

MALEIC HYDRAZIDE FAILS TO CONTROL FERTILIZED BERMUDAGRASS

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A recent study near Oxford, Miss., used large quantities of commercial fertilizers in an attempt to improve survival and stimulate height growth of loblolly pine (Pinus taeda) seedlings planted on adverse sites. Since excessive weed competition was probable, a growth inhibitor, maleic hydrazide (1, 2-dihydropyridazine-3, 6-dione) was applied to the weeds -- predominantly Bermudagrass (Cynodon dactylon). Maleic hydrazide arrests plant cell division for 4 to 6 weeks, but does not affect cell enlargement.

In the presence of the heavy concentrations of commercial fertilizers, however, the maleic hydrazide had no apparent influence on the Bermudagrass, whose growth appeared well in excess of what might be expected from cell enlargement alone.

Three blocks of 6 plots each were laid out on a severely sheet-eroded shallow loessial soil. Plots were 36 by 42 feet in size. All blocks were burned to remove the grass cover, and were planted in February 1955 with 1-year-old loblolly pine nursery seedlings at a spacing of 6 by 6 feet. In various treatment combinations, N was applied at the rate of 300 pounds per acre, P at 200 pounds, and K at 100 pounds. Fertilizing was done in March.

The Bermudagrass surrounding the treated seedlings began rapid and luxuriant growth. By May, when the grass was more than 6 inches tall, maleic hydrazide was dissolved in water at the rate of 1 pound of powder (48 percent by weight of active ingredient) per 10 gallons of water, and was applied to the grass in a 4-foot circle around each seedling with a pressure sprayer of the kind used in gardens. One pound of powder was used for slightly less than one-tenth acre., a concentration a little in excess of manufacturers' recommendations for use on lawns. During the spraying, the seedlings were covered with paper cones. This protection probably was unnecessary, as maleic hydrazine does not appear to affect woody plants. One month after the hydrazide was applied, the grass around each seedling was clipped.

Despite the spraying and clipping, the Bermudagrass grew at an unabated pace. By late May, the plots gave the appearance of evenly spaced mounds of dark green grass with only an occasional seedling visible. In many places the seedlings were overtopped and bent to the ground by the weight of grass. Mounds of grass reached heights of 2 feet, while individual stems occasionally exceeded 3 feet in length. In late summer many, seedlings died of this smothering. On the unfertilized check plots grass growth was negligible. At no time during the year were the check seedlings overtopped.