when buds are still dormant up to ¼ inch leaf opening.
<b>Mummy Berry</b>  (344,1583)	Scout areas with poor drainage or where soils tend to stay moist when Forsythia are in bloom which is the “squirrel ear” stage of development of blueberry leaves. Look for mummy berry cups in the wettest areas of the field. Scout two to four locations, 10 plants per location.	2 - 3 cups for every three bushes.	Cultivation usually gives adequate control of mummy berry in most fields. In especially wet years when cultivation is not practical or in fields where this disease is usually severe, additional controls will be required.

## Prebloom Stage

Disease/Pest	Sampling	Threshold	Notes
<b>Cranberry Weevil (CW)</b> <b>(Blossom Weevil)</b>	Walk in a lazy S fashion randomly choosing 10 plants. Scout 10 clusters per bush looking for C.W. feeding injury, which appears as brown pinpricks on the unopened flowers in a cluster. A hand lens helps to see the injury. Pay particular attention to field edges near woodlots, grassy areas or where trash has been piled. Cranberry weevils are active on bright sunny days. On cloudy cold days, there is no activity.	<b>Cloudy days:</b> $\geq 20\%$ of clusters with damage. A cluster is considered damaged when at least one flower in the cluster is damaged. <b>Warm sunny days:</b> $\geq 5$ beetles/bush	Cranberry weevils overwinter in trash and debris, in weedy unkempt fields or near field edges.
<b>Leafrollers, Spanworms, Gypsy moth</b>	Scout in the same fashion as outlined for cranberry weevil. Sample 100 flower and leaf clusters, examining 4 to 5 clusters/bush. Repeat in two to four locations, depending on field size.	1 larva/100 clusters. Combine all three insect pests (leafrollers, spanworms and Gypsy moth) to determine if threshold is reached.	
<b>Phomopsis</b>  (1583)	Look for dying buds with brown area on stem (stem necrosis). If present, try to estimate percent of buds with symptoms. Plants wounded mechanically or by freezing are more susceptible to infection.	No threshold established, but $>10\%$ is definitely a problem.	Prune cankered and wilted stems, as deep into the crown as possible, to limit inoculum and spread of the disease. Infected stems should be removed from the field and destroyed.

## Bloom

Disease/Pest	Sampling	Threshold	Notes
<b>Cranberry Weevil (C.W.)</b> <b>(Blossom Weevil)</b>	Walk in a lazy S fashion randomly choosing 10 plants. Scout 10 clusters per bush looking for C.W. feeding injury, which appears as brown pinpricks on the unopened flowers in a cluster. A hand lens helps to see the injury. Beating trays may also be used for sampling adults, especially on bright sunny days when cranberry weevils are active. On cloudy cold days, there is no activity. Beating trays may be of no use on these days. Pay particular attention to field edges near woodlots, grassy areas, or where trash has been piled.	<b>Cloudy days:</b> $\geq 20\%$ of clusters with damage. A cluster is considered damaged when at least one flower in the cluster is damaged. <b>Warm sunny days:</b> $\geq 5$ beetles/bush	Cranberry weevils overwinter in trash and debris, in weedy unkempt fields or near field edges.
<b>Leafrollers:</b> <b>Red Banded</b> <b>Oblique Banded</b> <b>Gypsy Moth Larvae</b> <b>Spanworms</b>	Walk in a lazy S fashion randomly choosing plants to sample. Sample 100 flower and leaf clusters, examining 4 to 5 clusters/bush. Repeat in two to four locations, depending on field size.	1 larva/100 clusters. Combine all three insect pests (leafrollers, spanworms and Gypsy moth) to determine if threshold is reached.	During bloom, use <b>only</b> <u>Bacillus thuringiensis</u> products for control of these insects. Other insecticides will harm pollinators.
<b>Mummy Berry</b>	Scout field looking for “strikes”, drooping leaves with veinal	Presence	Mummy berry is usually most severe in

Disease/Pest	Sampling	Threshold	Notes
(403, 1583)	necrosis (browning of the veins).		low lying, moist areas.

## Bloom, continued

Disease/Pest	Sampling	Threshold	Notes
<b>Blueberry Scorch Virus</b> (1583)	Scout field looking for blossom blight. Look for brown flowers, which bleach to gray with time and often remain on plants through the summer.	Presence	Rogue plants and remove from field as soon as possible. There are symptomless varieties.
<b>Blossom Blight (Botrytis)</b> (1583)	Scout field looking for gray mold on blossoms. Appears as a blight of the expanded corolla. Brown lesions may appear on leaves touched by infected blossoms.	Presence	The fungus overwinters on dead twigs & in duff. Present every year but causes serious economic loss only when weather is cool and damp for several consecutive days. Most critical time is during bloom. Disease is most severe where excessive nitrogen is used, where air drainage is poor and where blossoms may have been damaged by frost.

