

EMERGENCE AND CONTROL OF HORSEWEED (*CONYZA CANADENSIS*)

Joseph D. Bolte

Dr. Reid J. Smeda, Thesis Supervisor

Abstract

Horseweed (*Conyza canadensis* L. Cronq) traditionally has been viewed as a winter annual. However, farmers report increased problems managing horseweed that emerges in the spring. In the fall of 2013 and 2014, emergence trials were established in Missouri to document fall and spring emergence of 12 different horseweed biotypes. In 2013 to 2014, averaged across populations, 31.8 and 68.7% of total emergence occurred in the spring at Columbia and Portageville in untreated sub-plots, respectively. In 2014 to 2015, 95.9 and 51.8% of the total emergence occurred in the spring at Columbia and Portageville, respectively. In 2013 and 2014, studies were conducted to determine the effectiveness of horseweed control with different herbicide modes of action. Herbicides such as 2,4-D, dicamba, and saflufenacil resulted in up to 100% control by 35 days after treatment (DAT). Cloransulam plus sulfentrazone, glufosinate and paraquat resulted in up to 92, 91, and 91% control, respectively. Flumioxazin, metribuzin, linuron, glyphosate never resulted in greater than 70% control. In the summer of 2013 and 2014, POST trials were conducted to determine the effectiveness of 2,4-D and dicamba on 10 to 20 cm; 20 to 30 cm; and 30 to 40 cm horseweed. Plants were less responsive at larger sizes but dicamba still resulted in greater control of horseweed versus 2,4-D. Dicamba resulted in a 10.6, 18.5 and 20.4% increase in control compared to 2,4-D on 10 to 20 cm; 20 to 30 cm; and 30 to 40 cm horseweed, respectively. Because horseweed resistance to herbicides is a growing concern, 40 horseweed biotypes were treated with an I_{50} dose of dicamba. Means across populations ranged from 45.7 to 83.5% control by 21 DAT. Of the 40 populations, 20 populations had outliers below 50% control. POST applications of growth regulators can result in effective control of horseweed, but shorter plants should be targeted. Sufficient rates of dicamba should be applied to reduce horseweed survival, preventing a shift in a population's sensitivity to dicamba.