Rhizoctonia Blight in Planted Longleaf Pine

RB072315

Importance: Interest in longleaf pine ecosystem restoration and planting of native warm season forbs and grasses has increased in recent years. Some native warm season grass mixes contained Large Flower Partridge Pea (*Chamaecrista fasciculate*). Large Flower Partridge Pea is a native legume that grows across Longleaf Pines natural range. Large Flower Partridge Pea can grow to over seven feet tall and become very dense with several thousand stems per acre. The Lark selection, which is native to Arkansas, is particularly aggressive in it competition with other vegetation. Large Flower Partridge Pea can outcompete desired longleaf pine seedlings by overtopping and shading them. Large Flower Partridge Pea's characteristics also create a microclimate favorable for growth of the undesirable Rhizoctonia blight. The combination of these two conditions will result in very high mortality of longleaf pine seedlings. The Conservation Reserve Program (CRP) allowed the planting of the Large Flower Partridge Pea until recently. Large Flower Partridge Pea is especially problematic when planted at two plus pounds per acre. Rhizoctonia blight was discovered on ten acres of a longleaf pine CRP field in Coffee County, Alabama in the spring of 2015.

Pictures of Longleaf pine seedling infected with Rhizoctonia Blight

Identification: Rhizoctonia blight is caused by *Rhizoctonia Thanatephorus or Ceratobasidium*. The fungus is usually associated as a nursery pathogen causing blight and mortality in nursery stock. Longleaf pine is especially susceptible because of close proximity between the soil and needles. Longleaf pine seedlings are infected through the terminal bud or base of the needle at or below ground level. Rain can splash soil up onto the needles or terminal bud of the longleaf pine seedling, allowing for infection to occur. Sandy soils will intensify the situation. Another name for the fungus is Longleaf

Seedling Blight. The term 'Damping Off' is also used to refer to longleaf pine seedlings afflicted by the fungus. The disease can affect seedlings in the grass stage to seedlings with a candle height of up to three feet. The field symptoms appear as a progression of mortality. An infected seedling's needles will be wilted, and not stand erect. Also, an infected seedling's needles will feel soft to the touch, while a healthy seedling's needles will feel course. The terminal bud will show signs of dieback. Vertically bisecting an infected seedling will reveal a distinct line of necrosis. Damage can appear similar to that of pine tip moth. The bisect could possibly reveal that the pith has been hollowed out from insect damage. The progression of mortality occurs as follows: the seedling's needles will wilt, then the terminal bud will die back, and finally the seedling will die.

Prevention: To prevent Rhizoctonia blight in established longleaf pines, it is important to control competition so the seedlings can proceed out of the grass stage quickly. Do not plant Large Flower Partridge Pea, as there are other native legumes available that are more conducive to use in a Native Warm Season Grasses mix. Plant longleaf pine on applicable sites. Rhizoctonia blight does not tolerate acidic soils well. A soil pH below 6.0 will minimize activity of the fungus. Fertilizers with high nitrogen content will favor Rhizoctonia development.

Control: Once Rhizoctonia is established and substantial mortality is occurring, it will need to be controlled. Seedlings already infected with the fungus are likely to die. Control is accomplished by removing/controlling the competition. The competition will likely need to be controlled for several seasons or until the seedlings are over three feet tall. Mowing between the rows, during the months of April through July, will reduce competition and eliminate the conditions favorable to the fungus. There are also a variety of herbicides that can be used to reduce competition, some target legumes in particular. If mortality is severe enough, replanting/inter-planting may be required to bring the number of seedlings back to a sufficient level. Complete replanting by mid-February at the latest. Continue to monitor the stand until all signs of Rhizoctonia blight are gone.

Photo Credit Georgia Forestry Commission.

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