PROJECT TITLE: The Effect of Herbicides, Rates, and Surfactants on the control of Broadleaf Weeds in Small Grains.

PROJECT LEADERS: Bob Stougaard and Todd Keener, NWARC, Kalispell, MT.

OBJECTIVES: To determine if broadleaf weed control in small grains could be enhanced with the addition of surfactants to standard herbicide treatments.

RESULTS: The core treatments consisted of Harmony Extra applied at 0.2, 0.3 and 0.4 oz/A applied with either a non-ionic surfactant or a combination of a non-ionic surfactant plus 28% UAN. These treatments were applied at either the 1, 2, or 3 leaf stage of common lambsquarters. Bronate at 1 pt/A and a nontreated check were included for comparison.

Neither surfactant or herbicide rate had any effect on weed control or barley yield. However, application timing did effect weed control. As application was delayed and weeds became larger, control declined with all rates regardless of the surfactant used. The results of this study point to the need of treating weeds when small. Allowing weeds to become larger results in reduced control, and allows the weeds to compete with the crop for longer periods of time.

SUMMARY: Making applications early provided the most complete weed control and allows for the use of reduced herbicide rates.

FUTURE PLANS: Although the surfactants screened in this study did not improve weed control, additional surfactants should be evaluated for the potential to reduce broadleaf herbicide rates. Research of reduced herbicide rates in combination with various additives will be continued in the future at the NWARC.

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BROADLEAF HERBICIDE SURFACTANT STUDY

Northwestern Agricultural Research Center, Kalispell, MT.

Trt No	Treatment Name	Rate oz/A	Grow Stage	Yield Bu/A 9/26	Barley % Inj 6/3	Barley % Inj 6/16	-Lambsqrtrs- % Control 6/3	% Control 6/16
1	HARMONY EXTRA	.2	1TRLF	77.4	0	1	99	99
1	NIS 1/	6.4	1TRLF					
2	HARMONY EXTRA	.3	1TRLF	61.9	0	0	97	100
2	NIS	6.4	1TRLF					
3	HARMONY EXTRA	.4	1TRLF	80.8	0	0	94	100
3	NIS	6.4	1TRLF					
4	HARMONY EXTRA	.2	1TRLF	70.9	0	0	98	100
4	NIS	6.4	1TRLF					
4	28% UAN 2/	1gal	1TRLF					
5	HARMONY EXTRA	.3	1TRLF	69.3	0	1	90	97
5	NIS	6.4	1TRLF					
5	28% UAN	1gal	1TRLF					
6	HARMONY EXTRA	.4	1TRLF	76.3	0	0	96	100
6	NIS	6.4	1TRLF					
6	28% UAN	1gal	1TRLF					
7	HARMONY EXTRA	.2	2TRLF	70.4	0	3	61	88
7	NIS	6.4	2TRLF					
8	HARMONY EXTRA	.3	2TRLF	69.1	0	3	66	91
8	NIS	6.4	2TRLF					
9	HARMONY EXTRA	.4	2TRLF	67.4	0	5	64	91
9	NIS	6.4	2TRLF					
10	HARMONY EXTRA	.2	2TRLF	72.7	0	5	66	91
10	NIS	6.4	2TRLF					
10	28% UAN	1	2TRLF					
11	HARMONY EXTRA	.3	2TRLF	63.9	0	6	60	91
11	NIS	6.4	2TRLF					
11	28% UAN	1gal	2TRLF					

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BROADLEAF HERBICIDE SURFACTANT STUDY

Northwestern Agricultural Research Center, Kalispell, MT.

Trt No	Treatment Name	Rate oz/A	Grow Stage	Yield Bu/A 9/26	Barley % Inj 6/3	Barley % Inj 6/16	Lambsquarters Percert Control 6/3	Lambsquarters Percert Control 6/16
12	HARMONY EXTRA	.4	2TRLF	73.9	0	5	63	91
12	NIS	6.4	2TRLF					
12	28% UAN	1 Gal	2TRLF					
13	HARMONY EXTRA	.2	3TRLF	64.3	0	11	0	71
13	NIS	6.4	3TRLF					
14	HARMONY EXTRA	.3	3TRLF	73.4	0	14	0	74
14	NIS	6.4	3TRLF					
15	HARMONY EXTRA	.4	3TRLF	68.6	0	11	0	76
15	NIS	6.4	3TRLF					
16	HARMONY EXTRA	.2	3TRLF	66.9	0	15	0	74
16	NIS	6.4	3TRLF					
16	28% UAN	1 Gal	3TRLF					
17	HARMONY EXTRA	.3	3TRLF	57.5	0	19	0	73
17	NIS	6.4	3TRLF					
17	28% UAN	1 Gal	3TRLF					
18	HARMONY EXTRA	.4	3TRLF	58.5	0	15	0	70
18	NIS	6.4	3TRLF					
18	28% UAN	1 Gal	3TRLF					
19	BRONATE	1 pt	3TRLF	71.5	0	8	0	89
20	NONTREATED			58.8	0	0	0	0
LSD (.05) =				10.3	0	6	7	7
CV =				10.62	0	71.88	10.43	5.75
Treatment Prob(F)				.0005	1.00	.0001	.0001	.0001

1/ NIS = non-ionic surfactant Activator-90 applied at 6.4 oz/A
(at 20 gpa was .25% v/v)

2/ 28% UAN applied with treatments at 1 gallon per acre