BLACK WALNUT RESPONSE TO SUBSOILING, IRRIGATION, AND VEGETATION MANAGEMENT ON A SITE WITH A SHALLOW FRAGIPAN

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Abstract: Vegetation management with glyphosate and simazine proved to be more effective than preplant subsoiling or irrigation for achieving acceptable walnut biomass growth on an upland old field site (SI = 70 for white oak). In 1980, we direct seeded germinating black walnut seed on an upland, slightly eroded, old field ridge with a 45 to 60 cm deep fragipan. We tested all combinations of with and without preplant subsoiling (75 cm deep); with and without irrigation for 6 years, and with and without chemical weed control for 7 years. The only treatment effect still persisting after 14 years was vegetation management reducing the tall fescue competition. Preplanting ripping showed benefits for 4 to 8 years after planting only. Irrigation either reduced biomass growth or had no effect in combination with weed control. Our results continue to confirm that with intensive management black walnut can sustain acceptable growth and produce nuts above a 3-m long veneer log on agricultural lands with low site index for black walnut.

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