

2010 Broadleaf Weed Herbicide Trial in Spring Wheat

Eric Eriksmoen, Hettinger, ND

‘Howard’ HRSW was seeded on April 15. Treatments were applied on May 31 to 4 leaf wheat and to 3” volunteer Roundup Ready canola (vcn), 1” kochia (kocz), 1” Russian thistle (ruth) and to 6” field bindweed (fibw) with 49° F, 88% RH, sunny sky and NW wind at 1 mph. Treatments were applied with a tractor mounted CO₂ propelled plot sprayer delivering 10 gpa at 30 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The soil is classified as a silt-loam with a pH of 6.2 and OM of 3.2%. The trial was a randomized complete block design with four replications. Weed populations for volunteer canola, kochia, Russian thistle and field bindweed were 3, 26, 12 and 0.75 plants per square foot, respectively. Plots were evaluated for crop injury on June 8 and for weed control on June 25 and July 29. The trial was harvested on August 9.

Treatment	Product rate oz/A	6/8	June 25			July 29			Test weight lbs/bu	Grain yield bu/A
		inj	kocz	ruth	vcn	kocz	ruth	fibw		
		%	% Control							
1 Starane & Sward	18	0	94	91	99	96	85	95	57.5	38.0
2 WideMatch	16	0	91	90	94	97	72	82	57.8	28.6
3 WideMatch + Harmony SG + Express SG	10.7 + 0.2 + 0.2	0	92	92	98	96	96	95	57.5	31.3
4 Harmony SG + Express SG + MCPA ester + NIS	0.48 + 0.12 + 6.15 + 0.25%	0	65	86	97	40	87	95	58.0	29.8
5 Harmony SG + Express SG + 2,4-D ester + NIS	0.3 + 0.3 + 6.4 + 0.25%	0	86	97	99	58	97	95	57.6	31.6
6 Rage D-Tech + NIS	8 + 0.25%	14	96	97	99	86	96	85	57.1	32.1
7 ET + 2,4-D + NIS	0.52 + 6.4 + 0.25%	6	88	99	99	52	99	95	56.8	36.0
8 Bronate Advance	12.8	0	96	99	98	76	96	82	57.0	41.6
9 Huskie	11	0	80	96	99	75	92	82	58.4	33.7
10 Orion + NIS	17 + 0.25%	0	70	85	97	18	12	84	57.1	33.2
11 Pulsar	9	0	99	99	98	99	96	95	58.2	35.9
12 Curtail M	27	0	84	90	99	42	75	95	57.8	30.2
13 Untreated		0	0	0	0	0	0	0	56.9	26.1
C.V. %		97	12	6	2	27	20	15	2.1	8.6
LSD .05		2	13	7	3	24	22	18	NS	4.1

NS = no statistical difference between treatments

Summary

Crop injury (leaf spotting and leaf tip necrosis) was observed on the Rage D-Tech and ET + 2,4-D treatments. All herbicide treatments provided excellent control of volunteer canola. Starane & Sward, WideMatch alone, WideMatch + Harmony SG + Express SG and Pulsar treatments provided excellent season long kochia control. Rage D-Tech also provided good season long kochia control. All herbicide treatments provided good to excellent control of Russian thistle with the exception of WideMatch alone, Orion and Curtail M. All herbicide treatments provided more than 80% season long control of field bindweed and several provided 95% season long control. There were no significant differences between treatments for test weight. All herbicide treatments with the exception of WideMatch alone, Harmony SG + Express SG + 2,4-D and Curtail M had significantly higher grain yields than the untreated check.

2010 Evaluation of Weed Control with Application Timing of BAS 810 H on Spring Wheat

Eric Eriksmoen, Hettinger, ND

'Howard' HRSW was seeded on April 15. Early treatments (trts 2-4) were applied on May 31 to 4 leaf wheat and to 1" kochia (kocz), 1" Russian thistle (ruth), 2 leaf volunteer Roundup Ready canola (vcan), 3" wild buckwheat (wibw) and to 4" field bindweed (fibw) with 58° F, 79% RH, sunny sky and west wind at 7 mph. Late treatments (trts 5-7) were applied on June 9 to jointing wheat and to 4" kochia, 4" Russian thistle, volunteer canola in the flower bud stage, 4" wild buckwheat and to 10" field bindweed with 65° F, 54% RH, cloudy sky and SW wind at 8 mph. Treatments were applied with a tractor mounted CO₂ propelled plot sprayer delivering 10 gpa at 30 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The trial was over-sprayed with 16 oz/A Axial XL on June 6 to control grassy weeds. The soil is classified as a silt-loam with a pH of 6.2 and OM of 3.2%. The trial was a randomized complete block design with four replications. Weed populations for kochia, Russian thistle, volunteer canola, wild buckwheat and field bindweed were 50+, 12, 2, 1 and 0.5 plants per square foot, respectively. Plots were evaluated for crop injury on June 8, June 15 and July 1, and for weed control on June 15, July 1 and July 29. The trial was harvested on August 2.

