HARDWOOD WEED CONTROL

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Annually, the Georgia Forestry Commission produces approximately 3 million hardwood seedlings composed of the following species: dogwood, redbud, yellow poplar, sweetgum, white oak, swamp chestnut oak, black walnut, baldcypress, catalpa, and sycamore. Weed control is one of the major problems in producing these seedlings.

LAND FUMIGATION

Fumigation is necessary in the production of hardwoods. Fumigation has a twofold purpose -- to control weeds and grasses, and to control soil-borne diseases that attack young seedlings. We have recently purchased a machine to apply the fumigants. The gas is injected at least 6 inches deep into the soil and covered with a 1-mil thick polyethylene tarp. The gas utilized is 68 percent methyl bromide in 125-pound cylinders. We have found that using approximately 550 to 660 pounds per acre controls most grasses and weeds, with the exception of coffee weeds and tall morning glory (Ipomoea purpurea). Fumigation gives approximately 85 percent control on the weeds and grasses that are a problem in our nurseries. They are as follow: yellow nutsedge, Cyperus esculentus; purple nutsedge, Cyperus rotundus; Bermuda grass, Cynodon dactylon; crowfoot grass, Daxtyloctenium aegyptium; large crabgrass, Digitari snaguinalis; and goosegrass, Eleusine indica. Of the weeds that the fumigant does not control, approximately 15 percent are removed by cultivation, hand-weeding, and the use of chemicals on our irrigation pipe lines.

We have, for the past 4 years, grown certain hardwoods in 36-inch rows so they can be cultivated by the row crop method. These species consist of dogwood, redbud, white oak, chestnut oak, swamp chestnut, black walnut, sweetgum, baldcypress, and catalpa. The procedure used for the row crop method is as follows; after the soil has been turned, harrowed, and fumigated, a Ferguson tilrovator is used to make the planting beds for the seed. On the rear of the tilrovator *is* two bed-shaper attachments. As the machine passes through the field it leaves two beds 18 inches wide with an alley behind each tractor wheel and an alley between the small beds. Following the tilrovator, a pair of Plant *Jr.* planters, mounted 36 inches apart on a Ford cultivator, plant the seed in the center of the 18-inch-wide beds. The planter wheels leave a furrow approximately 2 inches deep, which is refilled to the top of the beds with sawdust.

After the seed germinate and the small seedlings appear, any three point hitch cultivator with sufficient feet and plow sweeps can be used to cultivate the seedlings and eliminate almost all weed and grass problems. Approximately three or four hand-weedings are required in one growing season. In comparison, yellow poplar and sycamore are still being grown in 4-foot beds and requires one hand-weeding every 2 to 3 weeks, or approximately 10 to 12 during one growing season.

The reason for the continued use of the 4-foot beds on the yellow poplar and sycamore is that the seedlings tend to get too large for easy handling, and also create a problem for the transplanting operation. No herbicides or chemicals have been found to control grass and weeds on these two species, so all weeding is accomplished by hand.

The amount of seedlings that can be grown on 4-foot beds as compared to 36-inch rows varies. In comparing sycamore on 4-foot beds versus dogwood in 36-inch rows, we find that a nursery acre of sycamore (4-foot beds) produces approximately 400,000 seedlings and that an acre of dogwood in 36-inch rows produces approximately 275,000 seedlings. We feel that it is simpler to grow hardwoods in 36-inch rows and be able to control the weeds by cultivation than plant on beds and have weeding done by hand, even though smaller amounts of seedlings are produced per acre.

Ansar 529 is used on all irrigation pipe lines for weed and grass control. This product is applied at the rate of 4 quarts in 100 gallons of water per acre. Ansar 529 *is* a product of the Ansel. Chemical Company. Ingredients are as follows: monsodium acid, methanearsonate 34.8 percent, and inert ingredients 65.2 percent.