## Postbloom Stage to Harvest

Disease/Pest	Sampling	Threshold	Notes
<b>Iron Chlorosis</b> (1583)	Look for yellowing of the leaves while leaf veins remain green. Symptoms normally appear first on young leaves near shoot tips. Shoot growth & leaf size is reduced. Symptoms may be more pronounced on one branch or section of the bush.	Presence	Symptoms indicate high pH, ie. $\geq 5.0$ which requires immediate attention. Test soil for pH and adjust with sulfur to bring pH in correct range.
<b>Cranberry Fruitworm</b> (344)	Use pheromone traps to detect the presence of this insect. Use two traps per block, one close to the field edge, the other in the interior of the field. Check traps weekly.	No threshold established	If treatment is required, apply control 5 to 7 days after peak pheromone catch. A second treatment may be required if pheromone trap catches are unusually high. Consult Extension Specialist for advice on second treatment.
<b>Cranberry Weevil (Blossom Weevil)</b>	Walk in a lazy S fashion randomly choosing 10 plants. Use beating tray for sampling adults on bright sunny days when cranberry weevils are active. On cloudy cold days, there is no activity. Pay particular attention to field edges near woodlots, grassy areas, or where trash has been piled.	$\geq 5$ beetles/bush	Cranberry weevils overwinter in trash and debris, in weedy unkempt fields or near field edges. An overwintering generation is active IN June; therefore sampling should continue into the post-pollination period.
<b>Blueberry Aphid</b>	From fruit set through the remainder of the season, scout tender terminals of 10 clusters from 10 bushes from the bottom, middle,	No threshold established.	Aphids vector viral disease, especially blueberry scorch virus. Thus tolerance is very low. Aphids

	and top of the bush for a total of 100 tender terminals. Do this in two to four locations depending on block size. A leaf is considered infested even if only one aphid is present.		have recently become abundant in some fields, perhaps as the result of destruction of natural enemies by Guthion and the poor coverage of low volume air applications.
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Postbloom to Harvest, continued

Disease/Pest	Sampling	Threshold	Notes
<b>Plum Curculio</b> (344)	Scout for the semi-circular scar on the fruit. Sampling should be biased towards field edges or in fields which border woods and hedge rows.	No threshold established, but this pest is more of a problem on early maturing varieties.	Plum curculio infestations are more common in weedy fields and those under sod culture. Weymouth, Earliblue, Bluetta & June are the varieties, which may be heavily attacked.
<b>Leafrollers: Red Banded Oblique Banded Fruit Tree</b>	Scout in the same manner as outlined above, except sample leaf and fruit terminals.	1 larva/100 clusters	
<b>Stem Blight</b> (1583)	Scout field looking for a single branch that dies off	Presence	Prune out diseased wood.
<b>Blueberry Stunt</b> (344)	Scout field looking for stunted plants with cupped leaves.	Presence	Rogue out entire plant. This disease is vectored by the sharp-nosed leafhopper.
<b>Sharp-nosed Leafhopper (SNLH)</b> (344)	Use two Pherocon AM yellow sticky boards/field, placed 2 to 3 feet above the ground. One yellow sticky trap should be on the field edge; the other in the interior of the field. Hang trap as a rectangle with the yellow on the outside.	No threshold established. Institute controls at peak trap catch.	Spray when population peaks. This insect vectors blueberry stunt phytoplasma.
<b>Blueberry Maggot</b> (344)	Use two Pherocon AM baited traps placed in a V fashion with the yellow color facing out. Place in middle of the top third of the crop canopy. Remove branches around the trap to avoid interference with branches sticking to the trap.	Use trap catch information for implementation of initial control treatment.	Make first pesticide application ten days after first trap catch. Repeat every ten days after that until last harvest.

Postharvest

Disease/Pest	Sampling	Threshold	Notes
<b>Sharp-nosed Leafhopper (SNLH)</b>	Use two Pherocon AM baited yellow sticky boards/field, placed 2 to 3 feet above the ground. One yellow sticky trap should be on the field edge; the other in the interior of the field. Hang trap	None established. Institute controls at peak trap catch.	This insect vectors blueberry stunt phytoplasma.

<b>Disease/Pest</b>	<b>Sampling</b>	<b>Threshold</b>	<b>Notes</b>
(344)	as a rectangle with the yellow on the outside.		
<b>Anthracnose</b>  (1583)	During harvest obtain a random sample of one pint of berries per field per picking from each field on the entire farm. Incubate each pint of berries for 7-10 days at room temperature. Grade the berries and determine the percentage of berries with anthracnose. This fungus causes the salmon or “rusty” colored rot of berries.	Presence	Use information to plan for next year. Pruning out old canes and small twiggy wood with hand shears reduces the severity of the disease. Failure to harvest ripe fruit promptly & heavy nitrogen fertilization may increase the amount of anthracnose. Differences exist in varietal susceptibility. Bluettas tend to be more susceptible; Elliots more resistant.
<b>Mummy Berry</b> (1583)	Monitor fruit during grading process for the presence of mummies.		Use as a means of identifying fields with the potential for mummy berry next year.
<b>Red Ring Spot Virus</b> (1583)	Scout fields looking on leaves and stems for red ring spot lesions.	Presence	Rogue out infected plants as soon as possible.

\*Bolded numbers in parenthesis refer to sources of additional information found in the Mid-Atlantic IPM database by this special reference number.

Scouting procedures, thresholds, and crop management recommendations have been compiled from a number of sources and may not be valid for all areas within the Mid-Atlantic Region. They are meant to be used as guidelines. As such, they should be validated on small acreages before relying on them. No guarantee of their validity, success, or failure to perform in the field is implied or expressed. Consult your local Cooperative Extension Agent for additional information or assistance.