EFFECT OF ALTERNATIVE FUMIGANTS ON WEED POPULATIONS IN NURSERIES

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Failure to control weeds with pre-plant fumigation results in high labor costs for weeding at nurseries where pre- and post-emergence herbicides cannot be used around the young, developing tree seedlings and cuttings. Studies were conducted at two locations in almond and walnut nurseries in 2003/04 to test the effect of methyl bromide (MB) and several alternatives on seed survival and population dynamics of weeds, and hand weeding times. Most of the alternative fumigants were as effective as MB in reducing the viability of the seeds of species such as field bindweed (*Convolvulus arvensis* L.), annual morningglory (*Ipomoea* spp.), Johnsongrass [*Sorghum halepense* (L.) Pers.], and common purslane (*Portulaca oleracea* L.). Weed monitoring several times during the growing season showed that weed emergence was reduced under all the fumigant treatments compared to the non-fumigated control plot. The dominant weed at one location was volunteer oats and Johnsongrass whereas; Spanish clover (*Lotus purshianus* L.), wild radish (*Raphanus raphanistrum* L.) and *Conyza* sp. were dominant at the other location. None of the fumigants provided adequate control of Spanish clover and wild radish. Hand weeding time was lower in the MB and Iodomethane (IM:PIC) plots than in the control plots at one time during the growing season in one location. At the other location, the alternate fumigants were generally comparable to MB in terms of time to hand weed the plots. In conclusion, the alternate fumigants were effective as MB in providing weed control in the nursery plots. However, efficacy of the fumigants may be influenced by the dominant weed species present.