

Hard red spring wheat and barley tolerance to postemergence herbicides at Crookston, MN - 2009. Durgan, Beverly R., Jochum J. Wiersma, James H. Cameron and Douglas W. Miller. This experiment was designed to evaluate the tolerance of selected hard red spring wheat (HRSW) and barley varieties to several postemergence herbicides. The experiment was conducted at Crookston, MN on a Donaldson/Wheaton loam. Following soybeans, the experimental area was chisel plowed in the fall of 2008. In the spring of 2009, 110 lbs/A N was applied and the experimental area was tilled with a field cultivator to prepare the seedbed. The HRSW varieties 'Albany', 'Faller', 'Glenn', 'Hat Trick', 'Howard', 'Jenna', 'Kelby', 'Knudson', 'Kuntz', 'RB-07', 'Sabin', and 'Tom', and the spring barley varieties "M122" and 'Rasmusson' were seeded on May 18 at 105 lbs/A and 98 lbs/A for wheat and barley, respectively. All treatments were applied with a CO₂ pressured backpack type sprayer delivering 10 gpa at 30 psi using 80015 flat-fan nozzles. Herbicides were applied on June 18. The experimental design was a strip plot with three replications. Varieties were seeded in strips randomized within each replication. Herbicide treatments were applied across all varieties. Each herbicide x variety plot was 8 by 8 ft. Environmental conditions are listed below. Crop injury was rated visually. Plant heights and grain yield were measured. Data is summarized by variety and presented in the tables 1 through 7.

Treatment Date	June 18
Air temperature (°F)	74
Soil temperature (°F)	69
Relative humidity (%)	81
Wind	W 3 mph
Rainfall before Application	
Week 1 (inch)	0.40
Rainfall after Application	
Week 1 (inch)	0.45
Week 2 (inch)	3.28

Injury from GoldSky was a reduction in height. Injury symptoms from Everest were height reduction, yellowing, and leaf tip burn. Everest injury symptoms were yellowing and height reduction.

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Table 1.

Treatment	Rate	Albany							Faller							
		Injury				Height			Yield	Injury				Height		
		6/26	7/9	7/16	7/23	6/26	8/15	6/26		7/9	7/16	7/23	6/26	8/15	Yield	
Product/A	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)		
Wolverine	27.4 oz	0	0	0	0	11	36	76	0	0	0	0	11	36	72	
Wolverine	54.8 oz	3	0	0	0	12	36	78	3	0	0	0	11	36	80	
GoldSky + Preference	1 pt + 3.2 oz	17	8	10	10	9	37	71	17	8	10	10	10	36	72	
GoldSky + Preference	2 pt + 3.2 oz	18	10	10	10	10	36	72	18	13	12	10	9	36	73	
Rimfire + Quad 7	1.76 oz + 0.8 pt	20	12	10	12	10	35	70	35	18	17	13	9	36	64	
Rimfire + Quad 7	3.52 oz + 0.8 pt	23	17	15	13	9	35	68	33	25	22	17	7	35	72	
Rimfire Max + Quad 7	3 oz & 11 oz + 0.8 pt	27	20	17	17	9	35	67	40	25	20	18	7	36	71	
Rimfire Max + Quad 7	6 oz & 22 oz + 0.8 pt	32	23	23	22	9	35	68	48	23	23	18	8	35	69	
Everest + Preference	0.62 oz + 3.2 oz	28	12	10	8	7	36	68	38	12	10	12	8	35	69	
Everest + Preference	1.23 oz + 3.2 oz	43	23	20	20	7	33	62	47	25	20	18	8	34	69	
Axial TBC + Adigor Adjuvant	8.85 oz + 9.6 Oz	0	0	0	0	11	36	77	0	0	0	0	11	37	77	
Axial TBC + Adigor Adjuvant	17.7 oz + 9.6 oz	0	0	0	0	11	37	78	0	0	0	0	11	36	81	
Untreated Check	--	0	0	0	0	12	36	79	0	0	0	0	11	37	75	
LSD (0.05)		11	7	6	5	2	ns	ns	10	6	4	6	2	ns	ns	

Table 2.

