



Maine Forest Service Pest Alert *Sirococcus* Shoot Blight of Red Pine

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Infection of red pines and several other species of hard pines by *Sirococcus* shoot blight has become increasingly common throughout Maine and other New England states over the past decade. Red pine is highly susceptible. Other non-native species including Scots pine, Mugo pine, Austrian pine, and others are also susceptible. Jack pine is also susceptible, but apparently more resistant to damage than other species.



Fig. 1. Red pine plantation heavily damaged by *Sirococcus* shoot blight, central Maine.

The disease is caused by the fungus *Sirococcus conigenus*, which infects current-year needles soon after they emerge from the buds during the spring and early summer. The fungus then has the ability to grow from the needles into the current-season shoots, and can kill the shoot tips.

Branches die as terminal buds and shoots can no longer support new growth. As the infections progress over a period of several years, usually from the lower branches to the upper branches, tree mortality can **eventually occur**.

Symptoms of infection include the browning of recently infected needles and later, the curling of infected shoot tips. Pycnidia which produce spores of the fungus appear as small, black dots on the needles (often under the needle sheath at the base of needle fascicles) and on shoots of infected trees.

Infection potential is largely driven by favorable weather conditions of cool, wet springs and summers; conditions which have been common in most of the Northeast for the past decade. The favorable weather conditions and the concentration of suitable host material (as plantations) can result in a rapid build-up of the pathogen and of infection potential.

Losses to reduction in growth and tree mortality can occur after several disease-favorable years, and spread within an infected plantation can develop rapidly.



Fig. 2. Bud and branch mortality in red pine from *Sirococcus conigenus* infection, Northfield, Maine.

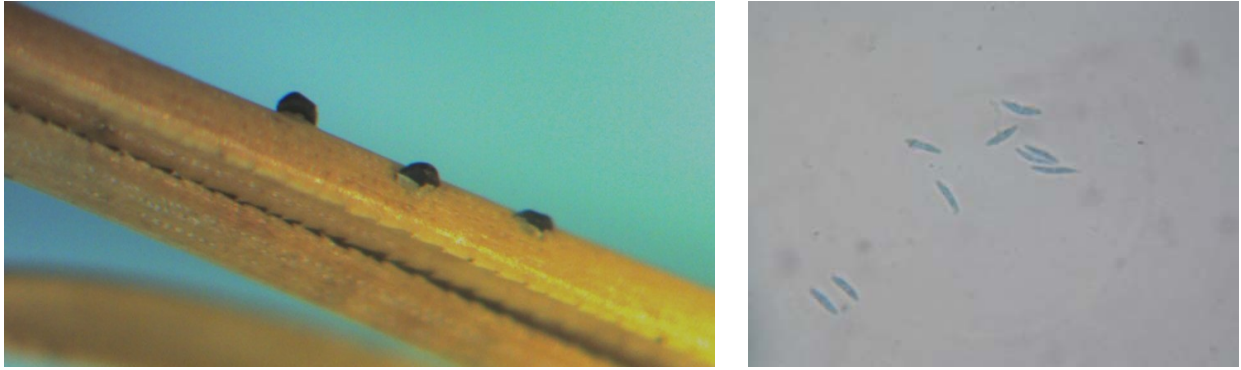


Fig.3. Pycnidia on red pine needle (left), and spores (right) of *Sirococcus conigenus*.

Sirococcus shoot blight has the potential to become a significantly damaging disease to red pine plantations. Many red pine plantations were established in Maine and northern New England in the wake of harvesting spruce and fir stands damaged by the spruce budworm during the 1970's and 1980's. These plantations are now showing a high susceptibility to injury and mortality from *Sirococcus* shoot blight. The disease problem also occurs and has been reported to be very damaging in the neighboring province of New Brunswick, Canada.

For ornamentals, hand pruning infected tips and applications of protectant fungicides are options for management. In forest stands and plantations, management of the disease will be considerably more challenging. Frequent and regular monitoring of stands will be critical. Early detection will allow flexibility in devising a management strategy. Thinning stands to maximize air circulation and surface-drying of needles can help to reduce infections. Thinning is suggested, even in stands with trees that would not ordinarily be considered large enough for a thinning treatment. Heavily infected trees and dead trees will lose quality rapidly, and will need to be salvaged quickly to recover whatever value they have.