



# Blueberry Newsletter

A newsletter from Michigan State University for the Michigan blueberry industry

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**Special Update on Mummy Berry**

MICHIGAN STATE UNIVERSITY | Extension



## Mummy berry nurseries facilitate scouting for apothecia

In 2010, we established mummy berry “nurseries” on seven blueberry farms in west Michigan. We pushed metal duct connectors about ¾ down into the soil to provide a barrier to keep mummies from being washed or blow away. However, a barrier can be made of any suitable material, provided that water can flow freely through the soil and the rim is not so high as to cause shading or modify environmental conditions within the nursery. It may not even be necessary to provide a barrier if the mummies are not at risk of being disturbed. The location should be marked with a flag or flagging tape.



Mummy berry nursery; Photo: M. Longstroth

Mummy berry mummies were collected after harvest when they were still pale purple to pink in color and easy to see on the ground. They were placed in the enclosure in a part of the field with convenient access and known mummy berry pressure. Mummies were lightly pushed into the soil to ensure good contact with the soil. In some cases we sprinkled a thin layer of soil on top of the mummies which proved to be less effective, as the mummies may get buried too deeply over the winter and early spring. In those cases, the mummies were struggling to produce apothecia, some of which had stalks more than an inch long to get to the soil surface. Two nurseries were established with a total of 100 mummies per farm. So far, the nurseries have proved to be very convenient as they preclude the need to search for mummies that are scattered on the ground under the bushes. Due to their dark color, small size and tendency to develop under leaf litter, they are often difficult to see.

## Risk of mummy berry shoot strike infection\*

Wetness duration	Average temperature during wetting period**				
	36°F	43°F	50°F	57°F	65°F
2 hr	-	-	-	-	-
4 hr	-	-	-	-	-
6 hr	-	Low	Low	High	High
8 hr	-	Mod	High	High	High
10 hr	Mod	High	High	High	High
15 hr	Mod	High	High	High	High
24 hr	High	High	High	High	High

\*For lowbush blueberries (courtesy of P. Hildebrand).

\*\*Frost increases infection risk.

Searching for them can take an excessive amount of time, especially in fields with low numbers of mummies.

Mummies germinate in the spring by producing small trumpet-shaped mushrooms (apothecia) that release airborne ascospores. Soil moisture usually determines how many mummies germinate and how many apothecia are produced, and temperature influences the rate of growth and size of the apothecia. Mummies usually germinate in groups (cohorts) over a 4- to 6-week period in the spring. The ascospores infect young shoots, resulting in “shoot strikes”. Due to sufficient snow cover which moderated moisture and temperature around the mummies during the winter

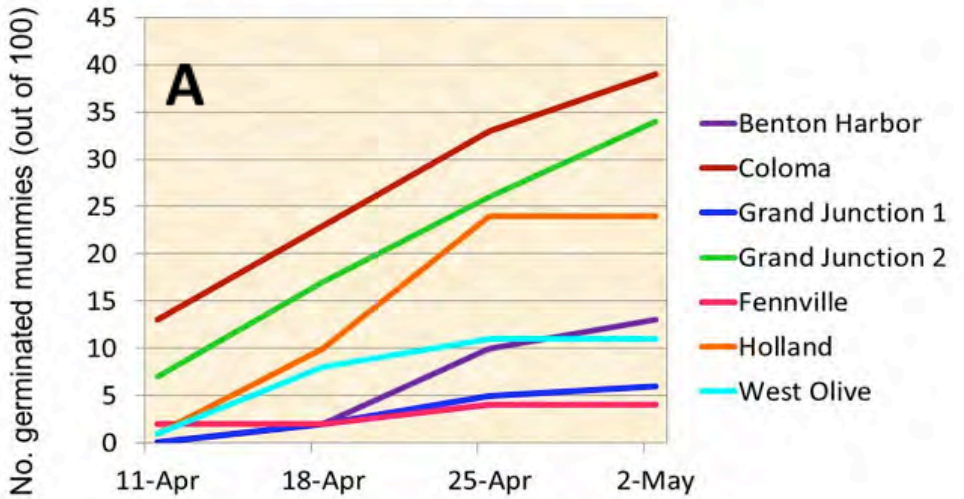
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and wet spring conditions, we are observing relatively high germination rates this year. This may also mean that the apothecia are going to be spent sooner this year. The nurseries will help us observe the peak as well as the end of apothecial development. Generally, apothecia collapse after they have released all or most of their ascospores, but they can also desiccate under warm and dry conditions such as happened in 2010. A hard freeze may injure apothecia but they tend to partially recover afterwards.