Treatment	Rate	Glenn							Hat Trick							
		Injury				Height			Yield	Injury				Height		
		6/26	7/9	7/16	7/23	6/26	8/15	6/26		7/9	7/16	7/23	6/26	8/15	Yield	
Product/A	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)		
Wolverine	27.4 oz	0	0	0	0	14	39	93	0	0	0	0	12	38	75	
Wolverine	54.8 oz	3	0	0	0	14	39	99	3	0	0	0	12	37	93	
GoldSky + Preference	1 pt + 3.2 oz	12	8	10	10	11	38	86	17	8	10	10	10	37	74	
GoldSky + Preference	2 pt + 3.2 oz	22	10	10	10	12	37	81	20	13	10	10	10	37	66	
Rimfire + Quad 7	1.76 oz + 0.8 pt	17	12	12	12	12	37	82	23	13	12	13	10	36	68	
Rimfire + Quad 7	3.52 oz + 0.8 pt	20	15	13	13	12	38	79	25	17	15	15	10	36	71	
Rimfire Max + Quad 7	3 oz & 11 oz + 0.8 pt	30	18	15	20	12	38	74	28	20	17	20	9	36	72	
Rimfire Max + Quad 7	6 oz & 22 oz + 0.8 pt	32	27	27	25	11	35	74	37	23	23	22	8	36	67	
Everest + Preference	0.62 oz + 3.2 oz	23	10	8	8	10	36	79	17	8	10	8	10	37	74	
Everest + Preference	1.23 oz + 3.2 oz	45	27	23	18	11	36	71	43	27	23	20	8	35	70	
Axial TBC + Adigor Adjuvant	8.85 oz + 9.6 Oz	0	0	0	0	13	39	91	0	0	0	0	13	38	87	
Axial TBC + Adigor Adjuvant	17.7 oz + 9.6 oz	0	0	0	0	12	39	87	0	0	0	0	13	37	92	
Untreated Check	--	0	0	0	0	14	39	86	0	0	0	0	12	37	87	
LSD (0.05)		9	8	8	6	ns	2	13	9	8	5	6	2	ns	ns	

Wolverine 1.38E = fenoxaprop-p-ethyl (0.38 lb ai/gal) & pyrasulfotole (0.17 lb ai/gal) & bromoxynil octanoate (0.41 lb ai/gal) & bromoxynil heptanoate (0.42 lb ai/gal).

GoldSky 1.53L = pyroxsulam (0.11 lb ai/gal) & fluroxypyr (0.71 lb ae/gal) & florasulam (0.018 lb ai/gal).

Preference = nonionic surfactant.

Rimfire 10.2 WDG = propoxycarbazone (8.14%) & mesosulfuron (2.03%).

Quad 7 = ammonium salt, buffering agent, and surfactant blend.

Rimfire Max = [SP102000020887 (experimental from Bayer Crop Science)] and [pyrasulfotole (0.23 lb ai/gal) & bromoxynil 1.85 lb ai/gal] & safener.

Everest 70 WG = flucarbazone.

Axial TBC 0.838 EC = pinoxaden (0.774 lb ai/gal) & florasulam (0.0645 lb ai/gal) & safener.

Adigor Adjuvant = emulsifiable oil adjuvant.

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Table 3.

