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COMPETITIVENESS OF PALMER AMARANTH AND VELVETLEAF IN RESPONSE TO
PREEMERGENCE HERBICIDE

*Konanani B. Liphadzi and J. Anita Dille

Department of Agronomy, Kansas State University, Manhattan, KS 66502, USA

Growth and competitiveness of weeds that escape a preemergence herbicide might be reduced due to herbicide injury. As a result, expected crop yield loss from escaped weeds should be less than that of uncontrolled weeds. Field experiments were conducted at Ashland Bottoms, KS (2001 and 2002) and Rossville, KS (2002) to quantify corn yield loss in response to Palmer amaranth or velvetleaf with and without isoxaflutole and/or flumetsulam, and to determine seed production from these two weed species. Palmer amaranth and velvetleaf were established at a density range of 0 to 6 and 0 to 32 plants m^{-1} of corn row, respectively. In the absence of either isoxaflutole or flumetsulam, corn yield loss increased with increasing density of both Palmer amaranth and velvetleaf. At Rossville 2002, Palmer amaranth that escaped through either isoxaflutole or flumetsulam caused 25% corn yield loss at a density of 6 plants m^{-1} . In contrast, yield loss from untreated Palmer amaranth at the same density was 38%. At Ashland Bottoms 2002, velvetleaf (6 plants m^{-1}) that escaped through flumetsulam reduced corn yield by 6% compared to 54% yield reduction with untreated velvetleaf at the same density. When treated with herbicide, seed production by Palmer amaranth and velvetleaf were reduced by 27% and 95%, respectively, compared to untreated weeds. The study showed that corn yield reduction from both Palmer amaranth and velvetleaf that escape through a preemergence herbicide is less than from untreated weeds. Moreover, seed production from escaped weeds was also reduced.