Russian-Thistle Control with Spartan® Herbicide in Spring Wheat

A field study was conducted at the Lind Dryland Research Station near Lind, WA to determine the efficacy of Spartan (sulfentrazone) herbicide for Russian-thistle control in spring wheat. 'Louise' spring wheat was planted on March 13, 2013 at a rate of 100 pounds/acre using a Kyle drill with 12-inch row spacing and set to seed at a depth of 1 inch. N-P-S fertilizer was applied as a liquid solution at the time of seeding at the rate of 40, 8, and 6.5 pounds/acre, respectively. The soil was a silt loam with 1.3% organic matter and a pH of 6.3. The experimental design was a randomized complete block with four replications. Herbicide treatments were applied PRE immediately after planting with a CO_2 backpack sprayer calibrated to apply 10 gpa at 35 psi and 3 mph. The trial was harvested on July 29, 2013.

Rainfall following Spartan application was light, with 0.16 of an inch received 7 days after application and 0.22 of an inch received more than two weeks after that. The lack of rainfall after application likely influenced crop injury and weed control. Observed crop injury was necrotic leaf spotting, most likely from soil splashing during rainfall events. The level of crop injury observed was low, with no significant treatment differences. Russian-thistle densities in the nontreated checks were moderate to heavy. Spartan applied at 4 or 5 ounces of product per acre provided fair control of Russian-thistle, which was significantly better than the control provided by 1 or 2 ounces/acre of Spartan. With the exception of the 3 ounces/acre treatment, none of the Spartan treatments had a grain yield significantly different than the nontreated check.

Spartan herbicide demonstrated some potential as a commercially viable control for Russian-thistle in spring wheat. However, the lack of rainfall following application limited the conclusions that could be drawn from this study. March rainfall in 2013 was just 0.39 of an inch compared to the long-term average of 1.01 inch. Only 0.16 of an inch was received in March after herbicide application. April rainfall totaled just 0.5 of an inch compared to the long-term average of 0.81 of an inch. This study, or a similar study, should be repeated in 2014 to better assess the efficacy of Spartan herbicide for Russian-thistle control in spring wheat.

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		23-Apr-13		20-May-13	29-Jul-13
Treatment	Rate	Injury	Russian-thistle control	Russian-thistle control	Yield
	oz/a	----------%----------			bu/a
Spartan 4F	1	4	25	13	24.1
Spartan 4F	2	4	40	31	25.8
Spartan 4F	3	6	50	45	23.3
Spartan 4F	4	9	71	65	28.9
Spartan 4F	5	9	60	69	26.3
Nontreated check		0	0	0	28.4
LSD (5%)*		7	39	26	4.8

*Treatment differences less than the LSD value are not considered significant because we do not feel confident that the difference is due to the treatment rather than to experimental error or random variation associated with the experiment.

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.