Impact of Crop Tree Release on Wood Properties of Pitch x Loblolly Pine Hybrids

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Wood density and growth was determined for loblolly pine (*Pinus taeda*), pitch pine (*P. rigida*), and F2 pitch x loblolly pine hybrids which underwent crop tree release by crown touching in 1987. The study site was located in Patrick county in the Piedmont of Virginia. Released trees were compared to trees which remained at the original planting density, 6.6 x 6.6 foot spacing. Pitch x loblolly pine hybrids were compared to pitch pine and loblolly pine to determine species differences. Released trees were free to grow on all sides.

Species effects were significant among pitch, loblolly, and pitch x loblolly pine from 1987 to 2003. Diameter and height growth in the hybrids was similar to that in loblolly pine, which were significantly higher than pitch pine. Density of mature wood of hybrids and loblolly pine were greater than pitch pine; 557, 534 and 498 kg/m^3 respectively for the three species. Crown touching release significantly increased growth in the pitch x loblolly and loblolly pine. Released hybrids did not differ in mature wood density from loblolly pine, but remained higher than pitch pine. No significant species x release interaction existed.

Within the pitch x loblolly pine hybrids, a few significant family differences were detected. Families 54 x 15A, 57 x 15A, and 78 x 22 were significantly denser than 51 x 23 or KOR P x L, but did not differ from any other families. Family 59 x 7-56 was denser than 51 x 23, but again did not differ from any other family. Among all hybrid families, most individual wood density, and ultimately mechanical properties related to wood density, fell within specified limits for southern pine sawtimber.