



Blueberry Newsletter

A newsletter from Michigan State University for the Michigan blueberry industry

September 8, 2010

Volume 4, Issue 18

News you can use

Timely information for growers.

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Newsletter survey

Please take a few minutes to complete our brief end of season survey. Your feedback is important to us!

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News you can use

Disease management. Keep an eye on blueberry foliage for rust and powdery mildew development. If blueberries are showing poor growth or abnormal leaf discoloration, have a disease diagnosis or tissue analysis done.

Last newsletter for 2010. The Michigan Blueberry Newsletter will resume next spring! Best regards, the MSU Blueberry Team

End of season survey

Please take a few minutes to fill out our brief end-of-season survey. Our team works hard to provide YOU with quality information in a timely manner. Your input will help us serve you better!

3 ways to submit your survey:

FAX: Fax completed surveys to 517-353-4995, Attention: Paul Jenkins

MAIL: Mail completed surveys to:

Paul Jenkins
Michigan State University
B18 Food Safety & Toxicology
Building
East Lansing, MI 48824

EMAIL: Email completed surveys to:
jenki132@msu.edu

2010 SURVEY

1. How would you rate the *quality* of information provided in the Michigan Blueberry Newsletter?

- a. Excellent
- b. Good
- c. Fair
- d. Poor

2. How would rate the *timeliness* of information provided in the Michigan Blueberry Newsletter?

- a. Excellent
- b. Good
- c. Fair
- d. Poor

3. During the growing season, what resources do you use to get timely information on blueberry pest management and production? (select all that apply)

- a. The Michigan Blueberry Newsletter
- b. MSU blueberry website (blueberries.msu.edu)
- c. MSU seasonal grower meetings
- d. Contact your local extension agent
- e. Other resources: _____

4. What information in the Michigan Blueberry Newsletter do you use to guide crop management decisions on your farm? (select all that apply)

- a. Insect scouting report update
- b. Disease scouting report update
- c. Weed management articles
- d. Frost management articles
- e. Growing degree days table
- f. Information on new pesticides

5. The Michigan Blueberry Newsletter underwent some format changes in 2010 as a result of feedback from growers like you. What would you like to see different in 2011?

- a. Keep it the same
- b. Make the following changes:

6. Additional comments:

Thank you for your input!

2010 blueberry season: A summary

The following is a summary of the major issues that affected blueberry production in 2010. We had a very hot summer with little precipitation in some areas but excessive amounts of rain in others. Many blueberry fields north of Allegan County had problems with summer drought that affected the quality of berries and plants, especially in late-season varieties. On the other hand, some fields in Allegan and Van Buren Counties had excessive precipitation, which affected timing of harvest for some fields that were too wet for equipment. Hot weather conditions combined with excessive rain also affected the fruit quality. There were multiple complaints related to soft and leaky berries and there were instances in which fruit harvested for fresh packing had to be diverted for processing. This resulted in heavy economical losses for growers and packers/shippers alike.

Blueberry yields were variable. Some fields produced the "normal" crop, while some growers indicated that they had problems with pollination and late frost issues, causing a substantial reduction in yields. In some cases, reports coming from growers indicate that there was a reduction on the crop volume of 20-30% in some varieties like Bluecrop and Jersey. Despite the weather conditions in 2010, Michigan's estimated crop is around 103 million pounds. This increase in production is in part due to new plantings that started producing in 2010. According to the latest Michigan Fruit Inventory report (2007), there are 1,000 acres more of blueberries than in 2000 - 19,300 versus 18,300.

Although we are at the end of the harvest season (a few fields are still in the process of harvesting for the last time), there are a few issues that we need to take care of in preparation for next year's season:

1. Disease management. At this moment, a disease that requires our

attention is Blueberry Leaf Rust. This disease has been appearing more frequently in blueberry fields at the end of harvest. It has been observed in Ottawa County with relative frequency. In 2009, we observed the problem in a few fields in Grand Haven and West Olive. However, a field inspection conducted this past week through some fields in the same area indicated a wider spread of the disease than in 2009. Leaf rust has appeared earlier than in 2009, causing problems for some growers that were in the process of finishing up their harvest. Left uncontrolled, leaf rust can defoliate the plant before entering dormancy. Early defoliation may affect next year's crop considerably. Therefore, it is very important that fields with symptoms of leaf rust be treated properly.

