

GIANT RAGWEED EFFICACY IN 2012 CORN AND SOYBEAN TRIALS

Vince M. Davis¹

Introduction

Giant ragweed is becoming an increasingly problematic weed to control in both corn and soybean fields in Wisconsin. In an on-line survey conducted between June and September of this past year (2012), respondents indicated that giant ragweed was the fourth most problematic weed to control in their corn and soybean fields. Moreover, in Wisconsin there has been a giant ragweed population confirmed resistant to glyphosate, and recently one population confirmed resistant to cloransulam-methyl. In total, there are now eleven states in the U.S. and one province in Canada (Ontario) with reported populations of glyphosate-resistant giant ragweed (Heap 2012; Stoltenberg et al. 2012). The populations confirmed resistant to glyphosate were collected in Ohio (2004), Arkansas (2005), Indiana (2005), Kansas (2006), Minnesota (2006), Tennessee (2007), Ontario, CA (2008), Iowa (2009), Missouri (2009), Mississippi (2010), Nebraska (2010), and Wisconsin (2010). Additionally, there are five other states in the U.S. with giant ragweed populations resistant to cloransulam-methyl including Illinois (1998), Indiana (1998), Ohio (1998), Iowa (2000), and Minnesota (2008). Most concerning is that Ohio (2006) and Minnesota (2008) have both reported populations that are multiple resistant to both glyphosate and cloransulam meaning tank-mixtures of these two herbicide mode-of-actions (MOAs) are not effective. There is a very high level of importance to find and evaluate control strategies for giant ragweed in corn and soybean for Wisconsin crop producers.

Materials and Methods

In 2012 we conducted standard herbicide efficacy field trials in both corn and soybean to evaluate giant ragweed control. Plots were 10' wide by 25' long in both crops, and all treatments were replicated three times in corn and four times in soybean. Two corn trials were located near Prairie Du Sac, WI. One soybean trial was located near Janesville, WI. The two corn trials evaluated many herbicide treatment combinations including one-pass and two-pass programs. These trials were located in a field where glyphosate resistance was suspected prior to the 2012 growing season, but later preliminary greenhouse studies did not indicate resistance was evident (Dr. Dave Stoltenberg, personal communication). In the soybean trial, we did not expect giant ragweed to be resistant to glyphosate or cloransulam. However, the objectives of the soybean study were to evaluate control options in a situation where resistance to ALS-inhibiting herbicides (i.e. cloransulam) was expected, AND, poor efficacy of glyphosate was observed indicating fear that glyphosate resistance was developing in the population. Therefore, the focus of this study was to evaluate 'rescue' scenarios, not including ALS-inhibiting herbicides, where efficacy of an initial application of postemergence glyphosate was not adequate. Our treatment structure was such that we investigated many combinations and timing strategies of PPO inhibitors, primarily lactofen and fomesafen, along with glyphosate.

¹ Assistant Professor, Dept. of Agronomy, 1575 Linden Dr., Univ. of Wisconsin-Madison, Madison, WI, 53706.

Summary of 2012 results

Despite greenhouse studies that indicated a giant ragweed population susceptible to glyphosate in the two corn trials, sole reliance on postemergence glyphosate in the field was not an entirely acceptable treatment even with good spray coverage and applications on appropriate size weeds. It was, however, unusually hot and dry in 2012, and that may have reduced postemergence glyphosate performance, nonetheless, a diverse herbicide approach was needed. The efficacy of many herbicide treatments will be revealed, but in short, numerous two-pass, diverse herbicide programs that utilized residual products were effective. If herbicide programs are chosen wisely, and applied at appropriate timings, there are still a number of effective herbicide programs to control giant ragweed in corn. These programs will be discussed.

In contrast, our soybean trial was located in Janesville and focused on ‘rescue’ treatments following poor performance of postemergence glyphosate. In this trial complete control of giant ragweed was not achieved by treatments in our study. Unfortunately, we did not find any combinations or timings for ‘rescue’ of poor glyphosate performance to clearly provide better control compared to glyphosate alone. These results indicate a major concern about the future of giant ragweed control in soybean if we do not prevent glyphosate and ALS resistance from developing!

References

- Heap I. M. 2012. The International Survey of Herbicide Resistant Weeds. Available at <http://www.weedscience.org>.
- Stoltenberg D., M. Yerke, C. Glettner, J. Stute, and T. Trower. 2012. Giant Ragweed Resistant to Glyphosate in Wisconsin. *Wisconsin Crop Manager*. 19:43-44. Available at <http://ipcm.wisc.edu/blog/2012/06/giant-ragweed-resistance-to-glyphosate-in-wisconsin/>.