Summary

Crop injury symptoms were observed as a limp wilted appearance and diminished as the season progressed. Herbicide treatments did not significantly impact crop growth as indicated by heading date and abnormal head development was not observed. All herbicide treatments provided excellent control of volunteer canola. The early applications of BAS 810 H (trt 2) and Banvel (trt 3) also provided excellent season long control of kochia, Russian thistle and field bindweed, but crop injury may have contributed to relatively lower grain yields. The later applications of BAS 810 H (trt 5) and Banvel (trt 6) had excellent season long control of Russian thistle and field bindweed but noticeably lower kochia control than the early application timing. Crop injury caused by these two treatments may have also had a negative impact on grain yield but not necessarily on crop quality (test weight) which was significantly better than the untreated check.

Treatment	Product rate	App. 6/8		June 15				July 1						
		inj	inj	inj	kocz	ruth	fibw	wibw	vcan	inj	kocz	ruth	fibw	vcan
wheat		% control												
1	Untreated	0	0	0	0	0	0	0	0	0	0	0	0	0
2	BAS810H + LV6 + NIS	4	leaf	4	2	90	90	85	88	90	90	0	97	98
3	Banvel + LV6 + NIS	4	leaf	5	2	90	90	82	88	88	2	99	98	97
4	Bronate Advance + NIS	4	leaf	0	0	62	85	48	62	68	0	79	87	86
5	BAS810H + LV6 + NIS	2.2	jointing	0	3	28	30	25	28	50	0	71	89	94
6	Banvel + LV6 + NIS	2	jointing	0	8	38	38	22	33	53	2	79	81	92
7	Huskie + NIS + AMS	11	jointing	0	0	6	4	22	28	27	0	88	93	90
C.V. %		59	105	20	17	38	33	21	222	21	16	13	2	2
LSD .05		1	3	13	12	23	23	16	NS	22	19	15	2	2

NS = no statistical difference between treatments

Treatment	Product rate	App. timing	July 29				Heading		Test weight	Grain yield
			kocz	ruth	fibw	--- % control ---	June date	June lbs/bu		
1	Untreated	wheat	0	0	0	0	24	57.2	36.4	
2	BAS810H + LV6 + NIS	4 leaf	99	99	99	24	56.8	40.8	40.8	
3	Banvel + LV6 + NIS	4 leaf	98	99	97	25	58.5	41.6	41.6	
4	Bronate Advance + NIS	4 leaf	62	70	74	24	56.8	47.0	47.0	
5	BAS810H + LV6 + NIS	jointing	85	94	99	24	59.1	41.7	41.7	
6	Banvel + LV6 + NIS	jointing	85	97	97	24	59.9	37.9	37.9	
7	Huskie + NIS + AMS	jointing	70	84	80	24	57.3	40.8	40.8	
C.V. %			13	15	24	2	1.7	17.7	17.7	
LSD .05			14	17	28	NS	1.5	NS	NS	

NS = no statistical difference between treatments

2010 Grassy Weed Herbicide Trial in Spring Wheat

Eric Eriksmoen, Hettinger, ND

'Howard' HRSW was seeded on April 15. Treatments were applied on May 31 to 4 leaf wheat and to heading downy brome (dobr), jointing Japanese brome (jabr), 4 leaf wild oat (wiot) and 2 leaf Persian danel (peda) with 68° F, 48% RH, mostly sunny sky and NW wind at 6 mph. Treatments were applied with a tractor mounted CO₂ propelled plot sprayer delivering 10 gpa at 30 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The soil is classified as a silt-loam with a pH of 6.2 and OM of 3.2%. The trial was a randomized complete block design with four replications. Weed populations for downy brome, Japanese brome and wild oat were 3, 4 and 1 plants per square foot, respectively. Persian danel was primarily confined to one replication. Plots were evaluated for crop injury on June 7 and June 24, and for weed control on June 24 and July 28. The trial was harvested on August 9.

