

Common windgrass management in winter wheat



Christy L. Sprague*

Department of Plant, Soil and Microbial Sciences
Michigan State University, East Lansing, MI



Introduction

- Common windgrass (*Apera spica-venti* L.) is a winter annual grass species that has become a weed problem in Michigan winter wheat.
- Management of this weed can be difficult because emergence and growth closely coincide with winter wheat.
- Traditional strategies to manage this weed utilized post-plant incorporated treatments of trifluralin, which growers quickly changed to preemergence applications. These strategies were not very effective.
- Newer herbicide registrations in winter wheat may offer more effective options for common windgrass management.

Objectives

- Investigate various management strategies for common windgrass control in winter wheat by:
 - comparing fall vs. spring herbicide applications
 - comparing newer grass herbicides registered in winter wheat to the standard Michigan windgrass management strategy

Materials and Methods

- Winter wheat trial conducted two growing seasons (2011-2012 & 2012-2013) in Minden City, MI
- RCB design; 4 replications
- 'Ambassador' white winter wheat
 - 4.9 million seeds ha⁻¹
 - 19 cm row spacing
- Herbicide treatments (Table 1):

Table 1. Application timings, herbicides, and rates

PRE	FALL (POST)	SPRING (POST)
trifluralin (56 g ha ⁻¹)	mesosulfuron ^a (15 g ha ⁻¹)	mesosulfuron ^a (15 g ha ⁻¹)
	pyroxsulam ^a (18 g ha ⁻¹)	pyroxsulam ^a (18 g ha ⁻¹)
		pinoxaden (60 g ha ⁻¹)
		fenoxaprop (93 g ha ⁻¹)

^a Applied with NIS (0.25% v/v) + AMS (2.2 kg ha⁻¹)

- Windgrass control was assessed:
 - @ spring POST, 14 DAT, 21 DAT, and 2 weeks prior to harvest
- Data was analyzed using PROC MIXED in SAS. Interactions and main effects were tested; means separated with Fisher's protected LSD (P_≤0.05).

Results and Discussion

Fall vs. Spring POST applications

- Fall applications of mesosulfuron and pyroxsulam provided excellent common windgrass control in the spring (data not shown).
- Spring applications of mesosulfuron and pyroxsulam were slow to control common windgrass and averaged only around 70% by 21 DAT, Figures 1 & 2.
- Spring-applied mesosulfuron and pyroxsulam provided equivalent control of common windgrass by the end of the season (2 weeks prior to harvest), Figure 1.

