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EC63-1838 Needle Cast and Tip Blight of Pines

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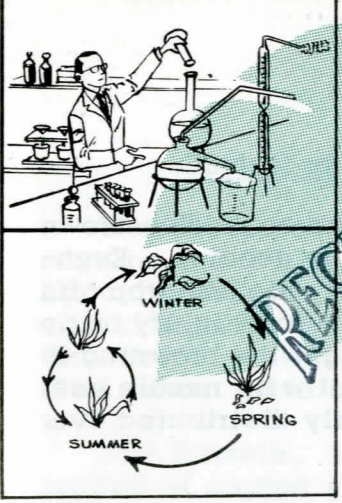

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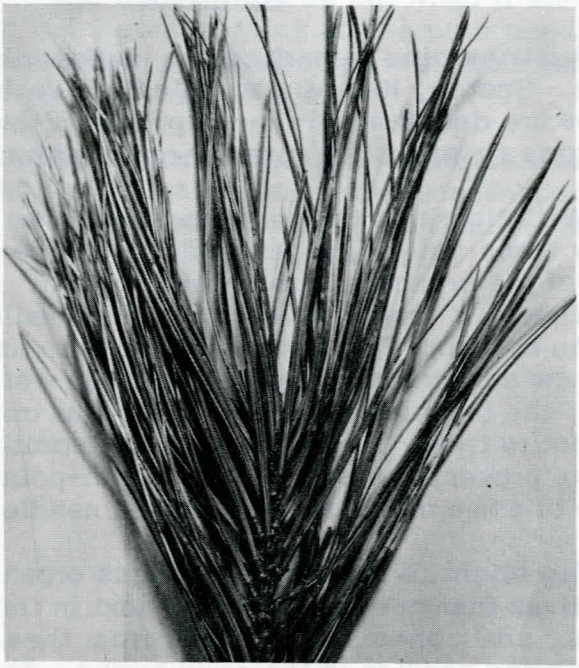
PLANT DISEASES

EC 63-1838

JOHN L. WEIHING
Extension Plant Pathologist

NEEDLE CAST and TIP BLIGHT of PINES

In the last several years many pine groves in eastern Nebraska have been showing severe damage from two diseases, tip blight and needle cast. Following is a discussion of these two diseases and their control.



Needle cast. Note the small cankers on the needles.

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Needle Cast

The needle cast disease first appears as reddish-brown spots or elongated brown areas on the needles. Eventually the entire needle will turn brown, die and drop off. This browning is often confused with winter injury or tip blight of Austrian pine. With tip blight the browning is confined to the tips of branches, but with needle cast the affected needles may be randomly distributed over the tree.

The disease organism (several fungus organisms) overwinter in the infected needles. The next spring they produce spores which are spread to uninfected needles. The spores germinate and produce infection.

Tip Blight

Austrian pine is particularly susceptible to this disease. Scotch, Red Mugho, Western Yellow, and White pines are decreasingly susceptible in the order named. Douglas fir and Blue spruce are occasionally attacked.

With tip blight the new growth becomes stunted, gradually turns yellow, wilts and dies. The needles at the tips of the branches turn entirely brown. As the disease continues, it progressively kills the needles further back on the branch. The lower branches are usually the first to show a browning of the needles. In wet springs, however, the browned needles may appear on branches over the entire tree. The disease can be positively identified by the presence of small, black, pin-point bodies at the base of some of the recently killed needles.

