

## Evaluate Axiom® DF and Osprey® Xtra for the control of Italian ryegrass in winter wheat

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A field study was conducted at the Cook Agronomy Farm near Pullman, WA to evaluate the control of Italian ryegrass in winter wheat with Axiom DF and Osprey Xtra. Osprey Xtra (thiencarbazone + mesosulfuron) active ingredients are both in the Mechanism of Action Group 2, which are compounds that inhibit acetolactate synthase (ALS), a key enzyme in the biosynthesis of the branched-chain amino acids isoleucine, leucine and valine. Osprey Xtra also contains mefenpyr-diethyl, which is used as a safener in combination with the active ingredients for selective weed control in wheat. This herbicide is not yet registered for use in wheat. Osprey Xtra only has postemergence activity on Italian ryegrass. We evaluated two herbicide application timings in relation to wheat growth stage: delayed preemergence and early tillering.



The soil at this site is a Palouse silt loam with 3.9% organic matter and a pH of 5.2. The trial area was conventionally summer fallowed. On September 29, 2016, 'Puma' winter wheat was seeded at 90 lb seed per acre at a depth of 1.5 inches with a John Deere 9400 hoe drill on a 7-inch row spacing. The ground was fertilized with granular urea on November 10<sup>th</sup> with 100 lb N per acre. Delayed preemergence treatments were applied on October 4<sup>th</sup> with a CO<sub>2</sub>-powered backpack sprayer set to deliver 10 gpa at 45 psi at 2.3 mph. The applications were made under winds out of the east at 2 mph with an air temperature of 52°F and relative humidity of 64%. Early tillering treatments were applied on April 11, 2017 with a CO<sub>2</sub>-powered backpack sprayer set to deliver 10 gpa at 44 psi at 2.3 mph. The applications were made under winds out of the east at 7 mph with an air temperature of 56°F and relative humidity of 38%. The plots were harvested on August 7<sup>th</sup> using a Kincaid 8XP plot combine.

October was an extremely wet month with 22 days receiving rainfall and totaling 4.78 inches. Initial counts of Italian ryegrass plants in the nontreated check occurred on October 12<sup>th</sup>. A significant portion of Italian ryegrass germinated in the fall and survived the winter due to prolonged snow cover. In the spring, it was difficult to get back into the field from all the fall precipitation, snow melt and continued rains in late winter/early spring. On April 11<sup>th</sup>, when the postemergence application was made, wheat was at 3 tillers and 7 to 8 inches tall and the Italian ryegrass was fully tillered at a height of 2 to 3 inches. The density of Italian ryegrass in the nontreated checks was so high that it seemed unlikely that additional plants were going to emerge in the spring. Treatments that included a delayed preemergence application of Anthem Flex or Zidua provided good to excellent control of Italian ryegrass. Treatments that included a delayed preemergence application of Axiom DF provided fair control of Italian ryegrass. The addition of a spring application of either PowerFlex® HL or Osprey Xtra added to fall-applied treatments did not improve Italian ryegrass control when compared to the fall applications alone. Spring applications of either Osprey Xtra or PowerFlex HL alone did not provide commercially acceptable control of Italian ryegrass. The lack of efficacy from the spring applications might be partially explained by the lack of a spring germinating cohort of Italian ryegrass. The fall germinating cohort of Italian ryegrass may have been too large for effective control with spring herbicide applications. Another possible explanation is that the Italian ryegrass population in this

field may have been resistant to Group 2 herbicides. Fall herbicide applications led to the best Italian ryegrass control, which in turn led to the highest yields, when compared to spring applied Osprey Xtra, PowerFlex HL or the nontreated check treatments.

				6/14/17	8/7/17
			Application	Italian ryegrass	
Treatment #	Treatment	Rate	Date	control	Yield
		(oz/A)		-----0-100%-----	bu/A
1	Nontreated Check	--		--	58 e
2	Axiom DF	10	10/4/16	77 b <sup>2</sup>	92 cd
3	Zidua	1.5	10/4/16	89 a	111 ab
4	Anthem Flex	3.5 fl oz	10/4/16	92 a	103 a-c
5	Axiom DF	10	10/4/16	79 b	99 bc
5	Osprey Xtra <sup>1</sup>	4.75	4/11/17		
6	Zidua	1.5	10/4/16	91 a	107 a-c
6	Osprey Xtra <sup>1</sup>	4.75	4/11/17		
7	Anthem Flex	3.5 fl oz	10/4/16	95 a	116 ab
7	Osprey Xtra <sup>1</sup>	4.75	4/11/17		
8	Osprey Xtra <sup>1</sup>	4.75	4/11/17	15 d	66 e
9	Axiom DF	10	10/4/16	80 b	107 a-c
9	PowerFlex HL <sup>1</sup>	2	4/11/17		
10	Zidua	1.5	10/4/16	94 a	120 a
10	PowerFlex HL <sup>1</sup>	2	4/11/17		
11	Anthem Flex	3.5 fl oz	10/4/16	95 a	116 ab
11	PowerFlex HL <sup>1</sup>	2	4/11/17		
12	PowerFlex HL <sup>1</sup>	2	4/11/17	24 c	76 de

<sup>1</sup> Treatment was tank mixed with 0.5% NIS and 2.0 qts UAN/A

<sup>2</sup> Means, based on four replicates, within a column, followed by the same letter are not significantly different at P = 0.05 as determined by Fisher's protected LSD test, which means that we are not confident that the difference is the result of treatment rather than experimental error or random variation associated with the experiment.

#### Disclaimer

**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.**