Treatment	Product rate oz/A	6/7	---- June 24 ----				----- July 28 -----				Test weight lbs/bu	Grain yield bu/A
		inj	inj	jabr	wiot	wiot	dobr	jabr	peda			
		%	%	% Control								
1 Silverado + Bro. Adv. + MSO*	1.8 + 12.8 + 24	6	0	89	99	98	61	97	99	58.5	34.4	
2 Everest + Bro. Adv. + BB*	0.46 + 12.8 + 1%	2	0	84	99	99	69	99	0	58.9	41.6	
3 Olympus + Bro. Adv. + BB	0.6 + 12.8 + 1%	0	0	92	99	95	94	99	0	57.8	33.1	
4 Rimfire Max + Bro. Adv + BB	3 + 12.8 + 1%	8	0	92	99	97	89	99	90	58.5	36.5	
5 PowerFlex + Bro. Adv. + BB	3.5 + 12.8 + 1%	5	0	94	99	98	96	99	99	59.5	35.2	
6 GoldSky + BB	16 + 1%	3	0	91	99	99	91	99	99	58.8	31.9	
7 Achieve+Bro. Adv. + SC*+AMS	7 + 12.8 + 6.4 + 15lbs	0	0	8	99	99	5	18	99	58.4	28.9	
8 Puma + Bro. Adv.	6.4 + 12.8	0	0	5	99	94	0	0	0	53.4	27.9	
9 Puma + Bro. Adv.	10.6 + 12.8	0	0	5	99	97	0	0	0	56.3	24.6	
10 Discover NG + Bro. Adv.	12.8 + 12.8	2	0	0	99	95	0	0	99	56.4	30.5	
11 Axial XL + Bro. Adv.	16.4 + 12.8	2	0	0	99	99	0	0	99	57.1	27.6	
12 Avenge + Bro. Adv.	64 + 12.8	15	10	30	99	99	12	40	25	52.6	25.1	
13 Untreated		0	0	0	0	0	0	0	0	53.8	20.6	
C.V. %		98	721	25	0	3	27	25	--	3.9	13.3	
LSD .05		5	NS	16	1	4	15	17	--	3.1	5.8	

* MSO = methylated seed oil, BB = basic blend, SC = Super Charge
NS = no statistical difference between treatments

Summary

Crop injury was initially noted on most treatments but diminished rapidly with the exception of the Avenge treatment which caused stunting that was evident throughout the growing season. All herbicide treatments provided excellent season long wild oat control. Silverado and Everest treatments had modest activity on downy brome, while Olympus, Rimfire Max, PowerFlex and GoldSky all provided very good season long control of downy brome. As noted earlier, herbicide treatments were applied to large downy brome plants that were heading out. Silverado, Everest, Olympus, Rimfire Max, PowerFlex and GoldSky provided excellent season long control of Japanese brome. Silverado, Rimfire Max, PowerFlex, GoldSky, Discover NG and Axial XL provided excellent season long control of Persian danel. Test weights and grain yields tended to correlate with the level of brome control.

2009 Grassy Weed Control in Spring Wheat

Eric Eriksmoen, Hettinger, ND

'Reeder' HRSW was seeded on May 14. Pre-emergence treatments (PRE) were applied on May 14 to jointing downy brome (dobr), tillering Japanese brome (jabr) and 2 leaf wild oat (wiot) with 68° F, 64% RH, mostly sunny sky and SE wind at 8 mph. Post emergence treatments (POST) were applied on June 3 to 3 leaf wheat and to heading downy brome (dobr), jointing Japanese brome (jabr), 4 leaf wild oat (wiot) and 2 leaf Persian darnel (peda) with 48° F, 82% RH, cloudy sky and SW wind at 3 mph. Treatments were applied with a tractor mounted CO₂ propelled plot sprayer delivering 10 gpa at 30 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The soil is classified as a silt-loam with a pH of 6.2 and OM of 3.2%. The trial was a randomized complete block design with four replications. Weed populations for downy brome, Japanese brome, wild oat and Persian darnel were 20, 8, 0.5 and 7 plants per square foot, respectively. Plots were evaluated for crop injury on June 26 and for weed control on June 26 and August 18. The trial was harvested on September 7.

Treatment	Product rate oz/A	App. Timing	----- June 26 -----				----- August 18 -----				Grain yield bu/A	
			inj	dobr	jabr	peda	dobr	jabr	peda	wiot		
			% Control -----									
1	Untreated		0	0	0	0	0	0	0	0	5.7	
2	PrePare + glyphosate / GoldSky	0.3 + 11 / 16	PRE POST	1	92	98	93	94	95	72	75	25.2
3	PrePare + KIH 485 + glyphosate	0.3 + 5 + 11	PRE	0	92	94	52	95	95	58	94	20.5
4	Callisto	3	POST	8	68	75	20	90	65	0	0	21.4
5	PrePare + Maverick + glyphosate	0.3 + 0.3 + 11	PRE	5	92	94	90	98	94	15	32	24.0
6	PrePare + glyphosate / Axial XL	0.3 + 11 / 8.2	PRE POST	2	92	94	94	94	91	99	90	21.9
7	PrePare + Olympus Flex + glyphosate	0.3 + 2 + 11	PRE	0	96	96	20	96	96	2	72	27.6
C.V. %				243	9	5	26	4	10	42	35	17.6
LSD .05				NS	10	5	20	5	12	22	27	5.4

