

Weekly Herbicide Applications Prove Beneficial in Forest Nurseries

Blake, J.I and D.B. South. 1987. Weekly herbicide applications prove beneficial in forest nurseries. Ala. Agr. Exp. Sta. Highlights Agr. Res. 34(2):12.

Over the last 15 years, advances in weed control in Southern forest nurseries have resulted largely from federal labeling of new herbicides tested by the Auburn University Southern Forest Nursery Management Cooperative. The most effective chemicals tested (the diphenylether group) all have similar chemical properties. Currently, the most commonly used is oxyfluorfen, sold by the trade name Goal® 2 EC. Recent research conducted at the Alabama Agricultural Experiment Station has demonstrated that dramatic improvements in weed control can be obtained from Goal® by changing the frequency of application.

Preemergence treatments with herbicides provide a large fraction of the total season weed control. However, regular postemergence applications are needed because the chemical barrier breaks down under conditions of heavy irrigation and rainfall. In addition, some weed species are highly tolerant to preemergence applications. Although most of the compounds in the diphenylether family do not translocate well within the plant, good contact activity on otherwise difficult to control weeds can be obtained with postemergence applications.

Currently some of the most difficult weeds to control in Southern forest nurseries are yellow and purple nutsedge and spurges. In general, pine seedlings are not tolerant to most herbicides which are used to control these weeds in agronomic crops. Because of the high value of pine seedling crops in the South (\$18,000 to \$25,000 per acre), nearly weed free conditions are required to obtain maximum economic yield. Therefore, there has been a need to continue expensive hand weeding operations.

In 1985 and 1986, in response to observations and experiences reported by several nursery managers in the south, nursery research at Auburn began comparing weekly vs. monthly herbicide applications. In all cases, Goal was applied postemergence, either three times on a monthly basis at a rate of 0.5 lb. active ingredient per acre (a.i.) per application or 12 times on a weekly basis using only 0.125 lb. a.i. per acre per application.

At five of seven locations, weekly applications significantly improved weed control when compared with monthly ones. Data from these experimental comparisons show that the impact of weekly applications depended heavily upon the presence of specific weed species. Yellow nutsedge, see figure, spurges, and goosegrass were the most strongly affected by weekly treatments. Weed fresh weights and weed numbers of yellow nutsedge and spurge at several nursery locations 30 days after the final application in August are shown in the table.

Operational comparison made by nursery managers in 1986 also indicated that weekly applications substantially reduced their need for supplementary hand weeding. Changing the application frequency can reduce weed control costs and therefore lower pine seedling costs in the South. Some of the most responsive species are among the most troublesome weeds remaining in nurseries. In the past, adequate control of these species could not be obtained without hand weeding, but managers have indicated that control with weekly applications is sufficient in many cases to eliminate the need for expensive hand weeding.