

# COMPARING THE EFFECT OF TIMING OF DIFFERENT HERBICIDES ON ITALIAN RYEGRASS CONTROL IN WHEAT

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## INTRODUCTION

The preferred time to spray for ryegrass control in wheat is when most ryegrass plants have emerged and before they exceed the maximum labeled growth stage. Applying too early may result in additional plant emergence later in the season; whereas, applying later may allow time for the early emerging plants to grow too large for optimum control.

The main objective of this research was to compare control achieved from different herbicides applied to ryegrass at three different growth stages. Another objective was to compare crop oil concentrate to nonionic surfactant plus ammonium sulfate (AMS) as additive to PowerFlex.

## METHODS

The application timings of treatments were: 2 leaf on 12-01-09, 1 tiller on 12-23-09, and 4 tillers on 3-24-10.

The four herbicides evaluated in this study were PowerFlex (pyroxulam) and Osprey (mesosulfuron-methyl), which are ALS inhibitors, and Hoelon (diclofop-methyl) and Axial XL (pinoxaden), which are ACCase inhibitors.

Additional details on the methods used in this study are summarized in Table 1.

## RESULTS

Ryegrass control near the time of harvest varied depending on herbicide and application timing (Table 1). Control ranged from 74 to 97% for treatments applied at the 2-leaf stage, 80 to 96% for treatments applied at the 1-tiller stage and 92 to 99% for treatments applied at the 4-

tiller stage. Control with Axial XL or Hoelon was usually better than that achieved with PowerFlex or Osprey at the first two timings. However, all treatments provided equal control when applied at the 4-tiller growth stage.

Although there were slight numerical differences in the effect of additives on ryegrass control with PowerFlex, the differences were not statistically significant and were inconsistent between the different timings.

All herbicide treatments had some surviving ryegrass plants that were able to produce seedheads at the end of the season. The 40.25 heads/ft<sup>2</sup> in the non-treated checks illustrates the dense infestation of ryegrass in this study.

Wheat yields ranged from 102.3 to 124.5 bu/A for treatments applied at the 2-leaf stage, 106.1 to 122.8 bu/A for treatments applied at 1 tiller stage, and 93.5 to 111.1 bu/A for treatments applied at the 4 tiller stage. The non-treated check yielded 60.3 bu/A.

## SUMMARY

Control with the ACCase herbicides (i.e. Axial XL and Hoelon) was usually better than that observed with the ALS inhibitor herbicides, when treatments were applied to ryegrass in the 2-leaf or 1-tiller stage. The fact that control for treatments applied at the 4-tiller stage was comparable and was at least 92% for all herbicides indicates these herbicides have potential to control large ryegrass plants. Wheat yields tended to be greatest when treatments were applied at the 1-tiller stage and least, especially for Osprey, Axial XL and Hoelon when application were delayed until the 4-tiller stage.

<b>Table 1. Effect of Application Timing of Different Postemergence Herbicides on Ryegrass Control and Wheat Yield. (UKREC 2009-2010)</b>				
Timing Based on Ryegrass Growth Stage	Herbicide Treatment	Ryegrass*		Wheat Yield (Bu/A)
		Control (%)	Seedheads/Ft <sup>2</sup>	
2 Leaf	PowerFlex 3.5 oz/A+ COC 1.25%	74	19.00	107.8
	PowerFlex 3.5 oz/A+ NIS0.5% +AMS 1.52lb/A	80	13.38	102.3
	Osprey 4.76oz/A + MSO 1%	78	14.63	112.7
	Axial XL 16.4 oz/A	90	3.13	118.2
	Hoelon 2 pt/A + COC 1 qt/A	97	0.23	124.5
1 Tiller	PowerFlex 3.5 oz/A+ COC 1.25%	90	4.00	113.0
	PowerFlex 3.5 oz/A+ NIS0.5% +AMS 1.52lb/A	86	5.13	116.1
	Osprey 4.76oz/A + MSO 1%	80	10.77	106.1
	Axial XL 16.4 oz/A	96	0.25	123.0
	Hoelon 2 pt/A + COC 1 qt/A	96	0.38	122.8
4 Tiller	PowerFlex 3.5 oz/A+ COC 1.25%	93	2.97	111.1
	PowerFlex 3.5 oz/A+ NIS0.5% +AMS 1.52lb/A	97	2.63	101.1
	Osprey 4.76oz/A + MSO 1%	99	0.50	95.7
	Axial XL 16.4 oz/A	99	0.13	97.8
	Hoelon 2 pt/A + COC 1 qt/A	92	2.13	93.5
	Non-treated Check	0	40.25	60.3
	LSD (0.05)	7	6.38	14.7
Pioneer 25R63 planted 10-26-2009 at 31 viable seeds/ft <sup>2</sup>				
Application Volume 10 GPA				
Date of Application	Ryegrass Stage	Ryegrass Height	Wheat Stage	Wheat Height
12-01-09 (36 DAP)**	Avg 2 Leaf Range 1 Leaf to 1 Tiller	Avg. 2.5" Range 0.5" to 4"	3 Leaf	3.5"
12-23-09 (58 DAP)	Avg 1 Tiller Range 3 Leaf to 2 Tiller	Avg 2.4" Range 0.75" to 5"	4 Leaf	3.75"
03-24-10 (149 DAP)	Avg. 4 Tiller Range 4 Leaf to 11 Tiller	Avg 5" Range 2" to 6.5"	4 Tiller	5.9"
* Ryegrass control ratings and seedhead counts were made 6-14-2010.				
**DAP = Days After Planting				

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