CONTAINERIZED SEEDLING PRODUCTION

FLORIDA DIVISION OF FORESTRY
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INTRODUCTION

The Florida Division of Forestry produces containerized pine seedling at its Herren Nursery facility in Lake Placid. In 1982, 28,600 seedlings were produced as a means to augment nursery receipts lost with the decline in Eucalyptus planting. Since then, almost 3.7 million trees have been grown with 1987-88 production reaching 850,000.

Longleaf pine has received the majority of the attention in this program because outplanted containerized seedlings usually survive better than bareroot seedlings. The increased survival rate of containerized seedlings also allows for summer plantings during Florida's summer rainy season. In addition to longleaf, north and south Florida slash, Virginia and sand pine have been grown at Herren Nursery.

Though initially grown on contract or for speculative sales, the containerized pines are now almost exclusively planted on State forests and other publicly held properties. Containerized pines for public sales can be obtained through commercial nurseries in Florida.

PRODUCTION

Sowing of seed for containerized seedling production is done twice a year; in the spring for winter outplanting and in the fall for summer outplanting. Production requires between seven and nine months.

The types and size of the cavities used in production vary from small styroblock, to larger hard plastic trays and Ray Leech tubes. Because of the root penetrating nature of longleaf seedlings and the damage they do to styroblock containers, hard plastic trays are the preferred containers.

Each container is filled using a soil flat filling machine which also mixes the soil. The soil consists of 48% local peat, 45% poly beads, and 7% vermiculite.

Because of the nature of longleaf seed, its persistent wing, generally low germination and impurities, the seeding of cavities is done by hand. As yet, an effective automated sowing system has not been found. The sowing rate is based on the germination rate and a formula for sowing cavities derived from probability tables.

The containers, after sowing, are moved to a shade cloth area for several weeks during germination and transplanting. Even with our sowing formula, transplanting is still required. Cavities with more than one seedling are thinned to one tray with the surplus being transplanted to empty cavities. Transplant timing is critical as being too early or late can result in mortality.

Following transplanting the trays are rearranged and moved out into direct sun light. The seedling trays are placed on a cable suspension system off the ground to allow for air pruning. Rather than arranging the trays side by side, they are set up in a checker—board pattern to permit adequate air circulation and keep the foliage dry to reduce pest problems.

Irrigation is done almost daily using a permanent sprinkler system with water pumped from a nearby lake. The water source creates both ph and weed problems. The former is controlled with applications of sulphur. Weed control is achieved with weekly or biweekly application of herbicides. Fertilization during the season is accomplished with a liquid form of 20-20-20 and micronutrients sprayed periodically. During the season, particularly after crown closure, the seedlings are spayed with both Benlate and Bravo. These products are used to help control Cylindrocladium which is historically a problem at Herren Nursery.

At the end of the growing season the trees are ready for harvest and shipment. Extraction of the seedlings from the styroblocks is done mechanically with a homemade extractor. This extractor slams the trays forcing the seedlings out of the blocks. As mentioned before, because of root penetration the seedlings extracted are occasionally separated from the soil mass and thus become culls. The hard plastic trays on the other hand, are easy to extract because their hard smooth surface does not permit root penetration.

Following extraction, the roots of all of the seedlings are dipped in a clay/Benlate solution. The mixture treats 7 — 8,000 trees and includes 35 gallons of water, 2 1/8 pounds of Benlate, and 25 pounds of Kaolin clay. This treatment is done to control brown spot needle blight after the trees have been outplanted.

After dipping the trees they are packaged in wax coated cardboard boxes with each box containing about 200 trees. Shipment of the trees is accomplished using refrigerated trailers.

SUMMARY

Containerized seedling production at Herren Nursery concentrates on longleaf pine. Longleaf is a difficult species to grow in containers because of the nature of its seed and ability to penetrate styroblocks with its roots. Improvements in seed quality, development of automated sowing and the use of hard plastic containers could enhance production and reduce costs.