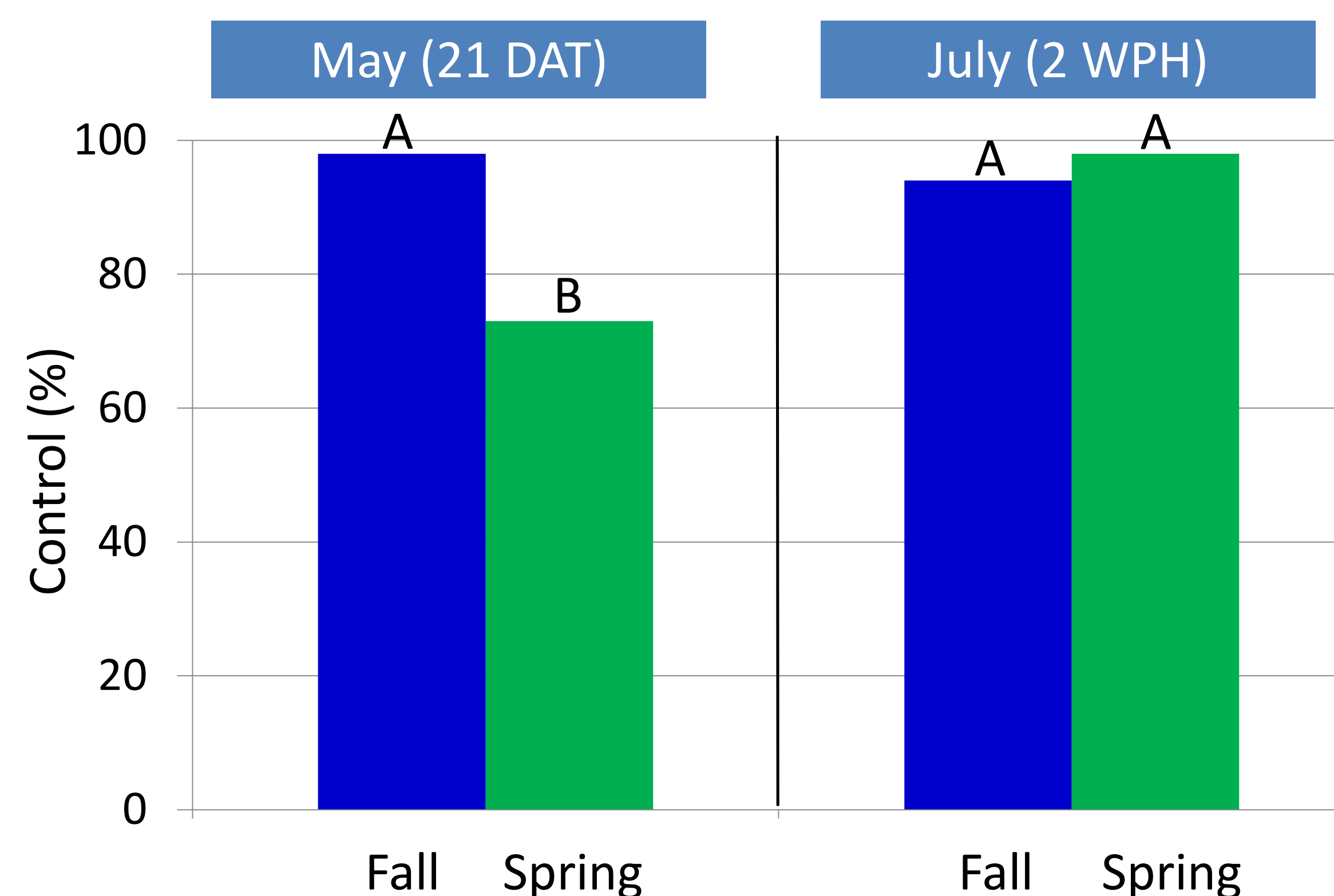


Figure 1. Fall versus spring applications of mesosulfuron and pyroxsulam on common windgrass control.

