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PINE TREES GET HUNGRY, TOO

A detailed, site-specific nutrient management plan is a critical first step for the establishment, growth and marketing of pine trees. Recent research documents that improved practices can shorten the harvest cycle and increase profit potential from higher value tree growth. Improved genetics, balanced nutrition, weed control, and plant spacing are a few of the key management practices.

Site preparation of the land promotes improved seedling survival, early ground cover, and rapid growth of seedlings. Liming is believed beneficial as a source of calcium and magnesium, for neutralizing high iron and aluminum concentrations, and for overall improvement of root growth. Soil tests identify areas in need of lime and nutrients essential for tree growth. Benefits from pre-plant fertilization with nutrients such as nitrogen, phosphorus, potassium, sulfur, boron, copper, and/or manganese will be enhanced by reducing weed competition with seedlings. Band placement of a starter fertilizer promotes tree seedling growth and minimizes access to these nutrients by weeds.

Seedling selection decisions include species (loblolly, slash, long-leaf, etc.), rust resistance, adaptation to specific soils and regions, container vs. bare-root, etc. Plant a population to achieve the desired final stand. Spacing should allow passage of equipment for future tree fertilization and management.

A "balanced nutrition" program is as essential for intensively managed pine trees as it is for a field of corn or cotton. As trees grow older, nutrients are tied up or stored in the tree bio-mass. This draws down soil nutrient reserves. These nutrients must be replaced through fertilization to avoid a decline in tree growth rate.

Phosphorus stimulates root growth. Some nitrogen helps phosphorus to do its job. They work best when applied in a band, to the side or below, and out of contact with bare roots. Some sites might benefit from soil treatment with potassium, magnesium, calcium, sulfur, copper and/or boron to improve early growth.

Fertilization of trees at row closing. This will likely occur three to five years after planting for intensively managed sites. The selection of fertilizer nutrients will be site-specific and should consider not only the functions, or tree benefits, from nitrogen and phosphorus, but also those of potassium, calcium, magnesium, sulfur, copper, manganese, and boron.

Fertilization of trees at mid-rotation or after thinning. This will likely occur eight to 10 years after planting. Fertilization guidelines are similar to those at row closing. Millions of acres of Conservation Reserve Program trees have now reached this stage and are in need of fertilization. Research is limited on this practice. However, studies have been initiated by University of Georgia scientists to evaluate pine tree response to fertilization with nitrogen, phosphorus, and potassium plus magnesium, sulfur and boron. Fertilizer recommendations at this stage of growth should take into account soil test results plus consider the concentration of nutrients in the bio-mass, the potential for future bio-mass production, and the site's soil and climatic conditions that influence nutrient availability and use by pine trees.

Fertilization for optimum profitability is as vital for pine trees as it is for any other crop.
Mid-rotation harvest of pulp wood and the removal of straw creates cash flow opportunities. At the same time large amounts of nutrients are transported from the forest, a science-based fertilization program is designed to return these nutrients and promote vigorous growth for quality saw logs.

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