

**GIBBERELLIN SYNTHESIS INHIBITOR AFFECTS ANNUAL XYLEM PRODUCTION AND VESSEL ELEMENT ANATOMY IN SOME TREES**

W.R. Chaney\*, D.M. Mickey and H.A. Holt

Department of Forestry and Natural Resources, 715 W. State Street, Purdue University, West Lafayette, IN 47907

Red oak (*Quercus rubra* L.), white oak (*Quercus alba* L.), sweetgum (*Liquidambar styraciflua* L.), and yellow poplar (*Liriodendron tulipifera* L.) were treated with paclobutrazol using the soil drench method at a dose rate of 2 grams a.i. per diameter inch. Five growing seasons after treatment, cross-sections of the trunk of trees were removed. Total tree height, diameter growth of the trunk, the width of annual rings of xylem, and the size and number of vessels in the earlywood were compared in paclobutrazol treated and untreated trees. Tree height was reduced in all four species, whereas diameter growth at 137 cm above ground-line (DBH) and annual ring width for five growing seasons were reduced by 36 and 33 percent, respectively, only in white oak and sweetgum trees treated with paclobutrazol. The cross-sectional area of individual vessel elements also was reduced by paclobutrazol treatment only in white oak and sweetgum. The number of vessels per unit area of xylem tissue was not affected by treatment.