Treatment	Rate	Howard							Jenna							
		Injury				Height			Yield	Injury				Height		
		6/26	7/9	7/16	7/23	6/26	8/15	6/26		7/9	7/16	7/23	6/26	8/15	Yield	
Product/A	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)		
Wolverine	27.4 oz	0	0	0	0	13	36	83	0	0	0	0	12	35	86	
Wolverine	54.8 oz	3	0	0	0	12	37	86	3	0	0	0	12	35	84	
GoldSky + Preference	1 pt + 3.2 oz	13	8	10	10	11	36	86	15	8	10	10	11	34	79	
GoldSky + Preference	2 pt + 3.2 oz	17	13	12	10	10	35	80	20	10	10	10	9	33	73	
Rimfire + Quad 7	1.76 oz + 0.8 pt	22	17	15	13	11	36	86	32	12	12	15	9	33	75	
Rimfire + Quad 7	3.52 oz + 0.8 pt	22	18	18	15	11	36	91	32	22	20	17	9	34	78	
Rimfire Max + Quad 7	3 oz & 11 oz + 0.8 pt	33	20	15	15	12	35	82	37	18	22	20	9	33	77	
Rimfire Max + Quad 7	6 oz & 22 oz + 0.8 pt	28	32	30	22	10	35	77	37	28	27	23	9	31	73	
Everest + Preference	0.62 oz + 3.2 oz	22	10	8	8	11	36	89	22	10	10	8	10	34	80	
Everest + Preference	1.23 oz + 3.2 oz	38	25	22	20	8	33	70	47	25	22	20	11	33	68	
Axial TBC + Adigor Adjuvant	8.85 oz + 9.6 Oz	0	0	0	0	13	35	82	0	0	0	0	12	35	76	
Axial TBC + Adigor Adjuvant	17.7 oz + 9.6 oz	0	0	0	0	12	36	83	0	0	0	0	12	35	84	
Untreated Check	--	0	0	0	0	12	37	80	0	0	0	0	13	35	82	
LSD (0.05)		12	9	6	5	2	2	ns	10	6	5	5	2	2	ns	

Table 4.

Treatment	Rate	Kelby							Knudson							
		Injury				Height			Yield	Injury				Height		
		6/26	7/9	7/16	7/23	6/26	8/15	6/26		7/9	7/16	7/23	6/26	8/15	Yield	
Product/A	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)		
Wolverine	27.4 oz	0	0	0	0	13	33	74	0	0	0	0	13	36	86	
Wolverine	54.8 oz	3	0	0	0	14	34	82	3	0	0	0	12	36	85	
GoldSky + Preference	1 pt + 3.2 oz	18	8	10	10	12	32	83	13	8	10	10	11	35	75	
GoldSky + Preference	2 pt + 3.2 oz	20	15	15	13	12	32	78	18	10	10	10	11	34	76	
Rimfire + Quad 7	1.76 oz + 0.8 pt	28	18	17	15	10	31	72	30	17	15	13	10	34	69	
Rimfire + Quad 7	3.52 oz + 0.8 pt	27	23	22	17	11	29	73	30	23	18	15	9	34	68	
Rimfire Max + Quad 7	3 oz & 11 oz + 0.8 pt	30	23	20	18	11	30	66	35	20	18	18	10	36	74	
Rimfire Max + Quad 7	6 oz & 22 oz + 0.8 pt	33	27	25	15	12	30	66	33	32	27	23	9	34	60	
Everest + Preference	0.62 oz + 3.2 oz	30	12	10	8	11	30	74	25	12	12	10	11	34	78	
Everest + Preference	1.23 oz + 3.2 oz	38	23	20	22	11	30	62	43	25	22	20	10	34	66	
Axial TBC + Adigor Adjuvant	8.85 oz + 9.6 Oz	0	0	0	0	13	33	80	0	0	0	0	13	35	92	
Axial TBC + Adigor Adjuvant	17.7 oz + 9.6 oz	0	0	0	0	13	33	75	0	0	0	0	13	34	88	
Untreated Check	--	0	0	0	0	15	33	79	0	0	0	0	14	36	91	
LSD (0.05)		12	6	4	6	ns	3	10	10	7	6	6	2	ns	11	

Wolverine 1.38E = fenoxaprop-p-ethyl (0.38 lb ai/gal) & pyrasulfotole (0.17 lb ai/gal) & bromoxynil octanoate (0.41 lb ai/gal) & bromoxynil heptanoate (0.42 lb ai/gal).

GoldSky 1.53L = pyroxulam (0.11 lb ai/gal) & fluroxypyr (0.71 lb ae/gal) & florasulam (0.018 lb ai/gal).

Preference = nonionic surfactant.

Rimfire 10.2 WDG = propoxycarbazone (8.14%) & mesosulfuron (2.03%).

Quad 7 = ammonium salt, buffering agent, and surfactant blend.

Rimfire Max = [SP102000020887 (experimental from Bayer Crop Science)] and [pyrasulfotole (0.23 lb ai/gal) & bromoxynil 1.85 lb ai/gal] & safener].

Everest 70 WG = flucarbazone.

