Littleleaf Disease

By JIM HYLAND, Forest Health Chief, Alabama Forestry Commission

Littleleaf disease is the most serious disease of shortleaf pine in the southern United States. Affected trees have reduced growth rates and usually die within six years.

Early work on littleleaf disease was done in northwest Alabama by Dr. York of the Alabama Forestry Commission. His early work centered on the fact that shortleaf pine will sprout and the trees showing littleleaf symptoms had sprouted from being killed back by fire.

The disease is caused by a complex of factors including the fungus *Phytophthora cinnamomi* Rands, low soil nitrogen, and poor internal soil drainage. Often, microscopic roundworms called nematodes and species of the fungus genus Pythium are associated with the disease.

In the most recent general survey, littleleaf disease was found over 35 percent of the commercial range of shortleaf pine and was severe enough to be a factor in timber management on about 1.4 million forested acres.

Shortleaf pine is the most seriously damaged host, with loblolly pine damaged to a lesser extent. Littleleaf disease has also been reported on Virginia, pitch, slash, and longleaf pines.

Symptoms

The first symptoms of littleleaf disease are those of nutrient deficiency: a slight yellowing and shortening of the needles and reduction of shoot growth. In the later stages of the disease, the symptoms become progressively more distinctive. The crown of an infected tree appears thin and tufted: needles are discolored and shorter than normal, and the tree loses all but the new needles near the tips of the branches. Branches begin dying, starting in the lower crown and progressing upward through the crown. During this time, the tree's diameter growth is markedly reduced.

About three years before death, diseased trees commonly produce abundant crops of small cones. Most of the seeds

SCOTT ENEBAK

in these cones are sterile. Trees killed by littleleaf can often be recognized by these undersized cones, which remain attached to the branches.

Where the disease is present, preventive or control measures should be taken. A set of management recommendations has been developed for use where littleleaf has been or is expected to be a problem.

High-value trees or stands (urban areas, seed orchards, etc.)—Fertilize on a four-year cycle. One ton of 5-10-5 fertilizer plus one-half ton of ammonium sulfate per acre can be used for high-value trees or ornamentals. Occasionally, fertilization is used to boost a forest stand into the next higher value class; for example, from pulpwood to pole. Fertilization will delay the development of symptoms for about four years. Trees appear to recover since the needles produced during this period will be very close to normal in color and size.

Average forest stands, 10-25 percent of trees symptomatic—Remove symptomatic trees during normal thinning operations. Beware that these stands will be highly susceptible to Southern pine beetle.

More than 25 percent of the trees symptomatic—Cut all shortleaf pines and regenerate the area in a more resistant species such as loblolly pine or hardwoods. Site preparation can include subsoiling to break up any brick-like compacted layer of clay (hardpan) present in the soil. This technique permits better drainage on the site, thus reducing the spread of the fungus.

Reference

Forest Insect and Disease Leaflet 20, "Littleleaf Disease," Paul Mistretta, 1984.

CHANGE OF ADDRESS FORM

Are you receiving *Alabama's TREASURED Forests* at the correct address? If not, please complete this form and return to:
Alabama's TREASURED Forests Magazine, P.O. Box 302550, Montgomery, AL 36130-2550

New Address

Name:_____

Address:_____

City:_____ State:_____ Zip:_____

Old Address as it appears on mailing label

Name:_____

Address:_____

City:_____ State:_____ Zip:_____

o **Please check here if receiving duplicate copies and enclose both mailing labels.**

E-mail changes of address to: tfmag@forestry.state.al.us