NS = no statistical difference between treatments

Summary

Relatively minor crop injury was noted on most treatments. All herbicide treatments provided very good season long control of downy and Japanese brome with the exception of Callisto which was a little less effective on Japanese brome. PrePare followed by Axial XL was the only treatment that provided acceptable control of Persian darnel. PrePare followed by GoldSky also provided modest control of Persian darnel. PrePare + KIH 485 and PrePare followed by Axial XL were the only treatments that provided acceptable season long control of wild oat. All herbicide treatments had significantly higher grain yields than the untreated check.

Rate and Timing of Assure II on Tough Grasses at Hettinger, Eric Eriksmoen.

'SW Midas' field pea was seeded on April 23. Early post (EPOST) treatments were applied on May 23 to 4 node (1 1/2") field pea and to jointing downy brome (dobr), 2 leaf wild oat (wiot), 3 leaf Japanese brome (jabr), 2 leaf Persian darnel (peda) and to 2 leaf volunteer hard red spring wheat (vhws) with 63 F, 50% RH, partly cloudy sky and an east wind at 5 mph. Late post (LPOST) treatments were applied on May 30 to 6 node (3") field pea and to heading downy brome, 4 leaf wild oat, jointing Japanese brome, 3 leaf Persian darnel and to 4 leaf volunteer HRSW with 58 F, 70% RH, cloudy sky and a north wind at 7 mph. A light rain (0.1") fell shortly after the LPOST application. Treatments were applied with a tractor mounted CO2 propelled plot sprayer delivering 10 gpa at 30 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The trial was over-sprayed pre-emergence with 4 oz/A Spartan + 16 oz/A Bronate Advanced on May 3 to control broadleaf weeds. The soil is classified as a silt-loam with a pH of 6.2 and OM of 3.2%. The trial was a randomized complete block design with four replications. Weed populations for downy brome, wild oat, Japanese brome, Persian darnel and volunteer hrsw were 15, 0.5, 4, 5 and 2 plants per square foot, respectively. Plots were evaluated for crop injury and weed control on June 30 and on July 28, and were harvested on August 4.

Trt #	Product	Product Rate oz/A	Application Timing	28-Jul						Test Weight lbs/bu	Seed Yield bu/A
				Injury %	dobr	wiot	jabr	peda	vhws		
1	Untreated			0	0	0	0	0	0	47.9	22.9
2	Assure II + MSO	8 + 1%	EPOST	0	99	97	99	99	99	62.2	39.1
3	Assure II + MSO	10 + 1%	EPOST	0	99	90	99	94	99	61.3	30.5
4	Assure II + MSO	12 + 1%	EPOST	0	99	91	99	99	99	60.7	39.5
5	Clehtodim + MSO	6 + 1%	EPOST	4	98	99	97	99	99	63.5	25.6
6	Clehtodim + MSO	9 + 1%	EPOST	2	99	99	99	99	99	61.1	28.6
7	Assure II + MSO	8 + 1%	LPOST	0	91	91	98	97	98	63.6	25.3
8	Assure II + MSO	10 + 1%	LPOST	0	89	81	94	97	98	61.8	28.3
9	Assure II + MSO	12 + 1%	LPOST	0	96	94	99	99	99	60.3	35.9
10	Clehtodim + MSO	6 + 1%	LPOST	0	89	84	90	99	96	62.9	25.8
11	Clehtodim + MSO	9 + 1%	LPOST	0	94	94	96	99	98	62.1	36.3
C.V.%				364	3.8	11.9	4.6	2.8	1.8	3.7	14.2
LSD .05				NS	5	14	6	4	2	3.3	6.4

The above table only shows data from the final crop injury and weed control observations. Minor season long crop injury was noted on EPOST applied Clethodim treatments (trts 5 & 6). Assure II and Clethodim treatments were equally effective at controlling grassy weeds regardless of treatment rate when applied EPOST. Both 8 and 12 oz/A EPOST Assure II treatments (trts 2 & 4) had significantly higher seed yields than either of the EPOST Clethodim treatments (trts 5 & 6). Treatments applied later in the growing season to larger grassy weeds (LPOST) tended to have a rate response to weed control and seed yields with higher rates providing higher levels of weed control and seed yields.