

Italian ryegrass control with Zidua®

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A field study was conducted on the Cook Agronomy Farm near Pullman, WA to evaluate the efficacy of Zidua on Italian ryegrass in winter wheat. Pyroxasulfone, the active ingredient in Zidua, is 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 Palouse silt loam with 3.2% organic matter and a pH of 5.2. On October 11, 2013 'ARS-Amber' winter wheat was planted at 90 lb/acre using a Horsch air drill with 12-inch row spacing. Planting depth was 1.25 inches. Starter fertilizer was applied at planting at a rate of 130, 10 and 15 lb/acre of N:P:K. Post-plant, pre-emergence (PRE) herbicide treatments were applied using a CO₂ backpack sprayer set to deliver 30 psi at 15 gpa and 3 mph on October 11, 2013. Conditions were an air temperature of 56°F, relative humidity of 59% and the wind out of the southwest at 2 mph. Delayed pre-emergence (DPRE) herbicide treatments were applied using the same CO₂ backpack specifications on October 15, 2013. Conditions were an air temperature of 57°F, relative humidity of 24% and the wind out of the south at 2 mph. The spring post-emergence (POST) applications were made on April 3, when the wheat was at the 2-tiller stage and was 3 to 6 inches tall. Italian ryegrass was 0.5 to 1 inch tall. Air temperature was 48°F, relative humidity was 34% and the wind was southeast at 4 mph. The plots were harvested on August 12 using a Kincaid 8XP combine.

Italian ryegrass pressure in these plots was heavy and fairly evenly distributed throughout the plots in the early spring. As the spring advanced and conditions began to dry out, late emerging Italian ryegrass withered and died in a pattern that was not controlled for by the experimental blocking. This resulted in a high variance in the visual weed control data collected in June and prevented treatment means separation. This pattern appeared to be caused by unforeseen soil conditions that also affected grain yield data, resulting in poor average yields and high data variance. Consequently, yield data are not presented.

Despite the high variance in these plots, several trends are evident. Italian ryegrass control appeared to be best when Zidua was applied PRE or was applied DPRE with Sencor®. The Sencor may help control Italian ryegrass that emerges after planting but before the DPRE Zidua is applied and activated. It does appear that the higher use rate of 1.5 oz/acre may provide better control than the lower 1.25 oz/acre rate. At the time of this writing, Zidua is not labeled to be used PRE in winter wheat and the maximum use rate for DPRE applications is 1.25 oz/acre. Spring applications provided poor control of Italian ryegrass.

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			April 10	June 25
			Italian ryegrass	
Treatment	Rate	Timing ^a	control	
	oz pr/a		----- % -----	
Zidua	1.25	PRE	83	84
Zidua	1.5	PRE	91	94
Zidua	1.25	DPRE	66	79
Zidua	1.5	DPRE	76	73
Zidua	1.25	DPRE	90	85
Sencor	1.45	DPRE		
Zidua	1.5	DPRE	76	95
Sencor	1.45	DPRE		
Axiom	10	DPRE	79	71
Zidua	2	POST	55	59
Axial XL	16.4	POST	79	53
Zidua	2	POST	61	71
Axial XL	16.4	POST		
Nontreated Check
LSD (5%)			16	ns

^aPRE, DPRE and POST were applied on Oct. 11 & 15, 2013 and April 3, respectively

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.