

Hard red spring wheat tolerance to postemergence herbicides at Rosemount, MN - 2016.

Durgan, Beverly R., Douglas W. Miller, Bradley Kinkaid, Rafael Pedroso da Silva, and Maria Karis. This experiment was designed to evaluate the tolerance of selected Hard Red Spring Wheat (HRSW) varieties to various postemergence herbicides. The experiment was conducted at Rosemount, MN on a Waukegon silt loam soil with pH 5.9 and 4.3% organic matter. Soil test for P and K were 36 lbs/A and 312 lbs/A, respectively. Following soybeans, the experimental area was fall chisel plowed. On April 11, the area was field cultivated. On April 12, the area was fertilized with 70 lbs/A N, 60 lbs/A P, and 60 lbs/A K and field cultivated a second time. The HRSW varieties 'Bolles', 'Linkert', 'Shelly' and 'Valda' were seeded with a 12 foot wide drill at 115 lbs/A on April 13. The experimental design was a strip plot with four replications. Varieties were seeded in strips randomized within each replication. Herbicide treatments were applied across all varieties. Each herbicide x variety plot was 12 feet wide by 12 feet long. Herbicide treatments were applied to a 7.5 foot strip with a tractor mounted, air powered sprayer delivering 10 gpa at 35 psi using XR11001 flat-fan nozzles with 15 inch spacing. Herbicide treatments were applied May 18. Environmental conditions at application are listed below. Crop injury was visually rated. Crop height was measured at maturity. Yields were determined by harvesting a 5.7 X 12 foot strip in the treated area with a small plot combine. Data is summarized by variety and is presented in Tables 1 and 2.

Treatment Date	May 18
Air Temperature (°F)	64
Relative humidity (%)	26
Dewpoint (°F)	29
Soil Temperature (°F)	59
Soil Moisture	moist at 1.0"
Sky	5% clouds
Wind	N 0-5 mph
Rainfall before application	
Week 1 (inch)	0.35
Rainfall after application	
Week 1 (inch)	0.01
Week 2 (inch)	1.48

<u>Wheat Variety</u>	<u>Height (inch)</u>	<u>Leaf Stage (Haun)</u>	<u>Tillers</u>	<u>Zadoks Code</u>
Bolles	7-10	4.7-4.9	2-3	Z15 , Z22-23
Linkert	7-10	4.8-5.2	3	Z15 , Z23
Shelly	6-9	4.5-5.1	2-4	Z15 , Z22-24
Valda	7-10	4.8-5.0	2	Z15 , Z22

Results

Greatest crop injury was observed with the Everest WG treatment followed by the PerfectMatch treatments and then the Varro treatments. For a given herbicide treatment, the degree of injury was similar among the four wheat varieties. Injury was mainly crop stunting and final plant heights reflect the degree of visual injury that was observed. For all varieties, yields were greatest with the untreated check, however the differences compared to herbicide treatments were not always significant. The Everest WG treatment and PerfectMatch treatments generally had the lowest yields.

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Table 1.

Treatment	Rate (Product/A)	Bolles						Linkert					
		Injury				Height (inch)	Yield (Bu/A)	Injury				Height (inch)	Yield (Bu/A)
		5/24 (%)	6/9 (%)	6/22 (%)	7/25 (%)			5/24 (%)	6/9 (%)	6/22 (%)	7/25 (%)		
Everest WG + Preference + AMS	0.61 oz + 3.2 oz + 2.35 pt	25	26	29	25	31	49	24	23	26	23	27	46
Everest 2.0 + Preference + AMS	1 oz + 3.2 oz + 2.35 pt	4	3	4	1	34	56	4	3	4	1	30	54
AL-X1581ad + Preference + AMS	2 oz + 3.2 oz + 2.35 pt	4	6	0	0	33	56	3	5	0	0	30	53
AL-X1581ad + Audit 1:1 + Preference + AMS	2 oz + 0.4 oz + 3.2 oz + 2.35 pt	5	8	3	3	34	55	5	8	1	3	29	50
AL-X1780aa + Preference + AMS	16.8 oz + 3.2 oz + 2.35 pt	4	5	3	1	34	55	4	5	3	1	31	52
Varro + Preference + AMS	6.85 oz + 3.2 oz + 2.35 pt	6	5	1	1	35	58	6	5	1	1	30	52
Varro + Preference + AMS	10.27 oz + 3.2 oz + 2.35 pt	11	6	4	3	34	58	10	6	4	3	30	51
PerfectMatch + Preference + AMS	1 pt + 3.2 oz + 2.35 pt	15	10	6	1	31	53	15	9	6	1	29	46
PerfectMatch + Preference + AMS	1.5 pt + 3.2 oz + 2.35 pt	13	15	10	6	32	51	13	15	10	6	28	44
Huskie Complete	13.7 oz	4	1	0	0	34	55	4	1	0	0	30	49
Untreated Check	--	0	0	0	0	35	61	0	0	0	0	32	59
LSD (0.05)		5	6	5	4	1	5	5	6	5	4	2	4