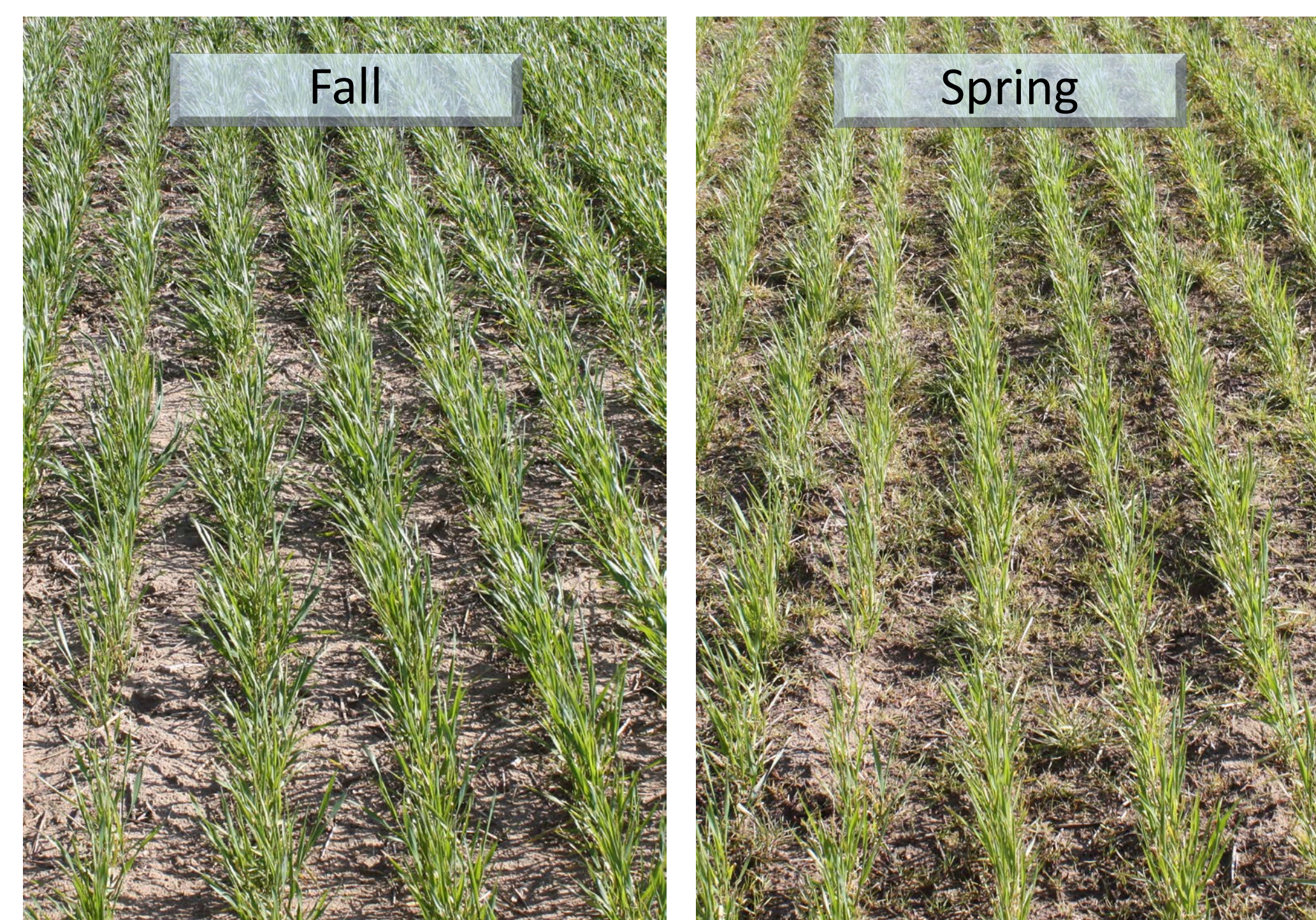


Figure 2. Differences in the levels of windgrass control between fall and spring pyroxsulam applications in May.

End of season windgrass control

- All treatments, regardless of application timing, provided greater control of common windgrass when compared with current standard of trifluralin (PRE), Figure 3.
- Fenoxaprop and pinoxaden applied in the spring provided fair and good common windgrass control, respectively, Figures 3 & 4.
- Mesosulfuron and pyroxsulam provided the greatest common windgrass control at the end of the season, Figures 3 & 4.

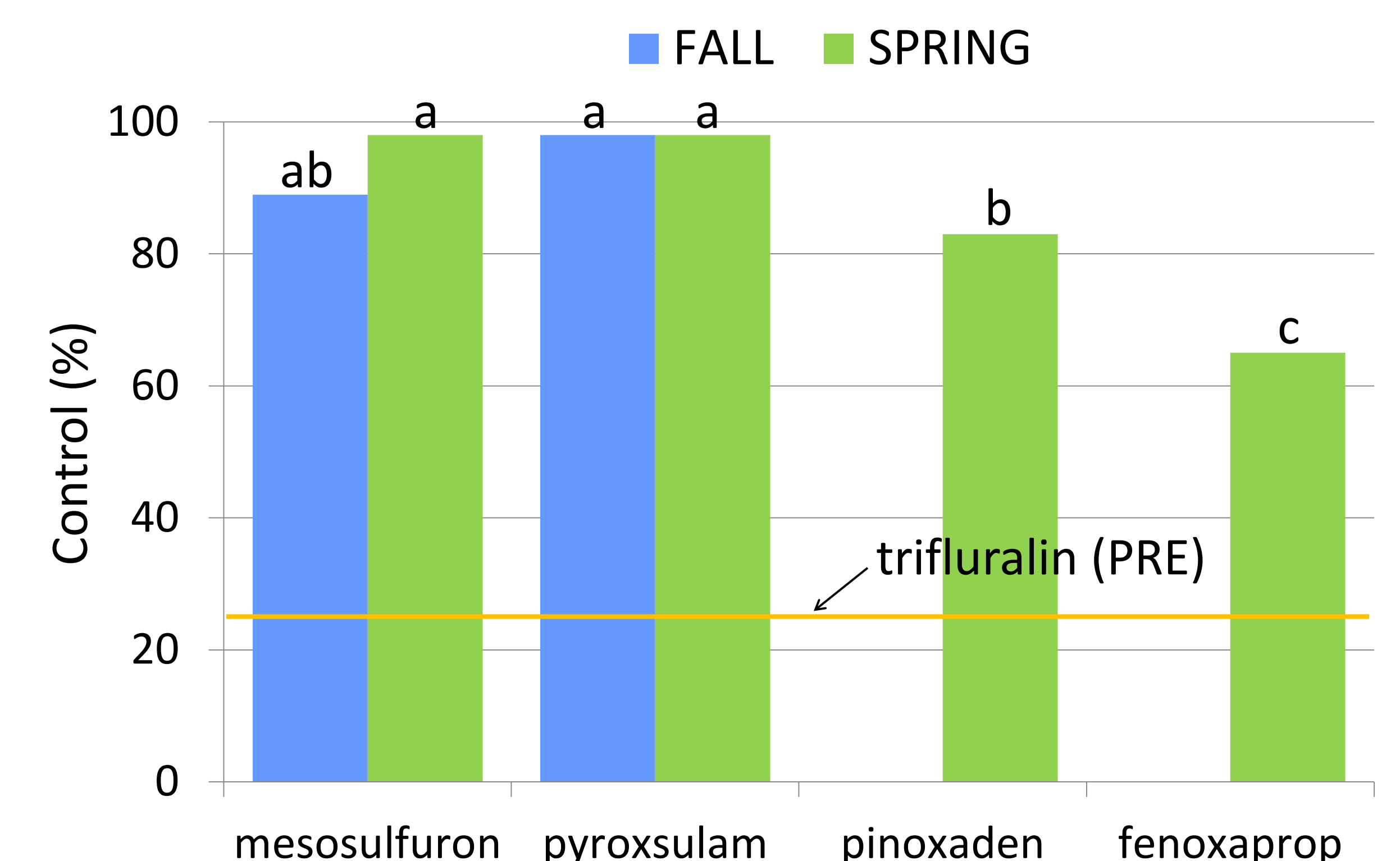


Figure 3. Comparison of the different herbicide treatments for control of common windgrass.