Axial TBC 0.838 EC = pinoxaden (0.774 lb ai/gal) & florasulam (0.0645 lb ai/gal) & safener.

Adigor Adjuvant = emulsifiable oil adjuvant.

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Table 5.

Treatment	Rate Product/A	Kuntz							RB07							
		Injury				Height			Yield	Injury				Height		
		6/26	7/9	7/16	7/23	6/26	8/15	6/26		7/9	7/16	7/23	6/26	8/15	Yield	
		(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)	
Wolverine	27.4 oz	0	0	0	0	12	33	89	0	0	0	0	12	34	80	
Wolverine	54.8 oz	5	0	0	0	13	35	92	3	0	0	0	12	34	84	
GoldSky + Preference	1 pt + 3.2 oz	17	8	10	10	11	34	79	18	8	10	10	9	33	79	
GoldSky + Preference	2 pt + 3.2 oz	17	10	10	10	11	34	73	22	12	13	15	11	33	69	
Rimfire + Quad 7	1.76 oz + 0.8 pt	18	17	13	12	10	33	74	28	18	15	17	8	33	76	
Rimfire + Quad 7	3.52 oz + 0.8 pt	23	17	15	13	10	33	72	35	27	23	18	8	33	73	
Rimfire Max + Quad 7	3 oz & 11 oz + 0.8 pt	33	20	17	17	11	32	71	40	27	22	25	8	32	67	
Rimfire Max + Quad 7	6 oz & 22 oz + 0.8 pt	35	25	23	17	11	34	62	33	30	27	28	9	31	69	
Everest + Preference	0.62 oz + 3.2 oz	17	10	8	8	11	32	82	28	8	8	15	8	32	75	
Everest + Preference	1.23 oz + 3.2 oz	33	23	20	20	9	32	70	43	28	23	25	9	32	57	
Axial TBC + Adigor Adjuvant	8.85 oz + 9.6 Oz	0	0	0	0	13	33	87	0	0	0	0	12	34	84	
Axial TBC + Adigor Adjuvant	17.7 oz + 9.6 oz	0	0	0	0	12	34	90	0	0	0	0	11	34	85	
Untreated Check	--	0	0	0	0	13	35	87	0	0	0	0	13	34	79	
LSD (0.05)		11	9	7	5	2	ns	10	10	4	4	6	3	ns	9	

Table 6.

Treatment	Rate Product/A	Sabin							Tom							
		Injury				Height			Yield	Injury				Height		
		6/26	7/9	7/16	7/23	6/26	8/15	6/26		7/9	7/16	7/23	6/26	8/15	Yield	
		(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)	
Wolverine	27.4 oz	0	0	0	0	13	35	82	0	0	0	0	12	35	69	
Wolverine	54.8 oz	3	0	0	0	12	33	83	3	0	0	0	12	36	67	
GoldSky + Preference	1 pt + 3.2 oz	18	10	10	10	11	33	90	17	8	10	10	11	35	71	
GoldSky + Preference	2 pt + 3.2 oz	17	10	10	10	10	33	75	18	10	10	10	10	35	65	
Rimfire + Quad 7	1.76 oz + 0.8 pt	23	17	15	15	9	33	77	38	17	13	13	10	34	62	
Rimfire + Quad 7	3.52 oz + 0.8 pt	35	32	28	17	8	32	79	37	22	22	17	9	34	56	
Rimfire Max + Quad 7	3 oz & 11 oz + 0.8 pt	33	20	23	20	10	34	79	33	23	17	17	10	33	63	
Rimfire Max + Quad 7	6 oz & 22 oz + 0.8 pt	42	27	25	18	8	33	72	38	32	30	20	8	33	54	
Everest + Preference	0.62 oz + 3.2 oz	37	13	13	8	9	33	79	28	12	10	8	10	34	65	
Everest + Preference	1.23 oz + 3.2 oz	47	25	22	22	9	30	69	32	27	23	18	9	35	48	
Axial TBC + Adigor Adjuvant	8.85 oz + 9.6 Oz	0	0	0	0	13	34	85	0	0	0	0	13	36	74	
Axial TBC + Adigor Adjuvant	17.7 oz + 9.6 oz	0	0	0	0	13	34	82	0	0	0	0	11	35	76	
Untreated Check	--	0	0	0	0	13	35	82	0	0	0	0	13	37	71	
LSD (0.05)		10	6	5	7	2	ns	10	13	6	3	3	2	2	11	

Wolverine 1.38E = fenoxaprop-p-ethyl (0.38 lb ai/gal) & pyrasulfotole (0.17 lb ai/gal) & bromoxynil octanoate (0.41 lb ai/gal) & bromoxynil heptanoate (0.42 lb ai/gal).

