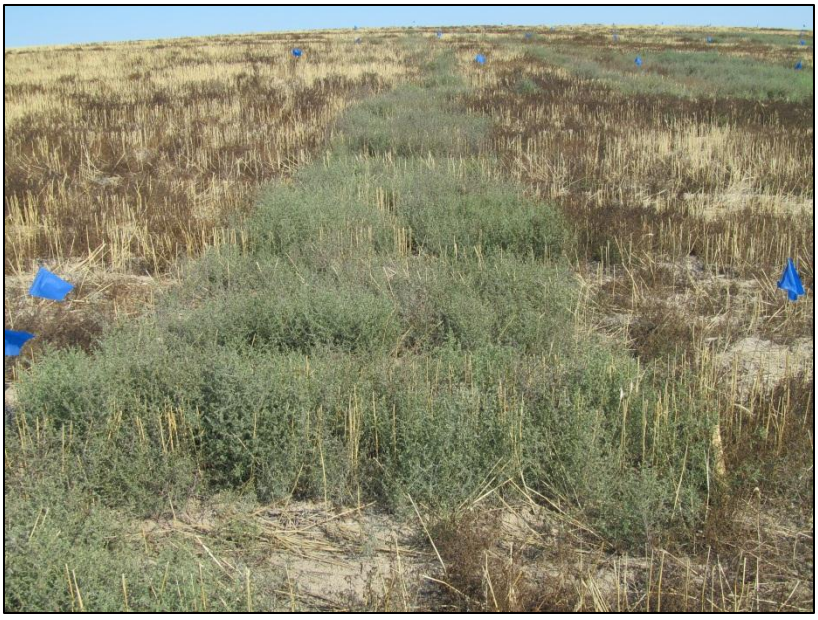
Post-Harvest Control of Russian-thistle Following Spring Wheat



A field study was conducted at the Lind Dryland Research Station in Lind, WA to evaluate the effect of herbicide application timing on Russian-thistle control. Spring wheat was harvested on July 29, 2013. Post-harvest herbicide applications were made on August 9. The experimental design was a randomized complete block with four replications. The first application time was at dawn, when Russian-thistle plants should have recovered from the previous day's drought stress to the maximum extent possible. The air temperature was 61 F, the soil surface temperature was 53 F and the relative humidity was 60%. The second application time was at mid-afternoon, when day time temperatures were near their maximum and plants would have been shutting down as a result of drought stress. The air temperature was 91 F, the soil surface temperature was 84 F, and the relative humidity was 17%. All treatments were applied with a CO_2 backpack sprayer set to deliver 15 gpa at 3 mph and 35 psi. Russian-thistle plants were 6-12 inches tall.

The time of day at which herbicide applications were made did not appear to affect the level of control achieved by any particular treatment. The greatest difference in control between early morning and mid-afternoon application occurred for the treatment of Roundup (glyphosate) at 64 ounces per acre, although the difference was not statistically different. These data do not support the recommendations by some to apply herbicides at night for better control, although this is just one site and one year. The results will need to be verified with further research. The treatments containing Gramoxone Inteon (paraquat) provided the best control of Russian-thistle, particularly two weeks after application. The Buctril (bromoxynil) + dicamba treatment was a very close second. Roundup at 64 ounces per acre provided good to very good control of Russian-thistle four weeks after application, but a reduced rate of Roundup, with or without Sharpen (saflufenacil), provided only fair control of Russian-thistle four weeks after application. The Roundup + Sharpen treatment did provide better control than Roundup at 64 ounces per acre at two weeks after application, but not at four weeks after application.

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Treatment	Rate	Timing	22-Aug-13 Russian-thistle control	4-Sep-13 Russian-thistle control
	oz/a		----------%----------	
Gramoxone Inteon	48	AM	95	93
NIS	0.5% v/v			
Gramoxone Inteon	32	AM	95	90
Karmex DF	5			
NIS	0.5% v/v			
Buctril	24	AM	91	89
Dicamba	8			
Roundup PowerMax	32	AM	18	56
AMS	17 lb/100 gal			
Roundup PowerMax	64	AM	53	89
AMS	17 lb/100 gal			
Roundup PowerMax	32	AM	69	71
Sharpen	1			
MSO	1% v/v			
AMS	17 lb/100 gal			
Gramoxone Inteon	48	PM	99	95
NIS	0.5% v/v			
Gramoxone Inteon	32	PM	98	93
Karmex DF	5			
NIS	0.5% v/v			
Buctril	24	PM	86	83
Dicamba	8			
Roundup PowerMax	32	PM	25	55
AMS	17 lb/100 gal			
Roundup PowerMax	64	PM	45	80
AMS	17 lb/100 gal			
Roundup PowerMax	32	PM	73	73
Sharpen	1			
MSO	1% v/v			
AMS	17 lb/100 gal			
Untreated check			0	0
LSD (5%)*			10	10

*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.