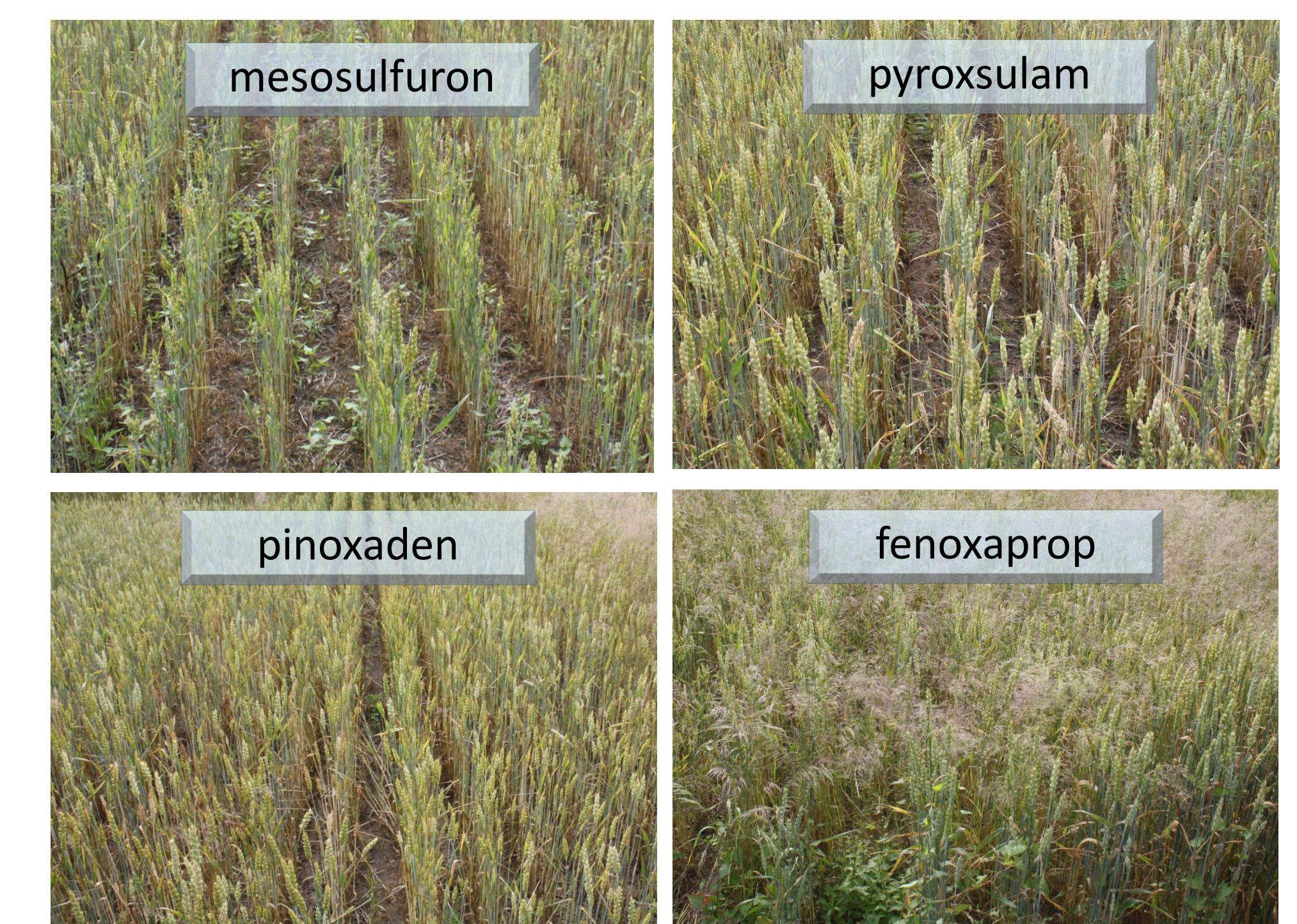


Figure 4. End of season common windgrass control from spring herbicide treatments.

Conclusions

- Common windgrass in winter wheat can be managed effectively with fall or spring POST applications of mesosulfuron or pyroxsulam.
- Spring applications of mesosulfuron or pyroxsulam may lead to yield reductions in winter wheat from additional common windgrass competition, due to the slower speed of control from these herbicides.

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