

EVALUATING TANK MIX ATAGONISM FOR ITALIAN RYEGRASS CONTROL

(UKREC 2001-2002)

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INTRODUCTION:

Some of the herbicides used for Italian ryegrass control do not control broadleaf herbicides or wild garlic; consequently, there is interest in using tank mix combinations of herbicides in order to control a broad spectrum of weeds. However ryegrass control can be reduced when certain tank mix combinations are used.

The objective of this research was to compare the effectiveness of various registered and experimental herbicides for controlling Italian ryegrass when applied alone or in tank mix combination with Harmony Extra.

METHODS:

This study was conducted at UKREC. Treatments were applied on December 3, 2001 to Italian ryegrass that was approximately 4 inches tall with multiple tillers. Purple deadnettle (*Lamium purpureum*) was 1 to 2 inches in diameter. Wheat was not planted in this area, consequently any benefits or disadvantages for having a crop canopy could not be determined from this study.

Plots were approximately 6.7ft wide by 20 ft long. An area of 1.3 ft wide was left untreated between each plot to aid in evaluating weed control. Herbicide treatments were applied with a CO² pressurized back pack sprayer in a spray volume of 26 gallons/A.

Herbicides included in this study are listed in Table 1.

Table 1. Herbicides evaluated.		
Product (Rate/A)	Active Ingredient	Mode of Action
Achieve 40 WG (7 oz/A)	tralkoxydim	ACCCase inhibitot
Beyond 1 S (5 oz/A)	imazamox	ALS inhibitor
Discover 2 EC (3.2 oz/A)	clodinfop-propargyl	ACCCase inhibitot
Everest 70 WG (0.61 oz/A)	flucarbozone	ALS inhibitor
Hoelon 3 EC (2 pt/A)	diclofop - methyl	ACCCase inhibitot
AEF-13006000 75WG (0.29 oz/A)	mesosulfuron	ALS inhibitor
The above herbicides were applied alone or in combination of Harmony Extra (thifensulfuron & tribenuron) at 0.5 oz/A.		

Italian ryegrass and purple deadnettle control were evaluated on April 3, 2002.

RESULTS:

The ratings for Italian ryegrass and purple deadnettle were highly variable due to sporadic infestation of weeds. Italian ryegrass control ranged form 3 to 95% and purple deadnettle control ranged form 0 to 96%.

When applied alone, Achieve and Everest provided less than 75% control of Italian ryegrass, whereas, the other herbicides provided at least 80% control of ryegrass. Italian ryegrass control tended to be less for

all treatments where Harmony Extra was used as a tank mix partner. However, the antagonism was statistically significant only for Achieve and Hoelon, where the level of reduction in ryegrass control was 70 and 50%, respectively. Tank mixing Harmony Extra with Beyond and AEF-13006000 tended to reduce Italian ryegrass control by only 10%, compared with the same herbicides without Harmony Extra.

Purple deadnettle control with Harmony Extra combinations ranged from 65 to 96%. Beyond and AEF-1300600 appeared to have some activity on purple deadnettle.

SUMMARY:

Based on this research, severe antagonism in Italian ryegrass control occurred when Harmony Extra was tank mixed with Hoelon or Achieve. Italian ryegrass control tended to be less where Harmony Extra was combined with the other herbicides, however additional research is needed to help determine if this trend would be consistent.

Table 1. Italian Ryegrass and Purple Deadnettle Control with Postemergence Grass Herbicides Applied alone or in Combination with Harmony Extra (UKREC 2002)				
Chemicals	Rate	Tank Mixing Status with Post Grass Herbicide	Ryegrass Control (%)	Purple Deadnettle Control (%)
Achieve Supercharge	7 oz/A 0.5 %	Alone	73	0
		With Harmony Extra 0.5 oz/A	3	93
Beyond Activator 90	5 oz/A	Alone	80	43
		With Harmony Extra 0.5 oz/A	70	96
Discover DSV Adjuvant	3.2 oz/A	Alone	93	0
		With Harmony Extra 0.5 oz/A	68	90
Everest Activator 90	0.61 oz/A	Alone	50	0
		With Harmony Extra 0.5 oz/A	35	70
Hoelon	2 pt/A	Alone	95	0
		With Harmony Extra 0.5 oz/A	45	83
AEF-13006000 AEF-10789200 Surfactant Liquid N	0.29 oz/A 1.71 oz/A 0.25% 1 qt/A	Alone	90	40
		With Harmony Extra 0.5 oz/A	80	65
LSD (0.05)			26	43
Treatments were applied 12/3/01. Ratings were made 4/3/02 and were based on a 0 to 100 scale with 0 = no control and 100 = complete control.				