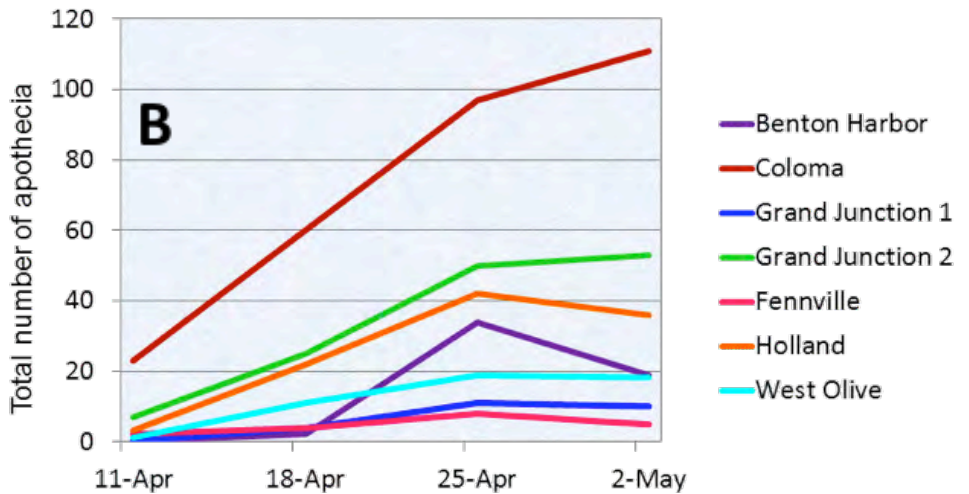
At this time, mummies are still germinating, but germination is slowing down in most locations, at least for the first cohort (Fig. 1A). Time will tell if more cohorts are going to be producing apothecia this year. The number of apothecia is either slowly increasing in some sites or decreasing as older apothecia have started to collapse or flooding is interfering with production or observation of apothecia (Fig. 1B.). Apothecium size is generally still increasing, except in Benton Harbor, where a few “monster” apothecia were produced which have now collapsed (Fig 1C). Remember, the bigger the size of the apothecial cup, the more spores are released, which can amount to more than 1 million per day per apothecium. Cool wet conditions will result in greater longevity of apothecia, some of which may persist for 2-3 weeks in the field. Since weather conditions continue to be cool and wet, systemic fungicides, such as Indar (fenbuconazole) and Orbit (propiconazole) will be most effective. Add Captan (captan) or Bravo to (chlorothalonil) simultaneously knock down the sporulating ability of other fungi, such as *Colletotrichum* and *Phomopsis*. Organic growers’ best bet is Serenade (*Bacillus subtilis* bacteria) + Nu-Film P (spreader-sticker) for control of mummy berry.

*Annemiek Schilder*  
 MSU Department of Plant Pathology

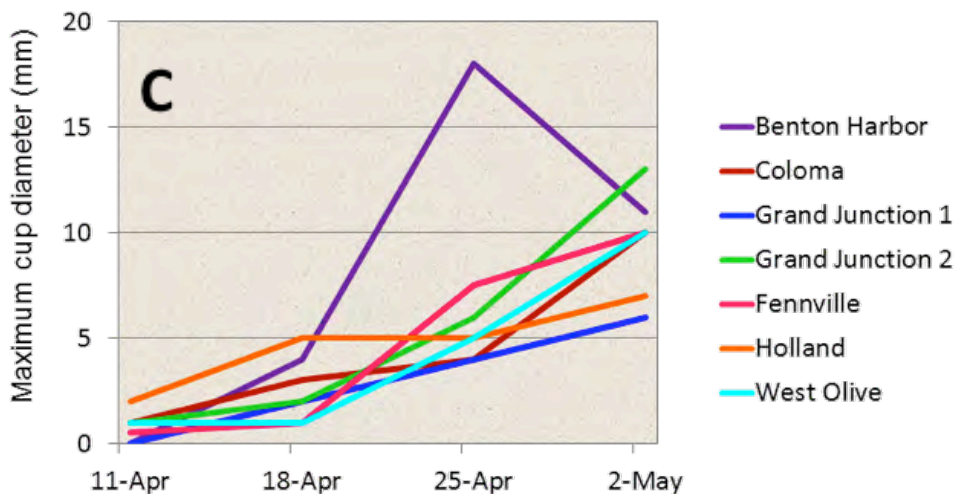
**Mummy berry germination rate, spring 2011**