According to [Annemiek Schilder](#) (MSU Plant Pathology), both Indar (30-day PHI) and Orbit (30-day PHI) are labeled for rust control. Bravo also lists rust on the label; just remember the PHI is 42 days and sprays are not recommended after full bloom due to potential phytotoxicity. However, all of these fungicides can be sprayed after harvest provided that the maximum number of sprays per season is not exceeded. Sonata (*Bacillus pumilis*), a biofungicide is also labeled for blueberry rust control and has a 0-day PHI. Adding NuFilm as a spreader-sticker may improve the activity of Sonata. None of these products have been specifically tested for rust control in Michigan, however.

2. Another issue is the Produce Traceability Initiative. Retailers are pushing for a full implementation of the Produce Traceability Initiative as soon as possible. Under their current proposal, all packers and shippers of fresh produce were supposed to have implemented the trace back program proposed by the Produce Marketing Association. However, due to logistical problems, the full implementation has been delayed until 2012. The Produce Traceability Initiative was launched to build better transparency, a common framework, and nomenclature to

identify produce cases, and streamlined connectivity across the supply chain. The Produce Traceability Initiative recommends that all companies involved in marketing produce within the U.S. market adopt this common standardized approach to identify produce cases. This approach allows for streamlined marking and consistent identification for each case of produce, scanning and collection of case data by all buyers, receivers and handlers, and electronic storage of such information to allow for timely and efficient recovery in the event of tracebacks or recalls.

Case identification is based on GS1 standards for the effective management and control of supply chains. GS1 is a global standards organization with affiliates representing 145 countries worldwide in over 25 different industries. The Produce Traceability Initiative recommends that the produce industry universally adopt the use of the GS1 Global Trade Item Number (GTIN). At the heart of PTI is the GS1 numbering system. It is required that each "brand owner" obtain a unique GS1-issued company prefix, which allows for unique identification of products from that company. This company prefix will then become part of all GTINs assigned to cases of produce from that company, and immediately serve to identify the "brand owner" of that product throughout the supply chain.

It is important that our blueberry industry be prepared, since implementation of the Produce Traceability Initiative is just a matter of time. As with the GAP program at MSU Extension, we are preparing educational programs that may help growers to navigate through this new challenge.

Carlos Garcia-Salazar
Michigan State University Extension-
West Central

Overview of blueberry diseases during the 2010 growing season

The 2010 season was challenging for blueberry growers, including an early spring and wet fields preventing some growers from applying spring fungicide treatments. Rainy conditions also may have led to wash-off of fungicides in spring and early summer. A warm spring punctuated by spring freezes was followed by a warm and humid growing season, with droughty conditions in July and August. Overall, these presented challenging conditions for plant growth and disease control. Precipitation varied significantly by location so it was difficult to make blanket recommendations for the growing region. The harvest started and was completed significantly earlier than previous years and fruit quality suffered. Together, these factors made for a less than optimal growing season for blueberries.

Generally, there were higher numbers of mummy berry mummies overwintering from the 2009 season. Snow cover over the winter provided an ideal habitat with sufficient moisture for mummies to germinate in the spring in wet sites. However, in drier locations, germination rates were much lower. Germination rates in four scouted fields with a history of mummy berry disease ranged from 11-40%, the latter being a relatively high rate compared to previous years. In early April, 2010, mummies were found with small apothecia. The apothecia were about two weeks ahead in their development compared to 2009, due to the relatively warm soil temperatures and sufficient moisture. Overall, infection risk in early April was deemed fairly low because most apothecia were less than 1-2 mm in diameter and 2 mm is the minimum size for release of ascospores. However, in the second week of April 2010, significantly more mummies with apothecia were detected and apothecia were larger, increasing

