



Michigan Blueberry IPM Newsletter

MICHIGAN STATE UNIVERSITY EXTENSION

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Grand Junction



Holland

Van Buren County

Jersey in Covert is finished with second harvest and some fields may still have a final clean up harvest; in Grand Junction, harvest of Bluearay is complete and Bluecrop is waiting on fourth and final harvest.

Ottawa County

The second harvest of Bluearay in Holland is complete, and Rubel in West Olive is within 3 to 7 days of second harvest; Bluecrop in West Olive is in the middle of third harvest.

BLUEBERRY NEWS YOU CAN USE...

Disease management: Since fruit rots generally increase with each harvest, now is an important time to continue scouting.

Insect management: Insect activity is declining as harvest nears completion. Growers and scouts should make notes of 'hot spots' of insect activity in order to focus control plans for next season.

Save the date! A town hall meeting will be held on September 24, 2009 from 9:00AM-12:00PM at the Trevor Nichols Research Complex in Fennville, MI to provide growers with information on the discovery of blueberry scorch and blueberry shock in Michigan.

GROWING DEGREE DAYS

From March 1

	2009		Last Year	
	Base 42	Base 50	Base 42	Base 50
Grand Junction, MI				
8/10	2771	1803	2809	1883
8/17	2994	1970	2981	1999
Projected for 8/24	3182	2102	3196	2158
West Olive, MI				
8/10	2518	1587	2582	1682
8/17	2733	1745	2750	1795
Projected for 8/24	2929	1885	2958	1946

See [MSU Enviroweather website](http://MSU_Enviroweather_website) for more information.

WEED MANAGEMENT

Eric Hanson, Department of Horticulture, Michigan State University

POST-HARVEST BLUEBERRY WEED MANAGEMENT

As harvest winds down, most growers are not looking for more chores. However, this is an important time to take stock in your weed management program. Take some time to walk your fields and note areas where your preemergent herbicide program was inadequate. Which annual weeds were not controlled? Was the level of control related to the soil type? Perhaps the rates need to be changed in those areas in the future. Are the weeds growing only between bushes? This may indicate your spray nozzles were not overlapping enough beneath the plants. If annuals such as marehail, smartweed or pigweeds are thriving where Princep, Karmex, Sinbar, or Velpar was used, your weeds may be resistant to this group of herbicides. Your notes from this season should help devise a better program next spring.

Late August and September can be an important period to make progress on hard to kill perennial weeds. Several perennials that are particular problems in blueberries are blackberry and dewberry (*Rubus* sp.), virginia creeper (*Parthenocissus quinquefolia*), poison ivy (*Rhus radicans*) goldenrods (*Solidago* sp.) Canada thistle (*Cirsium arvense*) milkweed (*Asclepias syriaca*), yellow nutsedge (*Cyperus esculentus*) field and hedge bindweed (*Convolvulus* sp.) greenbriar (*Smilax* sp.) sassafras (*Sassafras albidum*), and hemp dogbane (*Apocynum cannabinum*). These are hard or impossible to control with soil applied herbicides, but can be controlled in late summer to early fall with careful use of glyphosate. When perennial plants are treated late in the season, glyphosate moves down into the roots to kill the whole plant. Blueberries are most sensitive to glyphosate at this time, so take extreme care to keep spray off of leaves or green bark on young blueberry shoots.

Several glyphosate products are labeled for blueberries. Use 2–4% solutions for spot treating with a backpack sprayer, or 20–30% solutions for wiper applications. If weeds are growing up in blueberry bushes, they may need to be pulled down to safely treated without contacting the blueberries. Vines on the ground (Virginia creeper, dewberry) can be controlled fairly well by spraying accessible parts between blueberry bushes; absorbed glyphosate moves within the weeds to kill more than just the treated parts. If spot spraying, work during calm conditions using lower pressure to limit drift. Spot spraying is time consuming, but keep in mind these invasive perennials will only spread into bigger problems over time. This is a key reason to work hard to take some time after harvest to eliminate these week problems while they are manageable.



Fig 1. From L-R, blackberry (*Rubus* sp.), poison ivy (*Rhus radicans*) and goldenrod (*Solidago* sp.). Late August and September can be an important period to control these and other tough perennial weeds.

INSECT MANAGEMENT

Rufus Isaacs & Keith Mason, Department of Entomology, Michigan State University

As the season is winding down, insect populations appear to be doing the same. Aphids are less common and activity of aphid natural enemies such as syrphid fly larvae, lacewings, lady beetles and parasitic wasps have increased. Japanese beetle numbers are low at the farms we scouted. Blueberry maggot flies were captured last week but none were captured at the farms we scouted.

Aphids were found only at the West Olive farm. Parasitized aphids (mummies) are still common and were found on 5 to 25% of new shoots at all of the farms we sampled. Growers and scouts should continue to monitor blueberry aphids and mummies to help assess the effectiveness of aphid management programs.

