

WEED MANAGEMENT IN MINT: CHALLENGES IN A MINOR USE CROP. Mary S. Gumz and Stephen C. Weller, Graduate Research Assistant and Professor, Department of Horticulture and Landscape Architecture, Purdue University, West Lafayette, IN 47907.

Weed management is a challenge in peppermint and spearmint production due to the few herbicides available, their limited control spectrum, and the necessity of removing weeds to maintain mint oil flavor quality. Our research has focused on the evaluation of new herbicides to control the worst weed problems in mint: *Amaranthus* species, which reduce yield and contaminate essential oil flavor, and white cockle, an emerging weed problem in no-till mint production. The objective of field trials conducted from 2004 to 2006 was to identify herbicides for control of *Amaranthus* species and white cockle in mint and optimum rates and application timings. Results show preemergence applications of clomazone, mesotrione, and flumioxazin have potential for weed control in mint. Clomazone at 840 g a.i. ha⁻¹ offers >90% control of both seedling and rosette stage white cockle with little crop injury. Flumioxazin at 108 g a.i. ha⁻¹ controls *Amaranthus* species in established meadow mint fields but can cause unacceptable injury in first year plantings. Mesotrione at 105 g a.i. ha⁻¹ also controls *Amaranthus* species with little crop injury when applied preemergence. Postemergence mesotrione applications caused unacceptable injury. In all cases, spring applications to dormant mint offered the best weed control and least crop injury. Post harvest herbicide applications caused unacceptable injury. Mint stand health was a significant factor in crop response to herbicide as vigorous mint stands had less injury than stressed stands and fall plowed mint showed less injury than no-till mint fields.