Table 2.

Treatment	Rate (Product/A)	Shelly						Valda					
		Injury				Height (inch)	Yield (Bu/A)	Injury				Height (inch)	Yield (Bu/A)
		5/24 (%)	6/9 (%)	6/22 (%)	7/25 (%)			5/24 (%)	6/9 (%)	6/22 (%)	7/25 (%)		
Everest WG + Preference + AMS	0.61 oz + 3.2 oz + 2.35 pt	24	23	20	23	29	60	24	20	20	23	31	58
Everest 2.0 + Preference + AMS	1 oz + 3.2 oz + 2.35 pt	4	1	4	1	30	66	4	1	4	1	33	60
AL-X1581ad + Preference + AMS	2 oz + 3.2 oz + 2.35 pt	3	6	0	0	31	65	3	5	0	0	33	60
AL-X1581ad + Audit 1:1 + Preference + AMS	2 oz + 0.4 oz + 3.2 oz + 2.35 pt	5	6	3	3	30	62	5	6	1	3	33	58
AL-X1780aa + Preference + AMS	16.8 oz + 3.2 oz + 2.35 pt	4	5	3	1	32	64	4	5	3	1	34	62
Varro + Preference + AMS	6.85 oz + 3.2 oz + 2.35 pt	6	5	1	1	31	66	6	5	1	1	33	62
Varro + Preference + AMS	10.27 oz + 3.2 oz + 2.35 pt	10	6	4	3	32	66	10	6	4	3	33	62
PerfectMatch + Preference + AMS	1 pt + 3.2 oz + 2.35 pt	16	9	6	1	31	64	14	9	6	1	33	58
PerfectMatch + Preference + AMS	1.5 pt + 3.2 oz + 2.35 pt	13	15	10	6	30	59	13	11	10	6	31	60
Huskie Complete	13.7 oz	4	1	0	0	32	65	4	1	0	0	34	63
Untreated Check	--	0	0	0	0	33	70	0	0	0	0	35	66
LSD (0.05)		5	5	5	4	1	6	5	5	5	4	1	ns

Everest WG 70WG = flucarbazone-sodium & cloquintacet (safener).

Preference = nonionic surfactant.

N-Pak AMS = 34% ammonium sulfate solution (3.4 lbs ammonium sulfate/gal).

Everest 2.0 3.5SC = flucarbazone-sodium & cloquintacet (safener).

AL-X1581ad 1.75SC = experimental from Arysta.

Audit 1:1 50WDG = thifensulfuron (25%) & tribenuron (25%).

AL-X1780aa = experimental from Arysta.

Varro 0.083L = thiencazabone-methyl.

PerfectMatch 1.61SE = clopyralid (0.75 lb ae/gal) & fluroxypyr (0.75 lb ae/gal) & pyroxsulam (0.11 lb ai/gal).

Huskie Complete 1.76L = thiencazabone-methyl (0.042 lb ai/gal) & pyrasulfotole (0.26 lb ai/gal) & bromoxynil phenol equivalent (1.46 lb ai/gal).