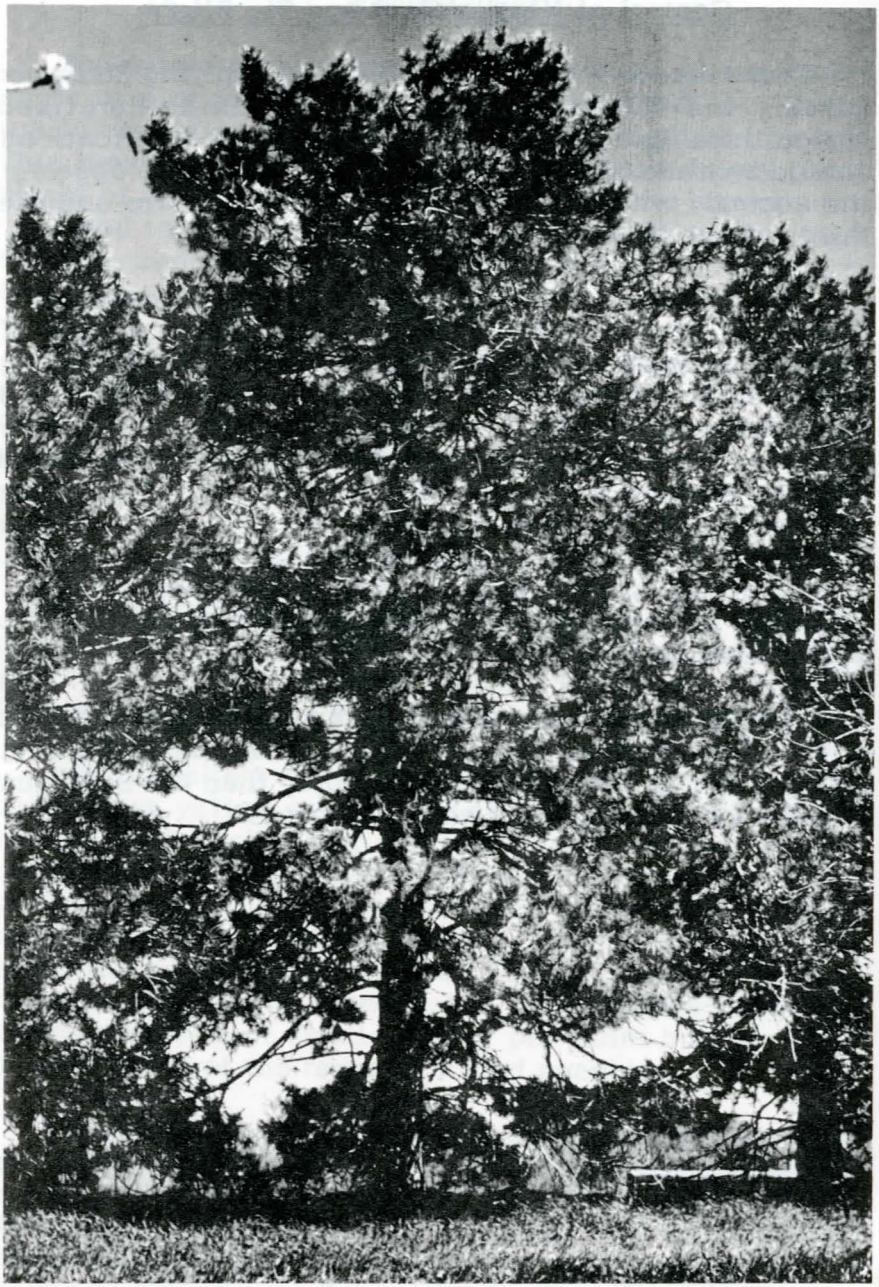
Tip blight is caused by a fungus organism. The fungus lives from one season to the next in infected needles, twigs, and cones. It spreads from these to the newly developing needles in the early spring. The fungus grows down through the needles and into the twigs, where it destroys tissues as far as the first node.

Control of Needle Cast and Tip Blight

These diseases can be controlled by applying Bordeaux mixture 4-4-50 or a phenylmercury such as Puratized Agricultural Spray or PMAS. At least three applications should be made; the first, as soon as new growth appears; the second, when the new growth is half grown; and the third, about 10 to 14 days later.

The formula, 4-4-50, refers to the proportions 4 pounds of copper sulfate (blue vitrol) and 4 pounds of spray lime added to 50 gallons of water. In preparing the mixture, thoroughly dissolve the copper sulfate and spray lime separately in several gallons of water. After they are dissolved, pour them into the spray apparatus and add enough water to make 50 gallons. The spray mixture should be used the same day it is made, since the copper sulfate and lime will settle out when it stands. It is difficult to get water to stick to the pine needles. This may be overcome by adding some wetting agent to the mixture before spraying.

The Puratized Agricultural Spray or PMAS is used at a rate of one pint per 100 gallons of water (one teaspoonful per gallon). It is much easier to apply than the Bordeaux mixture. A wetting agent should be added.



Tips of branches killed by "tip blight."