Tussock moth larvae were not observed at any of the farms.

No blueberry maggot flies have been caught at any of the sampled farms since last week, but growers and scouts should continue to monitor blueberry maggot flies throughout the harvest period (Fig. 2). Be sure to replace traps and ammonium baits as needed. If a field is going to be picked with a mechanical harvester, blueberry maggot traps should be moved out of the field. [For more on blueberry maggot, follow this link to a previous article in the Blueberry IPM Update.](#)

Low numbers of Japanese beetles were observed at all four farms we sampled. Low levels of beetle feeding damage can be seen on leaves and fruit in some fields where beetle were present. Growers and scouts should continue checking fields for Japanese beetles (JB) throughout the harvest period. [For more on Japanese beetle, click on this link to see an article from an earlier edition of the Blueberry IPM Update.](#)



Fig 2. Blueberry maggot fly caught on a trap on August 10. Note the distinctive 'W' shaped marking on the wing.

Insect Scouting Results

Farm	Date	CFW moths per trap	CBFW moths per trap	BBA % infested shoots	BBM adults per trap	JB per 20 bushes
Van Buren County						
Covert	8/10	--	--	0%	2	7
	8/17	--	--	0%	0	0
Grand Junction	8/10	--	--	5%	0	23
	8/17	--	--	0%	0	18
Ottawa County						
Holland	8/10	--	--	0%	2	18
	8/17	--	--	0%	0	16
West Olive	8/10	--	--	5%	1	31
	8/17	--	--	0%	0	0

CFW=cherry fruitworm; CBFW=cranberry fruitworm; BBA=blueberry aphid; BBM=blueberry maggot; JB=Japanese beetle

Avaunt® insecticide registered for use in blueberry

Rufus Isaacs, Department of Entomology, Michigan State University

DuPont's insecticide Avaunt has recently received a registration from the US-EPA for use in blueberry. This insecticide is a new reduced-risk chemical from the oxadiazine chemical class, providing growers with a new mode of action in their toolbox for pest control and resistance management. Avaunt is formulated as a 30WDG. The product is active on caterpillar pests, and is labeled for control of cranberry and cherry fruitworm, winter moth at

3.5–6 oz/acre, and spanworm at 6 oz/acre. The product has a 7 day PHI and a 12 h REI with a seasonal limit of 24 oz/acre. Adjuvants are not recommended for use with this insecticide. Although not listed on the label for blueberry, plum curculio is controlled in apple using this product, so blueberry growers targeting fruitworms in the spring may also gain some curculio control at the same time.



DISEASE MANAGEMENT

Annemiek Schilder & Tim Miles, Department of Plant Pathology, Michigan State University

This week most of the scouted plots have been fully harvested. Pre-harvest *Alternaria* fruit rot symptoms have decreased over the last few weeks, with the highest average being observed at our Covert site. However, infected anthracnose fruit rot clusters were found at slightly higher levels than previous weeks, with the highest incidence being observed at our Holland site averaging 1.4 infected anthracnose fruit rot clusters per bush.

Initial symptoms of anthracnose are a softening and shriveling of the fruit, followed by the appearance of small orange dots (spore masses) on the fruit surface (Figure 1). Fungal spores called conidia are produced in small blisters, which break through the fruit skin (Figure 2). Fruit rots generally increase with each harvest so to increase fruit quality now is an important to scout as they can occur in the field and post harvest.



Fig. 3

Fig 3 (left). Anthracnose fruit rot symptoms in the field, notice the orange sporulation (Holland, MI on 8–13).

Fig 4 (right). The skin of an infected blueberry reveals small open blisters in which the spores are produced.

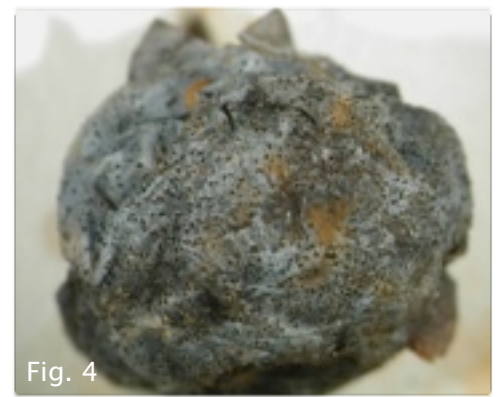


Fig. 4

Disease Scouting Results

Farm	Date	Avg number of infected anthracnose clusters per bush**	Avg number of infected Alternaria clusters per bush**
Van Buren County			
Covert	8/6	0.4	0.8
	8/13	0.7	0.1
Grand Junction	8/6	0.0	0.3
	8/13	0.2	0.0
Ottawa County			
Holland	8/6	0.9	0.0
	8/13	1.4	0.0
West Olive	8/6	0.0	0.2
	8/13	0.2	0.0

*Average based on scouting on and below 10 bushes.

**Average number based on 10 bushes.



Funding for this newsletter is provided by grants from the EPA and Project GREEN.

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