

Littleleaf Disease on Loblolly Pine: A Selected Bibliography

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Littleleaf disease is a site and pest complex. This disease complex destroys the ephemeral, absorbing root fans of large pines on heavy clay soils. The primary causal agent is the root rot fungi *Phytophthora cinnamomi*, although other soil pathogens play a role. Littleleaf is a disease of mature / overmature pines on eroded, compacted, and poorly drained sites with little or no effective A horizon containing organic matter.

Symptoms are often mis-identified as a nutritional problem. Symptoms include needle yellowing, less than full needle elongation, and shorter shoot growth. Over time the root damage leads to crown decline (sparse, tip-concentrated needles on short shoots) which limits diameter growth. Expected survival once symptoms arise can range up to 15 years.

This disease is typically associated with shortleaf pine (*Pinus echinata*). The literature does have a number of citations where loblolly pine (*Pinus taeda*) declines under this disease complex. Under stressful soil conditions, loblolly pine has been cited as succumbing to "spot die-out" where a causal pathogen can not be isolated but the symptoms are similar to littleleaf disease. Because of loblolly pine's importance as a commercial timber species and its role as a landscape shade tree, this literature review was prepared to help the resource manager and plant health care specialist.

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