FACT SHEET

National Clean Plant Network

Start clean, stay clean.

Blueberry red ringspot disease

What is blueberry red ringspot disease?

Blueberry red ringspot disease was first described in New Jersey affecting highbush blueberry in 1950. The disease is graft transmissible and is caused by a virus. The disease is widespread along the east coast from Georgia to Massachusetts. The disease is also a problem in Michigan, Arkansas and is less important in California and Oregon. The disease affects highbush, southern highbush and rabbiteye blueberry as well as cranberry.

Red ringspot symptoms on leaves of highbush blueberry. Note that spots coalesce into red blotches and can cover the entire leaf (Courtesy J.J. Polashock)

What are the symptoms of blueberry red ringspot disease?

The symptoms of blueberry red ringspot disease vary by cultivar. One year old and older green stems on affected plants can develop circular red ringspots. Leaves develop solid red spots that coalesce into red blotches later in the season. Although red spots on the leaves are typical, the spots on the leaves of some cultivars are yellowish. The spots do not go through the leaves of most blueberry cultivars and this was thought to be a key diagnostic feature. However, the spots can be seen on the underside of the leaves of some cultivars. Green fruit can have reddish or purplish rings that are not visible when the fruit are fully ripe. While the marketability of fruit from most cultivars is not affected by blueberry red ringspot disease, fruit of the southern highbush cv. Ozarkblue are misshapen.

Red ringspot symptoms on leaves. Note that the spots do not penetrate the leaves of some cultivars (Courtesy W.O. Cline)

Red ringspot symptoms on stem of highbush blueberry (Courtesy J.J. Polashock)

How serious is it?

Impact of the disease has been difficult to document and, in most cases, affected plants yield a normal crop. Yield decline of 25% was reported in a Michigan study of the cv. Blueray. Fruit of the southern highbush cv. Ozarkblue can be misshapen and unmarketable. Because the disease spreads in the field in most growing regions and the effects on new cultivars is unknown, it should be considered serious and steps should be taken to eliminate it from commercial fields.

Red ringspot symptoms on green fruit of highbush blueberry. Note that the rings are not visible when the fruit are fully ripe (Courtesy J.J. Polashock)

Where has it been found?

The disease is currently known to occur in highbush blueberry along the east coast from North Carolina to Massachusetts. The disease is also found in Michigan and Arkansas and is rarely seen along the west coast in California and Oregon. The disease is prevalent in southern highbush and rabbiteye blueberry throughout the southeastern U.S. The disease has been reported in several other parts of the world.

Ringspot symptoms on cranberry fruit. These symptoms can remain visible when the fruit are fully ripe (Courtesy J.J. Polashock)

When was it found?

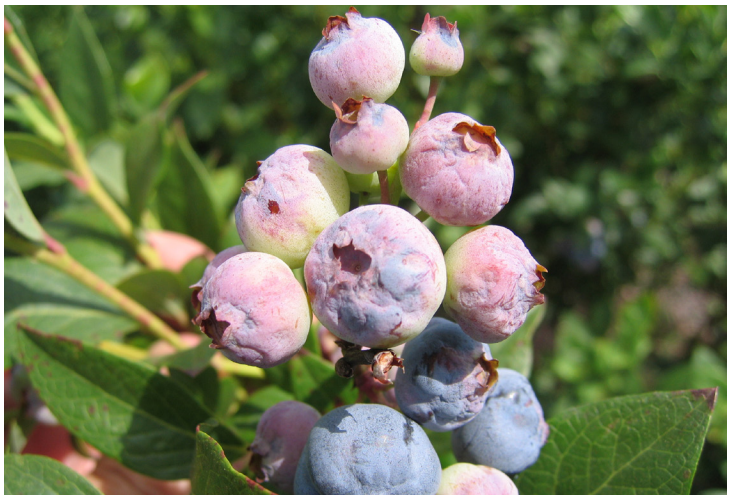
The disease was first described in New Jersey in the 1950. A virus was suggested as the causal agent in 1954.

How does it spread?

The mode of field spread is unknown, but it is likely transmitted by an insect vector. Anecdotal reports suggest mealybugs may be the vectors. Transmission studies with aphids have not been successful. An important route of dispersal into new plantings is through the unintended propagation of blueberry red ringspot virus infected nursery stock. The cuttings used for propagation can be asymptomatic, underscoring the importance of virus testing and the purchase of clean planting stock.

How is it treated?

Given that the vector of this virus is unknown, spread of the disease cannot be accomplished by controlling the vector. Infected plants in the field cannot be cured and must be removed to prevent further spread. It is important to note that other diseases and conditions can cause similar symptoms as those associated with Blueberry red ringspot disease, so all plants suspected of having the disease should be tested before removal. The better approach is to start with clean material, tested free for the viruses associated with this and other diseases, and if possible, plant in areas that have not had previous history of the virus associated with the disease.



Red ringspot disease causes misshapen fruit in the southern highbush cultivar Ozarkblue (Courtesy W.O. Cline)

What virus is associated with the disease?

The virus, blueberry red ringspot virus (BRRSV), is associated with the disease symptoms. BRRSV is a DNA virus in the genus *Soymovirus* in the family *Caulimoviridae*.

How is it detected? How can I get my plants tested?

Red ringspot symptoms on leaves of the Vaccinium hybrid cultivar Little Giant. Note that the spots on this cultivar are yellowish (Courtesy J.J. Polashock)

There are polymerase chain reaction (PCR)-based tests available for the virus associated with blueberry red ringspot disease. Although an enzyme-linked immunosorbent assay (ELISA) has been reported for this virus, it is not available. Several of the companies that offer testing for plant viruses can test for the virus associated with the disease using the PCR detection method.

Red ringspot symptoms on leaves of the southern highbush cultivar Clara. Note that the spots on this cultivar are yellowish with a distinct border (Courtesy J.J. Polashock)

For the latest information see: http://www.ncpnberries.org

References:

Martin, R.R., Polashock, J.J. and Tzanetakis, I.E. 2012. New and emerging viruses of blueberry and cranberry. Viruses, 4(11), pp.2831-2852.

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