



Lowbush Blueberry Fact Sheet

Witches' Broom of Lowbush Blueberry

Introduction

Witches' broom is a relatively minor disease of lowbush blueberry in Nova Scotia. The rust fungus *Pucciniastrum goeppertianum* (Kuhn) Kleb. causes the disease. The most recent survey of 12 fields in Nova Scotia indicated 2.2 percent of the plants were infected. This low level probably results in negligible yield losses. Balsam fir serves as an alternate host for the fungus in Nova Scotia (Fig. 1).

Symptoms

Diseased blueberry plants have broomlike masses of swollen, spongy shoots with few or no leaves (fig. 2). The brooms usually begin to develop during the year following infection and then persist for many years, producing new infected growth each spring. Young shoots on the brooms are yellow-red at first, but later they become dark tan coloured and shiny. Eventually the epidermis becomes dull, dry and cracked. Infected plants usually do not produce fruit. On balsam fir, the disease causes yellowing and premature shedding of current season needles.



Fig. 1 - Needle rust on balsam caused by *Pucciniastrum goeppertianum*.
(Canadian Forestry Service photograph)



Fig. 2 - Blueberry plant infected with witches' broom.





Life Cycle

Rust spores (teliospores) produced on swollen infected blueberry shoots, germinate on these shoots to produce another spore type (basidiospores) from mid May - late June. These spores are carried by wind to balsam fir trees where current season growth becomes infected. The peak discharge of basidiospores on blueberry occurs for a 3 week period in late May - mid June. Following infection of fir, a new spore type (aeciospores) are formed on the needles and these are then wind blown to blueberry where they germinate on leaves and stems. This occurs during mid - late summer. The fungus eventually becomes systemic and perennial in the blueberry, stimulating the production of excessive lateral buds that develop into the characteristic broomlike masses of swollen shoots. It takes about one year after infection for symptoms to become obvious. Finally, teliospores are formed on the swollen shoots and over winter there. Since the brooms are perennial and produce new growth they may continue to serve as sources of the fungus for many years.

Infected blueberry plants have been reported in areas remote from fir, suggesting that spores (basidiospores) produced on blueberry may be able to infect blueberry as well as fir. This has not been confirmed, however.

Control Strategy

Since witches' broom is systemic in blueberry crowns and rhizomes, burning or flail mowing does not eliminate the disease. Removal of the alternate host (balsam fir) within 400-500 yards of blueberry fields would probably be effective. However, this may not be practical in most areas of the province due to the abundance of balsam fir. Infected blueberry plants should be grubbed out or killed with a herbicide.

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