**Total number of apothecia in nurseries, spring 2011**



**Maximum apothecium size, spring 2011**



## Mummy berry risk of shoot strike infection (for lowbush blueberry)

For summary of wetting periods, go to: <http://v1.enviroweather.msu.edu>, then to weather station of your choice. Then under "Fruit" go to "Multicrop Disease Summaries" and "Station Disease Report: Seasonal History of Wetting Events".

Wet Period	Station	Start of Wetting Period	End of Wetting Period	Duration (Hrs.)	Avg. Temp (F)	Rainfall (inches)	Mummy berry Shoot strike risk
1	West Olive	4/15 8-9PM	4/16 10-11PM	Wet: 27 Span: 27	41.6	0.33	High
2	West Olive	4/18 Noon-1PM	4/19 Midnight-1AM	Wet: 6 Span: 13	34.2	0.17	None
3	West Olive	4/19 Noon-1PM	4/21 8-9AM	Wet: 38 Span: 45	35.2	1.02	High
4	West Olive	4/22 2-3AM	4/24 9-10AM	Wet: 45 Span: 56	42.3	0.75	High
5	West Olive	4/26 Midnight-1AM	4/26 5-6PM	Wet: 16 Span: 18	52.8	0.95	High
6	West Olive	4/27 7-8AM	4/29 7-8AM	Wet: 38 Span: 49	43.2	1.08	High

Wet Period	Station	Start of Wetting Period	End of Wetting Period	Duration (Hrs.)	Avg. Temp (F)	Rainfall (inches)	Mummy berry Shoot strike risk
1	Grand Junction	4/8 1-2AM	4/9 10-11AM	Wet: 27 Span: 33	44.1	0.55	High- but too early?
2	Grand Junction	4/11 2-3AM	4/11 4-5AM	Wet: 2 Span: 2	67.3	0.06	None
3	Grand Junction	4/15 6-7PM	4/16 10-11PM	Wet: 28 Span: 28	46.4	0.47	High
4	Grand Junction	4/18 11AM-Noon	4/18 2-3PM	Wet: 3 Span: 3	36	0.18	None
5	Grand Junction	4/19 Noon-1PM	4/21 9-10AM	Wet: 36 Span: 45	37	1.04	None
6	Grand Junction	4/22 Midnight-1AM	4/23 11AM-Noon	Wet: 35 Span: 35	44.2	0.89	High
7	Grand Junction	4/25 8-9AM	4/29 8-9AM	Wet: 77 Span: 97	50	2.63	High

## 2011 Grower Events

**May 5**

**6-8PM**

**Location: Ottawa County, venue TBD**

\$10, includes dinner.

RSVP required. RSVP for the meal count by contacting Judy Hansen (616) 994-4548 ([hanson26@msu.edu](mailto:hanson26@msu.edu)).

More information: Carlos Garcia, 616-260-0671.

**June 9**

**6-8PM**

**True Blue Farms, Grand Junction**

\$10, includes dinner.

RSVP required. RSVP by calling or emailing Mark Longstroth ([longstr7@msu.edu](mailto:longstr7@msu.edu)) or the Van Buren County Extension office at (269) 657-8213 ([msue80@msu.edu](mailto:msue80@msu.edu)).

More information: Mark Longstroth, 269-330-2790

**June 16**

**6-8PM**

**Location: Ottawa County, venue TBD**

\$10, includes dinner.

RSVP required. RSVP for the meal count by contacting Judy Hansen (616) 994-4548 ([hanson26@msu.edu](mailto:hanson26@msu.edu)).

More information: Carlos Garcia, 616-260-0671.

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