EIGHT YEAR RESULTS OF SLASH AND LOBLOLLY PINE PROVENANCE TESTS IN CHINA

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ABSTRACT.--Seeds of loblolly and slash pine were obtained from natural range of the species in the US (loblolly pine, 10 states; slash pine, 6 states). Provenance tests were carried out in 7 locations (latitude range from 21.9-31.8 N) in China in 1981. There was significant variation among different seed sources of loblolly pine in 8-year height, diameter and volume growth. Significant positive correlations were found between growth and mean annual temperature, mean minimum temperature of January, rainfall of June-September, and frost free season; a significant negative correlation was found between growth and latitude. The interaction of seed sources by locations were highly significant for height and volume growth. The best seed sources in southern and central subtropical regions of China were from the coastal regions of Florida, South Carolina, and Louisiana (Livingston). For the northern subtropical region of China, the piedmont or inland seed sources were better than the coastal seed sources due to greater cold tolerance.

The growth pattern of slash pine showed random variation. The correlation of growth with climatic factors of seed sources was not significant. There was also no significant seed source x location interaction. Superior seed sources of slash pine were from Florida, South Carolina and Georgia.

Species comparisons of land races of slash, loblolly and local Masson pine were also included in the tests. In southern subtropical regions of China, Masson pine and loblolly pine showed better performance in high elevations (300-500 m), but slash pine was better at low hill and coastal regions. Loblolly pine and slash pine grew faster than Masson pine in low hill and mountains of central subtropical regions. Loblolly pine was the best in low elevations of northern subtropical regions when compared with local Masson pine and slash pine.

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