Project Title: Russian Thistle Herbicide Screening Trial

Project leader: Bob Stougaard

Objective: To evaluate the effects of herbicides and application rates on Russian thistle control and spring wheat yield.

Results:

This study was conducted at the Mast Ranch in a field with a previous history of high Russian thistle densities. Straw was spread over the field in February as bedding for spring calving operations. The cattle were removed and 'Salano' spring wheat was planted with an air drill on May 2, 2009. Sixteen herbicide treatments were applied postemergence on May 28 when Russian thistle seedlings were one to two inches tall and the spring wheat was in the 4-leaf stage of development. Treatments were applied with a CO_2 backpack sprayer in 20 GPA of water using 1102 flat fan nozzles. Individual plots were 10 by 15 feet and each treatment was replicated three times. The area was sprayed with Axial on June 11 for the control of green foxtail. Crop injury and Russian thistle control were evaluated at 1, 3, and 7 weeks after application. Spring wheat test weight and yield were determined on August 31.

Excessive straw at this site altered the C:N ratio and impacted N availability sporadically throughout the study area. As a result, it was not possible to accurately assess herbicide injury (data not presented). However, Russian thistle densities were high, which allow for an assessment of herbicide efficacy. Huskie was the most effective herbicide evaluated. Injury symptoms were immediate and control was greater than 90 percent, regardless of the rate or surfactant system utilized (Table 1). Wolverine, 2,4-D and Curtail also afforded a similar level of control. All other herbicides evaluated failed to provide acceptable control of Russian thistle.

Late planting, excessive straw, and below normal rainfall all contributed to lower than normal yields. As a result, weed control had no impact on yield (figure 1). However, there was a strong relationship between weed control and test weight. Test weights ranged from 53 to 58 lb/bu and increased as the level of Russian thistle control improved (Figure 2).

Summary: Huskie provided the most complete control of Russian thistle. Curtail, 2,4-D and Wolverine also provide good control of Russian thistle.

Figure 1. Relationship between yield and Russian thistle control.

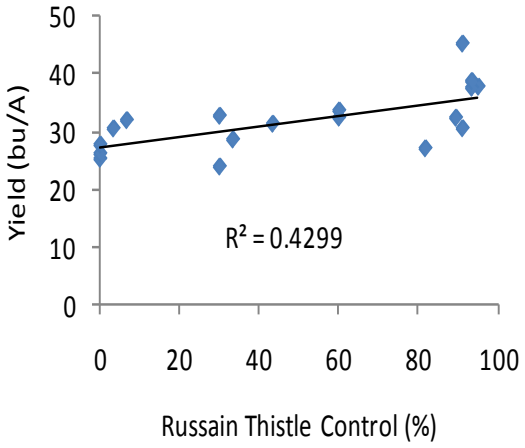

Figure 2. Relationship between test weight and Russian thistle control.

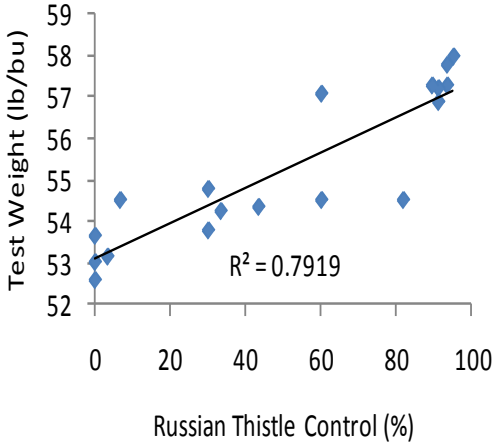

Table 1. Effect of herbicides on Russian thistle control.

			Percent Control			Test weight	Yield
trt	Herbicide	Rate/A	4-Jun	19-Jun	17-Jul	lb/bu	bu/A
5	Huskie + AMS + NIS	13.5 oz	90	95	95	58	38
4	Huskie + AMS	15 oz	88	95	93	58	38
3	Huskie + AMS	13.5 oz	83	93	93	57	39
2	Huskie + AMS	11 oz	83	93	91	57	45
15	Curtail + NIS	2 pt	62	78	91	57	30
17	2,4-D + NIS	1 pt	68	73	89	57	32
9	Wolverine	27.4 oz	57	87	82	55	27
14	Bronate Advanced	12.8 oz	47	73	60	55	32
6	Widematch + MCPA	1 pt + 0.5 pt	40	63	60	57	34
10	Widematch + MCPA ester	0.75 pt + 0.5 pt	38	58	43	54	31
12	Goldsky + NIS	1 pt	37	22	33	54	29
18	MCPA + NIS	1 pt	37	33	30	54	24
13	Aim + NIS	0.2 oz	27	23	30	55	33
7	Affinity TM + Starane + NIS	0.6 oz + 0.33 pt	13	15	7	55	32
11	Orion	17 oz	22	13	3	53	30
16	Harmony GT XP + NIS	0.6 oz	23	17	0	53	25
1	nontreated		0	0	0	54	26
8	nontreated		0	0	0	53	28
	MEAN		45	52	50	55	32
	PR>F (trt)		0.0001	0.0001	0.0001	0.0002	0.1989
	CV		27	24	23	2.8	24
	LSD (0.05)		21	21	19	2.5	13