infection risk. Blueberry shoot were also at a susceptible stage in their development. In last two weeks of April, drier weather led to drying out of mummy berry apothecia. The first shoot strikes were seen during the last week of April and increased until the last week in May. Late shoot strikes were visible for a while as “shepherd’s crooks”, even though they stopped producing infectious spores. Conditions during bloom were conducive to infection, however, rapid plant development and low bee numbers in some locations due to early bloom probably limited fruit infections. The first mummified berries were seen at the end of June and increased into July but started dropping off the bushes early. Overall, the number of shoot strikes was similar or somewhat higher than last year, whereas the number of mummified berries was lower than last year.

Blossom and twig blight symptoms showed up at the end of May and were mostly due to *Phomopsis* infection during wet conditions at bloom. However, levels stayed low to moderate and did not increase much, while twig blight lesions did increase in length over time. Some *Pseudomonas* (bacterial) twig blight was observed on ‘Elliott’ plants. *Pseudomonas* blight is favored by freezing temperatures and moisture during bloom, and looks similar to *Phomopsis* blight except that the color of the necrotic tissue is darker, sometimes almost black. *Phomopsis* canker became quite apparent in many blueberry fields later in the season during and after the harvest, due to stress on the canes. Those infections are often the result of damage to the canes such as bark being scraped off the canes by mechanical harvesting the previous year. Anthracnose canker, caused by *Colletotrichum acutatum* was observed on canes in some fields, mostly cv. Jersey. Anthracnose lesions are more sharply delineated than *Phomopsis* lesions and often but not always centered on leaf scars and have small blister-like fruiting structures in expanding rings around the center of the lesion. Due to warm,

humid conditions, anthracnose fruit rot incidence was high this year and affected fruit quality. *Botrytis* fruit rot was more common than *Alternaria* fruit rot as a post-harvest disease. *Botrytis* is characterized by fluffy white to tan-gray mycelium and tan to gray powdery spore masses. Some frost damage was also observed on fruit as well as leaves (blistering on lower leaf surface along veins). Furthermore, red spots on the upper leaf surface and edema (tiny water-soaked spots on lower leaf surface) were observed on leaves and were probably caused by spray injury or environmental conditions. Powdery mildew was common later in the season due to warm humid conditions. Leaf rust was also observed in multiple locations and can lead to premature defoliation if severe. Leaf rust is favored by warm weather and rain, particularly in early to mid summer.

Virus symptoms were present but not as obvious as in previous years, most likely due to the warm weather. However, where bushes were in decline, the symptoms were still visible and may have been enhanced by drought and heat stress. This year, we also observed *Phytophthora* root rot symptoms in various sites that may have had standing water or were over-irrigated. In addition, *Armillaria* root rot was diagnosed in a relatively young field that was planted in a location that was cleared of mixed forest containing oak trees. Symptoms include stunted growth, leaf discoloration, brown discoloration in roots and crown, white fungal mats under bark, mushroom smell, and black, root-like fungal strings on the crown.

Annemiek Schilder
 Department of Plant Pathology
 Michigan State University

Insect update: An overview of 2010

The 2010 growing season was short and fast. The unusually early and hot spring weather brought about early emergence of major pests such as cherry fruitworm, cranberry fruitworm and Japanese beetle at the four farms we scouted in Van Buren and Ottawa County. At these farms, the time that the major insect pests were active in fields was shortened by the rapid accumulation of growing degree days during periods of high temperatures. Many pest insects were present early, their abundance peaked early and then their populations rapidly declined. The shortened season along with timely insecticide sprays resulted in low levels of fruitworm and Japanese beetle damage in the fields we monitored. There was much lower aphid pressure this season than last year, and at the farms we scouted the aphids were kept in check by neonicotinoid insecticides such as Assail or Provado. Very few blueberry maggot flies were captured at our scouted fields and in general, sprays specifically targeting blueberry maggot were not required. Other fields in the area, especially those with low management intensity, have seen higher catches of blueberry maggot flies this year, with a long period of activity well into August.

