EFFECTS OF PACLOBUTRAZOL ON GROWTH PERFORMANCE OF THREE SOUTHERN TREE SPECIES

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ABSTRACT

Loblolly pine (Pinus taeda), sweetgum (Liquidambar styraciflua), and cherrybark oak (Quercus falcata var. pagodafolia L.) in Louisiana were monitored for growth performance under the influence of paclobutrazol (PBZ) over a period of 8 years. The initial treatment of PBZ, formulated as Profile 2SC®, was applied in a water suspension by soil drench to sweetgum and loblolly pine at a dosage of 4.8 grams of active ingredient (g a.i.) per tree, and 9.6 g a.i. to cherrybark oak when all the trees were 6-year old and no additional treatment was applied thereafter. The 8-year experiment shows the long-term effect of PBZ varied with species. PBZ reduced diameter growth by 21% in loblolly pine, 45% in cherrybark oak, and 76% in sweetgum. PBZ reduced height growth by 13% in loblolly pine, 34% in cherrybark oak, and 74% in sweetgum. The effect of PBZ on cambium growth and xylem anatomy was moderate on the pine but very profound on the other two species.