MESOTRIONE AND CLOMAZONE EFFECTS ON PEPPERMINT AND SPEARMINT GROWTH AND YIELD. Mary S. Gumz and Stephen C. Weller, Graduate Research Assistant and Professor, Department of Horticulture and Landscape Architecture, Purdue University, West Lafayette, IN 47907.

Mesotrione and clomazone have been shown to control *Amaranthus* species and white cockle, respectively, in Midwest peppermint and spearmint production while causing minimal crop injury. In the field trials described, the objective was to determine optimal rates of mesotrione and clomazone which minimized crop injury while achieving acceptable crop oil yield.

Mesotrione was applied preemergence at rates of 70, 105, and 210 g a.i./ha alone and at 70 g a.i./ha in combination with either 840 g a.i./ ha clomazone or 83 g a.i./ha flumioxazin and postemergence at rates at rates of 70 and 105 g a.i./ha alone or at 70 g a.i./ha combined with 225 g a.i./ha terbacil (plus 1% v/v COC and 1kg/100L AMS). Clomazone was applied preemergence at 840 g a.i./ha. All treatments were compared to a standard treatment of 900 g a.i./ha terbacil applied preemergence. Preemergence treatments were made prior to crop emergence in peppermint and to emerged but dormant spearmint. Postemergence treatments were made to 30cm tall spearmint and 15cm tall peppermint.

Peppermint had greater tolerance to all preemergence treatments than spearmint while spearmint had greater tolerance to all postemergence treatments than peppermint. In spearmint, mesotrione preemergence at 70 g a.i./ha caused 10% injury 28DAT compared to 25% and 75% for 105 and 210 g a.i./ha respectively and 25% for 840 g a.i./ha clomazone. By 74 DAT, spearmint had recovered from all early season injury. In peppermint, only clomazone and 210 g a.i./ha mesotrione resulted in injury (<5%) 28 DAT, and the crop had complete recovery by 57 DAT. Postemergence applications of 70 and 105 g a.i./ha mesotrione and 70g a.i./ha mesotrione combined with 225 g a.i./ha terbacil resulted 5, 7, and 7% injury, respectively in spearmint 14 DAT and resulted in 8, 21, and 10% injury, respectively, in peppermint. Despite differences in injury symptoms, no treatment significantly reduced yield compared to the terbacil control. Management implications of results indicate the industry standard of terbacil is adequate for use in mint weed control situations where *Amaranthus* species or white cockle are not present. However, if white cockle is present, clomazone can be used without significant yield loss, and in the future, if mesotrione becomes registered for mint, it could offer additional weed management options for control of *Amaranthus* species.

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