

Loblolly Pine Growth Response to Tillage on Upland Sites. (S07-kelting171219-Oral)

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Abstract:

Tillage is employed as part of site preparation to improve the soil physical environment for early root growth. When tillage is employed in the absence of good weed control or fertilization it is impossible to ascribe the growth response to tillage to any single growth limiting factor. A study was implemented to understand the tree growth response to tillage (disking, subsoiling, and combination plow) on 15 sites with good weed control and fertilization as the base treatment. Stand uniformity and survival both increased with tillage. The growth response to tillage was small, with four-year height responses of 12, 18, and 30 cm for disking, subsoiling, and the combination plow, respectively. Maximum responses observed for individual studies were 40, 50, and 45 cm at age four for disking, subsoiling, and the combination plow, respectively. The growth response peaked between ages 2 and 4, indicating a short lived response consistent with the small amount of soil volume impacted. Characteristics of the most responsive soils were shallow surfaces with poorly-structured subsoils. Regardless of texture or surface thickness, tillage is not recommended for soils with good structure.

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