

## KENTUCKY'S NURSERY SITUATION<sup>1</sup>

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**Abstract.**--The Kentucky Division of Forestry operates three tree nurseries producing approximately 12.5 million seedlings. Production is 60% hardwoods and shrubs and 40% pine. Production could be increased to 18 million and species added to meet demand.

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Kentucky's interest in reforestation dates from 1914 when the General Assembly authorized the establishment of two small nurseries, one in Frankfort and the other at the old State Fairgrounds in Louisville. At present the Division of Forestry operates three nurseries. The Pennyryle Forest Nursery was established in 1946, the John P. Rhody Nursery in 1956, and the Morgan County Nursery in 1960. These nurseries are currently producing approximately 12.5 million seedlings annually. Some 20 different species are raised for distribution, with five - black alder, black locust, bicolor lespedeza, autumn olive, and virginia pine - being grown primarily for reclamation purposes, though other species such as loblolly, shortleaf, and white pine are also used to some extent. During the past planting season over 1.5 million seedlings were used in reclamation work.

At present 60% of our production is in hardwoods and shrubs, and 40% in pine. Our production could be expanded to 18-20 million seedlings if the demand increases and the current 60% hardwood-40% pine mix was maintained.

We recently added a cold storage unit at our John P. Rhody Nursery. Depending on species this unit will hold between 3 and 4 million seedlings. It will allow us to lift in good weather and stockpile seedlings for packaging at a later date, thus we can make more efficient use of our time. With this unit we expect that we can extend the planting season up to two months.

The Division of Forestry is cooperating with the U. S. Forest Service Northeastern Forest Experiment Station at Berea on a study to evaluate 14 different woody species for reclamation purposes. The study has several purposes. One is to determine if present nursery practices have a detrimental effect on the growth of beneficial symbionts on seedling roots. There is some evidence to indicate that modern fumigation practices result in seedlings lacking in sufficient quantities of these beneficial symbionts to do well on some of the mined sites. To carry out this portion of the study, we will be raising half the seedlings under normal fumigated conditions at the John P. Rhody Nursery and the rest at the Pennyryle Nursery in an area that has not been fumigated for three years.

The 14 species being raised include species that were raised by some nurseries in the past but are now not generally available for reclamation studies. They include such species as hazel alder, indigo bush, silky dogwood, shining sumac, smooth sumac, and siberian pea shrub.

If the test plantings of these species prove successful, we could make them available for reclamation plantings if a sufficient demand develops.

Our Tree Improvement Program is currently working with three species that are used for reclamation, European black alder, virginia pine, and black locust. At this point in time we are concerned with the establishment of reliable seed sources adapted to the harsh environment of reclaimed lands, and showing suitable rates of growth. We have two virginia pine seedling seed orchards located in Eastern and Western Kentucky. Each orchard encompasses 14 acres. The seed source for the orchards were open-pollinated seed from a first generation progeny test of a clonal orchard established by the University of Tennessee. The seedlings were established during the spring

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of 1977. We expect seed production to begin within three years, full scale seed production within seven years. In 1979 we established 4 acres of European black alder seed production areas in two sites in Western Kentucky. The original European seed source has been observed through repeated regeneration in the United States. The seed source shows a rapid growth rate during the early years of establishment. We expect some seed production within two years, with full scale production in five years. The Tree Improvement Program is a cooperator in a black locust variation study with two outplantings of 5 acres each. The study is regional in scope and is coordinated by the University of Tennessee. We also plan to establish a seedling seed orchard for black locust to supplement the nursery program's seed needs. Seed sources will be from across the State of Kentucky. Selection criteria will emphasize disease and insect resistance while also stressing straight single stems, good crown form, and self pruning ability.

In summary, I would like to say that our working relations with Commissioner Grim and others in this field are excellent, and we stand ready and willing to do whatever we can to produce the species and quantity that are needed to get the reclamation job done in Kentucky.