

POSTEMERGENCE CONTROL OF ITALIAN RYEGRASS WITH FALL AND SPRING APPLIED TREATMENTS IN WHEAT (UKREC 2003-2004)

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INTRODUCTION:

Part of the decision on determining when to treat ryegrass in wheat depends on the effectiveness of the herbicide relative to size and stage of weeds at the time of application. Although much of the research on postemergence control of ryegrass has focused on fall applications, there is limited evidence that shows that delaying applications until early spring may sometimes result in good control of this weed.

The objective of this research was to compare fall and spring applications of four postemergence herbicides for controlling Italian ryegrass in wheat.

METHODS:

The herbicides compared in this study are listed below:

<u>Product</u>	<u>Active Ingredient</u>	<u>Mode of Action</u>
Achieve 40 DG	tralkoxydim	Accase inhibitor
Discover 2 EC	clodinafop-Propargyl	Accase inhibitor
Hoelon 3 EC	diclofop-methyl	Accase inhibitor
Osprey 4.5DG	mesosulfuron	ALS inhibitor

(Achieve, Hoelon, and Osprey are currently registered for ryegrass control; whereas, Discover is not labeled for use in soft red winter wheat in KY.)

The timings of treatments were as follows:

- Fall Treatments on 11/21/03
Wheat 2 tillers & 5 inches tall
Ryegrass 2 tillers & 4 inches tall
- Spring Treatments on 3/13/04
Wheat 4 tillers & 6 inches tall
Ryegrass 3 tillers & 5 inches tall.

(Ryegrass was controlled in the fall-treated areas; consequently, wheat in these areas was larger than those in the untreated areas and averaged 5 tillers and 7" tall on 3/13/04)

Treatments were applied with a hand-held, CO₂ – powered back pack sprayer in a spray volume of 20 GPA. Treatments were arranged in a randomized complete block design with 3 replications. Additional information on the overall management of this study is summarized in Table 1.

A visual evaluation of ryegrass control was made June 14. Wheat yields were highly variable due to vole damage that occurred during the winter and early spring, consequently, yields for this study were not reported.

SUMMARY / CONCLUSIONS:

All four herbicides were capable of controlling ryegrass plants that were treated in the fall and had up to 2 tillers. However, Achieve tended to provide less control than Discover, Hoelon, or Osprey when the treatments were applied to plants that had over wintered and had up to 3 tillers.

The good control that was observed with the spring treatments may be associated with the fact that the ryegrass population was extremely dense throughout the season and limited the ability of plants to develop tillers as they over wintered. The development of the March - treated plants in this study ranged from 2 to 6 tillers, with an average of only 4 tillers; compared with previous research where plants in mid March had up to 9 tillers per plant.

In order to test the maximum potential of these herbicides to control ryegrass in wheat, additional research is needed on treating plants that have over wintered and are fully tillered.

TABLE 1. RYEGRASS CONTROL WITH ACHIEVE, DISCOVER, HOELON AND OSPREY APPLIED IN THE FALL AND SPRING (UKREC 2003-2004)

<u>Chemicals</u>	<u>Rate</u>	<u>Ryegrass</u>			
		<u>Control (%)</u>		<u>Seed Heads (Heads/ft²)</u>	
		<u>Fall Applied</u>	<u>Spring Applied</u>	<u>Fall Applied</u>	<u>Spring Applied</u>
Achieve Supercharge	9.5 oz/A 0.5% v/v	97	83	2	12
Discover DSV adjuvant	4 oz/A 12.8 oz/A	100	98	0	1
Hoelon	2 pt/A	100	93	1	3
Osprey Destiny Liquid N	4.75 oz/A 1.5 pt/A 4 pt/A	97	100	1	0
Non-treated Check		0		48	
LSD (0.05)		12		24	

<u>Application timing</u>	<u>Date</u>	<u>Wheat</u>	<u>Ryegrass</u>
Fall:	11/21/2004	2 tillers 5 inches	2 tillers 4 inches
Spring:	3/13/2004	4 tillers 6 inches	3 tillers 5 inches

<u>Date</u>	<u>Plot maintenance and data collection</u>
10/13/03	Over seeded area to insure uniform ryegrass pressure
10/13/03	Planted Pioneer 2552 in conventional tilled seedbed
10/30/03	Wheat stand = 34 plants/ft ²
10/30/03	Ryegrass density = 39 plants/ft ²
2/18/04	Applied nitrogen (35 units/A)
3/22/04	Applied nitrogen (60 units/A)
3/25/04	Applied Mustang (3.2 oz/A)
5/1/04	Applied Tilt (4 oz/A)
6/3/04	Counted ryegrass seedheads/ft ²
6/14/04	Visual rating of ryegrass control

Wheat yields are not reported due to high variability caused from vole damage.