GoldSky 1.53L = pyroxsulam (0.11 lb ai/gal) & fluroxypyr (0.71 lb ae/gal) & florasulam (0.018 lb ai/gal).

Preference = nonionic surfactant.

Rimfire 10.2 WDG = propoxycarbazone (8.14%) & mesosulfuron (2.03%).

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Everest 70 WG = flucarbazone.

Axial TBC 0.838 EC = pinoxaden (0.774 lb ai/gal) & florasulam (0.0645 lb ai/gal) & safener.

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Table 7.

Treatment	Rate	M122							Rasmusson							
		Injury				Height			Yield	Injury				Height		Yield
		6/26	7/9	7/16	7/23	6/26	8/15	6/26		7/9	7/16	7/23	6/26	8/15		
Product/A	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)	(%)	(%)	(%)	(%)	(inch)	(inch)	(Bu/A)		
Wolverine	27.4 oz	2	0	0	0	20	34	98	2	0	0	0	16	36	105	
Wolverine	54.8 oz	5	0	0	0	20	35	88	5	0	0	0	19	35	104	
GoldSky + Preference	1 pt + 3.2 oz	47	42	38	43	11	34	85	48	43	40	43	10	34	86	
GoldSky + Preference	2 pt + 3.2 oz	45	40	37	43	10	33	73	48	42	37	43	13	31	104	
Rimfire + Quad 7	1.76 oz + 0.8 pt	20	22	20	22	10	33	82	35	22	18	22	11	33	101	
Rimfire + Quad 7	3.52 oz + 0.8 pt	43	40	38	42	9	32	81	43	42	38	43	11	33	88	
Rimfire Max + Quad 7	3 oz & 11 oz + 0.8 pt	40	38	38	47	11	32	76	33	45	42	47	10	33	82	
Rimfire Max + Quad 7	6 oz & 22 oz + 0.8 pt	42	55	55	57	10	33	65	43	55	55	57	13	31	84	
Everest + Preference	0.62 oz + 3.2 oz	38	43	50	52	10	30	71	38	47	48	52	11	31	82	
Everest + Preference	1.23 oz + 3.2 oz	53	65	60	65	11	31	59	57	65	63	65	9	32	77	
Axial TBC + Adigor Adjuvant	8.85 oz + 9.6 Oz	0	0	0	0	18	35	96	0	0	0	0	19	33	97	
Axial TBC + Adigor Adjuvant	17.7 oz + 9.6 oz	0	0	0	0	21	35	96	0	0	0	0	15	35	99	
Untreated Check	--	0	0	0	0	19	33	86	0	0	0	0	21	34	98	
LSD (0.05)		15	14	15	15	2	2	13	14	13	15	14	6	2	18	

Wolverine 1.38E = fenoxaprop-p-ethyl (0.38 lb ai/gal) & pyrasulfotole (0.17 lb ai/gal) & bromoxynil octanoate (0.41 lb ai/gal) & bromoxynil heptanoate (0.42 lb ai/gal).

GoldSky 1.53L = pyroxsulam (0.11 lb ai/gal) & fluroxypyr (0.71 lb ae/gal) & florasulam (0.018 lb ai/gal).

Preference = nonionic surfactant.

Rimfire 10.2 WDG = propoxycarbazone (8.14%) & mesosulfuron (2.03%).

Quad 7 = ammonium salt, buffering agent, and surfactant blend.

Rimfire Max = [SP102000020887 (experimental from Bayer Crop Science)] and [pyrasulfotole (0.23 lb ai/gal) & bromoxynil 1.85 lb ai/gal] & safener].

Everest 70 WG = flucarbazone.

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