

## **Italian ryegrass control in winter wheat using Anthem<sup>®</sup> Flex herbicide**

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A field study was conducted on the WSU Cook Agronomy Farm near Pullman, WA to generate weed control and crop response data for winter wheat treated with Anthem Flex herbicide at various application times. The active ingredient in Anthem Flex that is effective on Italian ryegrass is pyroxasulfone, an inhibitor of very-long-chain fatty acid synthesis (Group 15). This is a newly labeled product that may be very useful for the control of Italian ryegrass, especially as resistance to Group 1 and 2 herbicides in Italian ryegrass populations continues to develop.

The soil at this site is a Thatuna silt loam with 4.5% organic matter and a pH of 5.2. Pre-plant (PREPLA) herbicide applications were made on September 25, 2013 using a CO<sub>2</sub> backpack sprayer set to deliver 15 gpa at 3 mph and 30 psi. Conditions were an air temperature of 46°F, relative humidity of 78% and the wind out of the southwest at 1 mph. 'ARS-Amber' winter wheat was seeded on October 11, 2013 at a rate of 90 lb/acre using a Horsch air seed drill with 12-inch row spacing at a depth of 1.25 inches. Starter fertilizer was applied at a rate of 130, 10 and 15 lb/acre of N:P:K. Post-plant, pre-emerge (POSPRE) herbicide applications were applied on October 15, 2013. Conditions were an air temperature of 63°F, relative humidity of 37% and the wind out of the south at 5 mph. Early post-emerge (EPOST) herbicides were applied on April 3 with a SE wind at 1 mph, relative humidity at 37%, and air temperature at 60°F. Wheat was at the 3- to 4-leaf stage and was 3 to 4 inches tall. Italian ryegrass was 1 to 2 inches tall at the time of application. The late post-emerge (LPOST) herbicide applications were made on April 14 with an air temperature of 65°F, relative humidity of 21% and the wind out of the south at 4 mph. The plots were harvested on August 11 using a Kincaid 8XP plot combine.

No significant yield differences were observed amongst the various herbicide treatments (data not shown). The best Italian ryegrass control was achieved when Anthem Flex was applied pre-plant or post-plant, pre-emerge and followed with a spring application of PowerFlex<sup>®</sup>HL. Although a pre-plant application of Anthem Flex at the rate of 3.75 oz/acre provided similar control of Italian ryegrass, it is wise to plan on a spring application of a Group 2 herbicide with activity on Italian ryegrass, like PowerFlex HL, to control later emerging plants and provide a second mechanism of action to reduce the risk of developing Italian ryegrass populations resistant to pyroxasulfone.

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			April 28	June 3
			Italian ryegrass	
Treatment	Rate	Timing <sup>a</sup>	control	
	oz pr/a		-----%-----	
Anthem Flex	3	PREPLA	69	63
Anthem Flex	3.75	PREPLA	70	83
Anthem Flex	3.75	POSPRE	60	65
Anthem Flex	2.5	POSPRE	15	3
Anthem Flex	2.5	POSPRE	76	89
PowerFlex HL	1.4	EPOST		
AMS	*	EPOST		
NIS	**	EPOST		
Anthem Flex	3	PREPLA	80	95
PowerFlex HL	2	EPOST		
AMS	*	EPOST		
NIS	**	EPOST		
Anthem Flex	3	POSPRE	66	71
Spartan	4	POSPRE		
Everest 2.0	1	EPOST	59	63
NIS	**	EPOST		
PowerFlex HL	2	LPOST		
AMS	*	LPOST		
NIS	**	LPOST		
Anthem Flex	3	EPOST	75	70
PowerFlex HL	2	EPOST		
AMS	*	EPOST		
NIS	**	EPOST		
Anthem Flex	3	POSPRE	73	80
Huskie	15	LPOST		
Dagger <sup>®</sup> 5.2 lb. MCPA Ester	16	LPOST		
NIS	**	LPOST		
Huskie	15	LPOST	31	8
Dagger <sup>®</sup> 5.2 lb. MCPA Ester	16	LPOST		
NIS	**	LPOST		
Nontreated Check	--	--	--	--
LSD (5%)			22	20

\* AMS applied at 1.5 lb/acre, \*\* NIS applied at 0.25% v/v

<sup>a</sup> PREPLA, POSPRE, EPOST and LPOST applications occurred on Sep 25 and Oct 15, 2013, Apr 3 and 14, respectively. Wheat growth stage at EPOST was 3 to 4 leaf and Italian ryegrass was 1 to 2 inch in height.

**Some of the pesticides discussed in this presentation were tested under an experimental use permit granted by WSDA. Application of a pesticide to a crop or site that is not on the label is a violation of pesticide law and may subject the applicator to civil penalties up to \$7,500. In addition, such an application may also result in illegal residues that could subject the crop to seizure or embargo action by WSDA and/or the U.S. Food and Drug Administration. It is your responsibility to check the label before using the product to ensure lawful use and obtain all necessary permits in advance.**