Effects of Dazomet, Metam Sodium, and Oxamyl on *Longidorus* Populations and Loblolly Pine Seedling Production

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ABSTRACT: *Dazomet, metam sodium, and oxamyl were evaluated for nematode control and production of loblolly pine seedlings in a field infested by a* Longidorus *sp. Fumigation with dazomet or metam sodium reduced population densities of* Longidorus *to nondetectable levels early in the growing season but population densities subsequently increased to levels found in untreated control plots by the end of the growing season. Oxanzyl had the effect on* Longidorus *population densities. Seedlings in dazomet-treated plots had significantly greater root and shoot weights than seedlings in control and oxamyl-treated plots within 6 weeks of seed sowing. At the end of the growing season, seedlings in the control and oxanzyl plots were very stunted with poorly developed root systems. Seedling shoot length and root collar diameter in dazotnet-treated plots averaged 27.4 cm and 4.0 mm. respectively, but in nonfurnigated control plots these variables averaged 10.5 and 2.5 mm , respectively. Although dazomet and metam sodium were effective in reducing* Longidorus *populations for the first seedling crop after fumigation, production of a second crop without additional treatment would he inadvisable based on the increased population of* Longidorus *by the end of the first growing season. South. J. Appl. For. 29(3):117-122.*

Key Words: Disease, forest-tree nursery, nematode, pest management.

Areas of stunted and chlorotic loblolly pine *(Pinus taeda* L.) seedlings have been periodically observed at the Flint River Nursery (Byromville, GA), and an undescribed *Longidorus* sp. was associated with the problem. The *Longidorus* sp. reproduces on pine roots and causes major damage to root systems of loblolly pine (Fraedrich and Cram 2002, Fraedrich et al. 2003). The number of lateral and feeder roots are greatly reduced, resulting in seedlings that arc severely stunted. When initially observed, damage is usually confined to isolated, small patches of seedlings that arc 3-9 m in length and one seedbed wide (Fraedrich and Cram However, damage was more widspread in a section of one field in 2001, with areas of damage up to 60 m in lenth and occurring across multiple seedbeds. The *Longidorus sp.* was recently described and named Longidorus americanum n. sp. (Hendon et al. in press).

Fumigation with mythyl bromide has been routinely used in southern forest-tree nurseries for more than 40 years and is regarded as a reliable practice for controlling weeds, soilborne pathogenic fungi, insects, and plant-parasitic nematodes. Methyl bromide has been identified as an ozone-depleting chemical and a phaseout of its production is scheduled

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