

**SPLIT-SEASON HERBICIDE TREATMENTS FOR FULL SEASON HERBACEOUS WEED CONTROL.**

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## ABSTRACT

Soil moisture is commonly abundant in spring. Weeds around newly planted loblolly pine seedlings are usually sparse. In summer, soil moisture is low and herbaceous weeds around seedlings are often abundant. Treatments for herbaceous weeds can be timed to coincide weed free conditions and seedling performance. When is the most effective time of application for maximum seedling performance? Information from this study will assist managers in determining the best time to apply herbicides for maximum seedling performance.

Tests were established in Mississippi and Texas. The TX site was located in Angelina County near Huntington, TX. The clay loam soil had a pH=5.2 and organic matter > 1.5%. The mixed pine-hardwoods occupying the sites were clearcut in October 1999. The aerial treatment of Arsenal+Garlon (16oz+2qt) was applied in July 2000 and followed with a burn and subsoiling, both in October. Bare-root seedlings were planted on an 8- X 10-ft spacing on January 4, 2000. In MS, the soil was a silt loam with pH=5.0. The natural stand of mixed hardwoods and pine were clearcut in May 2000 before shearing and windrowing in September. The site was planted with bare-root seedlings in January 2001.

In TX, forbs dominated the site. Commonly present were dogfennel and purple cudweed with lesser amounts of late boneset, yankeeweed, American burnweed, Hypericum spp., Virginia buttonweed, yellow thistle, and Polyprenum procumbens. Winter ryegrass, panicgrasses, sedges, rushes and broomsedge were lightly distributed across plots. In MS, near equal proportions of forbs (goldenrod, prickly sida, horseweed, late boneset, common ragweed, dog fennel, wild garlic, wooly croton, beggar lice (Desmodium sp)) and grasses (Andropogon spp, broadleaf signalgrss, panic grasses and foxtail) occupied the site.

In TX, test herbicides were applied early on March 10, 2001 and late on May 11, 2001. Similarly, MS treatments were applied on March 6 (Early) and June 1 (Late). Early treatments were applied with a center-weighted AI11004VS nozzle and late treatments were applied with twin 11002VS nozzles. Herbicides were applied in a 5-foot band centered over the top of planted pine seedlings. Treatment plots contained 16-seedlings. Measurement plots consisted of the middle 12 seedlings. Measurement plots were visually evaluated at 30-day intervals for efficacy. Seedlings were measured for resultant total height and ground line diameter at study onset and in November after one growing season.

In MS, and TX, herbicide treatments effectively provided none, early, late, and full-season weed-free growing conditions. Early use rates of Oust XP (3oz), Oustar (13oz, 19oz) and Arsenal+Oust XP (4+2oz) provided excellent weed-free growing conditions through July (120 DAT) at which time weeds slowly invaded plots. Early treatments followed by late treatments of Oust XP+Escort+Eagre (2+0.5+12oz), Oust XP (20z), Eagre (12oz) provided excellent full-season growing conditions through August with early treatments receiving Eagre maintaining excellent weed-free conditions through October.

At mid-growing season in TX, treatment differences in growth were minor. Competitor ground cover was a significant predictor of seedling height, ground line diameter and volume index. By the end of the growing season, data patterns suggested similar growth would result from early and full-season, as well as none and late season weed-free conditions.

At the end of the growing season, time of application significantly impacted seedling performance. In TX, total height for check=late<early=full=total; for ground line diameter and volume index, check < late < early =full=total.

In conclusion, test treatments effectively established none, early, late and full-season weed-free conditions. A single early treatment provided excellent control through August. Two treatments provided full-season control that lasted through September. Full season control that contained Oust XP+Escort+Eagre as the second application provided excellent weed-free conditions through October.