RESEARCH WITH IMPACT

http://magnolialandandtimber.blogspot.com/p/arketing-your-timber.html

Fertilizer application combined with the control of competing woody vegetation with herbicide resulted in larger and more valuable loblolly pine trees, compared with the untreated control trees.

Improving the Value of Loblolly Pine Forests through Fertilization

THE CHALLENGE:

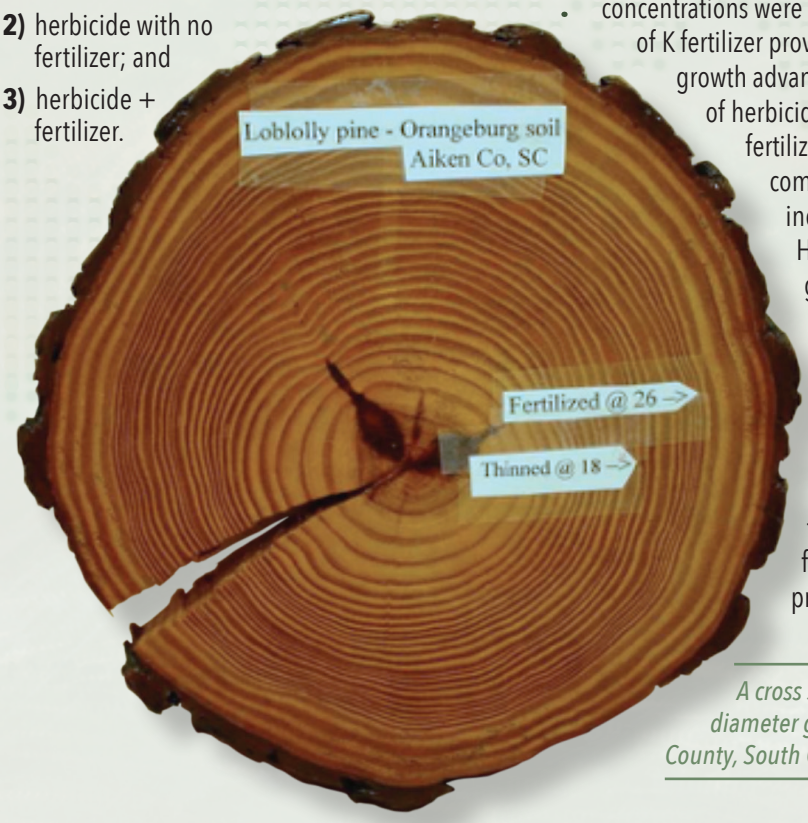
Loblolly pine is the most commercially important of the pine trees grown in the southern U.S. Unmanaged forests can take up to 50 years to mature, while managed stands can mature in as little as 20 years. Loblolly pine is very responsive to cultural treatments such as fertilization, thinning, and eliminating woody vegetation, yet little is known about how much extra wood and economic value can be gained from fertilization late in a rotation after thinning.

THE RESEARCH SOLUTION:

IPNI cooperated with the University of Georgia to determine the growth and economic value from fertilization and herbicide on thinned loblolly pine stands.

These studies compared the growth of unfertilized trees over a 6 to 8-year growth period to trees receiving treatments of:

1) a single dose of fertilizer;
2) herbicide with no fertilizer; and
3) herbicide + fertilizer.



A cross section of loblolly showing the greatly expanded tree rings and tree diameter growth following fertilization occurring 26 years after planting. (Aiken County, South Carolina, U.S.A.

THE RESULTS:

On study areas with low soil fertility, the growth of loblolly pine was greatly improved with the single per acre dose of 200 lb N + 50 lb P. When foliar K concentrations were low, the addition of K fertilizer provided an additional growth advantage. The application of herbicide alone (without fertilizer) to control woody competition did not increase tree growth. However, the greatest growth benefit from fertilization occurred when it was accompanied by herbicide application to control unwanted woody vegetation. The trees receiving both fertilizer and herbicide produced an additional 1 to 1.5 tons of wood/acre/year, compared to the untreated control plots.

The fertilizer treatments improved the wood class distribution to favor the more valuable sawtimber (tree diameter > 12.5 inches for lumber), compared to the chip-n-saw (8.6 to 12.5-inch diameter for chips and small lumber) and pulpwood-sized trees (4.6 to 8.5-inch diameter for paper and fiberboard).

Using current prices for fertilizer, herbicide, and wood prices, the forest fertilization improved profitability by US$250 to $700/acre over the 8-year study period. The return on fertilizer investment ranged from 4 to 20% over all the sites, with a 8 to 15% economic return most common.

With these successful results from pine fertilization, forest landowners will be encouraged to improve the growth and value of their loblolly pine stands for profitable tree production.

IPNI International Plant Nutrition Institute

Our Research with Impact series highlights examples of solution-driven research sponsored by IPNI.

FIND THIS PROJECT AT
HTTP://RESEARCH.IPNI.NET/PAGE/RNAP-7177