

Evaluation of PRE/POST applications for the control of rattail fescue in direct-seeded soft white winter wheat

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A field study was conducted at Wolf Farms near Uniontown, WA to evaluate herbicide application timing and its effect on rattail fescue control in direct-seeded winter wheat. We evaluated Anthem[®] Flex (carfentrazone + pyroxasulfone) and Axiom[®] DF (metribuzin + flufenacet) for preemergence control. Both of these products have active ingredients in the Mechanism of Action Group 15, which are compounds that inhibit the synthesis of very long-chain fatty acids. We evaluated Everest[®] 2.0 (flucarbazone) and Osprey[®] Xtra (thiencarbazone + mesosulfuron) for postemergence control. Both of these products have active ingredients in the Mechanism of Action Group 2, which are compounds that inhibit acetolactate synthase, a key enzyme in the biosynthesis of the branched-chain amino acids isoleucine, leucine and valine. Osprey Xtra is not yet registered for use in wheat.

The soil at this site is an Athena silt loam with 3.3% organic matter and a pH of 5.0. The field was previously in field peas. On October 18, 2016, 'SYN107' soft white winter wheat was seeded at 1×10^6 seeds per acre with a Cross Slot[®] drill on a 10-inch row spacing. The ground was fertilized at the same time with 60 lb N: 30 lb P: 20 lb S per acre. An additional 40 lb N per acre was applied in the spring. From September 1 to the planting date, a weather station in Colton (approx. 6 miles north of the test site) recorded 22 days of rainfall totaling 2.94 inches, with the majority falling in October. Because of this, a significant amount of rattail fescue germinated prior to initiating the trial. We applied RT 3[®] (32 fl oz/A) + AMS (12 lb/100 gal) + Silwet[®] L-77 (0.25% v/v) in 20 GPA on October 24th over the entire trial area. Preemergence treatments were applied on October 25th with a CO₂-powered backpack sprayer set to deliver 10 gpa at 46 psi at 2.3 mph. The applications were made under winds out of the southeast at 4 mph with an air temperature of 49°F and relative humidity of 72%. Fall postemergence treatments were applied on November 7th with a CO₂-powered backpack sprayer set to deliver 10 gpa at 46 psi at 2.3 mph. The applications were made under winds out of the southeast at 8 mph with an air temperature of 59°F and relative humidity of 48%. Spring postemergence treatments were applied on April 28, 2017 with a CO₂-powered backpack sprayer set to deliver 10 gpa at 41 psi at 2.3 mph. The applications were made under winds out of the west at 4 mph with an air temperature of 55°F and relative humidity of 40%. At the time of fall postemergence application, rattail fescue had one leaf emerged and ranged in height from 1.25 to 1.5 inches and the wheat had one leaf unfolded and was 1.5 to 2.5 inches in height. The density of rattail fescue increased as you moved from the first to the fourth rep of the trial. The plots were harvested on August 16 using a Kincaid 8XP plot combine.

With all of the fall precipitation, a significant amount of rattail germinated prior to wheat emergence. The application of RT 3 may have killed all of the emerged rattail fescue because the follow up applications of the preemergence herbicides, Anthem Flex and Axiom DF, provided season long control, whereas the nontreated checks were recolonized with rattail fescue when rated in the spring. Fall or spring postemergence applications of either Everest 2.0 or Osprey Xtra did not control rattail fescue well. Fall applications may not have been effective because a significant portion of the rattail fescue was killed or weakened by the RT 3 application. Rattail fescue control was no better with the combination treatments of fall preemergence followed by spring postemergence than with only fall preemergence treatments, suggesting that the fall

preemergence treatments were providing most of the control. This also suggests that the majority of raitail fescue germinated in the fall. Overall yield and test weight means were 84 bu/A and 55.4 lb/bu, respectively. There were no significant differences in yield or test weight among treatments when compared to the nontreated check. Even though preemergence applications of Anthem Flex and Axiom DF provided season long control of raitail fescue in this study, a planned spring application of a Group 2 herbicide is advisable for years when soil-applied herbicides may not work well as in this study and as a wise herbicide resistance management strategy.

Trt #	Treatment	Rate fl oz/A	Application Date	Raitail fescue control		8/16/17 Yield bu/A
				5/19/17	6/20/17	
1	Nontreated Check			-----0-100%-----		84 a
2	Anthem Flex	3.5	10/25/16	100 a ³	100 a	85 a
3	Anthem Flex	3.5	10/25/16	100 a	100 a	87 a
3	Osprey Xtra ¹	4.75 oz	11/7/16			
4	Axiom DF	10 oz	10/25/16	99 a	96 a	85 a
5	Everest 2.0 ²	1.0	11/7/16	40 c	45 c	84 a
6	Osprey Xtra ¹	4.75 oz	11/7/16	52 bc	52 bc	82 a
7	Axiom DF	10 oz	10/25/16	100 a	100 a	85 a
7	Everest 2.0 ²	1.0	4/28/17			
8	Axiom DF	10 oz	10/25/16	100 a	100 a	84 a
8	Osprey Xtra ¹	4.75 oz	4/28/17			
9	Anthem Flex	3.5	10/25/16	100 a	100 a	83 a
9	Everest 2.0 ²	1.0	4/28/17			
10	Anthem Flex	3.5	10/25/16	100 a	100 a	91 a
10	Osprey Xtra ¹	4.75 oz	4/28/17			
11	Anthem Flex	2.5	10/25/16	100 a	100 a	89 a
11	Anthem Flex + Everest 2.0 ²	2.0 + 1.0	4/28/17			
12	Anthem Flex	2.5	10/25/16	100 a	100 a	87 a
12	Anthem Flex + Osprey Xtra ¹	2.0 + 4.75 oz	4/28/17			
13	Everest 2.0 ²	1.0	4/28/17	67 b	56 bc	78 a
14	Osprey Xtra ¹	4.75 oz	4/28/17	57 bc	70 b	79 a

¹ Treatments were tank mixed with 0.5% v/v NIS + 2.0 qt/A UAN

² Treatments were tank mixed with 0.5% v/v NIS

³ 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

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