Other moth pests such as leafrollers and tussock moth were present in very low numbers in the monitored fields. We suspect these pests were suppressed by sprays targeting fruitworms in June and July. Other sporadic pests such as the *Hoplia* flower feeding beetle during bloom, scale insects and gall wasps were not problematic this season in most of the fields we scouted. Some other fields experienced outbreaks of lecanium scale this summer resulting in some scale-targeted sprays. High levels of biocontrol have been observed from parasitic wasps already late this summer, and the same level of outbreaks are not expected next season due to this suppression.

Growers that need to treat for blueberry bud mite should prepare to make insecticide applications immediately post-harvest. For more information about the biology, sampling, and management of this pest see the [August 3rd Michigan Blueberry Newsletter](#). An additional note: the most effective insecticide for bud mite control, endosulfan (Thiodan), is being phased out by EPA over the next five years (see article in this newsletter). This phaseout period is designed to provide time to test and develop effective alternatives before 2015.

As a final reminder, growers and scouts should make notes of where pest insects and damage were present this season to help identify hot spots and help with management plans for next season.

We hope you found the information we presented in this season's Insect Updates helpful. We would appreciate any feedback on this season's Insect Updates. Please send comments to Paul Jenkins at jenki132@msu.edu.

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

Endosulfan phaseout announced by EPA

EPA is taking action to end the use of the pesticide endosulfan. A formal Memorandum of Agreement with manufacturers of the agricultural insecticide will result in cancellation and phase-out of endosulfan use in US blueberry by July 31, 2015. Endosulfan is an organochlorine insecticide that has been used on a wide range of fruits and vegetables in Michigan over the years, and is used for bud mite control in highbush blueberry. A phaseout plan has been developed to allow growers time to develop and test alternative pest management tactics for the pests that endosulfan currently controls. By the end of this year, new labels for endosulfan-containing products (Thiodan, Thionex, etc.), will contain details of the phaseout schedule.

If this phaseout plan raises concerns about the availability of products for control of bud mites that you have used endosulfan to control, we suggest you explore the available registered alternatives, and gain some experience with them on part of your farm in the coming years before the deadline. There are also some new miticides being developed for blueberry that we hope will provide similar control. We are also working with the IR-4 program to support registration of new miticides before the phaseout deadline.

Go [here](#) to read complete information about endosulfan and the phaseout posted on the EPA website.

*Rufus Isaacs & John Wise
Department of Entomology
Michigan State University*

2010-11 Grower Events

SEPTEMBER 28, 2010 **1-4PM**

Trevor Nichols Research Complex Field Day

Location: Trevor Nichols Research Complex, Fennville

Education program information: John Wise, 269-330-2403

Website: <http://www.maes.msu.edu/tncr/calendar.htm>

OCTOBER 12-15, 2010

NABC-USHBC Fall Meeting

Location: Amway Grand Plaza Hotel, Grand Rapids

OCTOBER 12-13, 2010

National Blueberry Exposition - runs concurrent with the NABC-USHBC fall meeting

Location: Amway Grand Plaza Hotel & DeVos Place Conv. Center

Contact expo@blueberries.com for more information.

DECEMBER 7-9, 2010

Great Lakes Fruit, Vegetable, and Farm Market Expo

Blueberry sessions: Wed, Dec. 8, morning and afternoon

Location: DeVos Place Convention Center, Grand Rapids

Education program information: Eric Hanson, 517-355-5191, x1386

Website: <http://www.glexpo.com/index.php>

FEBRUARY 2-3, 2011

Southwest Hort Days

Location: Lake Michigan College, Benton Harbor

Education program information: Mark Longstroth, 269-330-2790

Website: <http://www.canr.msu.edu/vanburen/swhort.htm>



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