Safened corn herbicides. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control and crop response from corn herbicides with safeners. DeKalb 'DKC38-92' Roundup Ready corn was planted on May 8, 2008 followed by the application of PRE treatments at 12:30 pm with 51 F air, 47 F soil at a four inch depth, 24% relative humidity, 100% cloud cover, 3 to 5 mph SE wind, dry soil surface and moist subsoil. Soil characteristics were: 29.1% sand, 52.3% silt, 18.6% clay, silt loam texture, 4.2% OM, and 5.9 pH. POST treatments were applied on June 17 at 1:15 pm with with 82 F air, 78 F soil surface, 29% relative humidity, 5% clouds, 0 to 8 mph NW wind, moist soil surface, wet subsoil, good crop vigor and no dew present to V3 to V5 (5 to 10 inch) corn. Weed species present at the time of POST applications were: cotyledon to 3 inch (1 to 2/yd^2) common lambsquarters; 1 to 3 inch (1 to 5/yd^2) common ragweed; cotyledon to 3 inch (1 to 5/yd^2) hairy nightshade; emergence to bloom (5 to 50/ft^2) wild mustard; 1 to 4 inch (5 to 50/ft^2) yellow foxtail; and cotyledon to 1 inch (3 to 25/yd^2) redroot pigweed. Weed species in plots with PRE treatments were: 0.5 to 4 inch (20 to 100/yd^2) yellow foxtail; cotyledon to bud initiation (5 to 20/yd^2) wild mustard; cotyledon to 3 inch (5 to 30/yd^2) common ragweeed; and 1 to 3 inch (5 to 10/yd^2) common lambsquarters. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles for POST treatments. The experiment had a randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. On June, 14 corn showed slight hail damage but recovered quickly with good growing conditions. Some slight corn stunting from excess water standing. On June 24, no corn injury was observed. On July 1, yellow foxtail control was 99%. On August 12, there was no visual differences in ear development or tassel emergence. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Safened corn herbicides (Zollinger and Ries).

Treatment[1]	Rate	June 17 - PRE ratings						July 1 - 14 DAT POST					July 15 and August 12					
		Yeft	Wimu	Rrpw	Colq	Hans	Corw	Wimu	Rrpw	Colq	Hans	Corw	Yeft	Wimu	Rrpw	Colq	Hans	Corw
	(product/A)	% control						% control					% control					
PRE/POST																		
Cinch ATZ/Resolve+Accent+ Isoxadifen+Impact+Atrazine+ Scoil+AMS	1.67pt/0.75oz+0.5oz+ 0.25oz+0.5fl oz+0.56lb+ 1% v/v+2lb	67	48	78	77	63	60	99	99	99	91	99	94	99	99	99	78	88
Cinch ATZ/Resolve+Harmony GT+ Isoxadifen+Atrazine+RUPM+ AMS	1.67pt/0.92oz+0.1oz+ 0.23oz+0.56lb+27fl oz+ 2lb	67	48	78	77	63	60	99	99	99	99	99	99	99	99	99	99	99
Cinch ATZ/Resolve+Dicamba+ Isoxadifen+Atrazine+RUPM+ AMS	1.67pt/1oz+2.75oz+ 0.25oz+0.56lb+27fl oz+ 2lb	67	48	78	77	63	60	99	99	99	99	99	99	99	99	99	99	99
Cinch ATZ/RUPM+AMS	1.67pt/27fl oz+2lb	67	48	78	77	63	60	99	99	99	99	99	94	99	99	99	99	99
Resolve+Isoxadifen/RUPM+AMS	1.5oz+1.5oz/27fl oz+2lb	60	60	86	65	50	60	99	99	99	99	99	86	99	99	99	99	99
Resolve+Isoxadifen/Resolve+ Harmony GT+Isoxadifen+Atrazine+ RUPM+AMS	1.5oz+1.5oz/0.92oz+ 0.1oz+0.25oz+0.56lb+ 27fl oz+2lb	58	86	82	70	50	72	99	99	99	99	99	99	99	99	99	99	99
Resolve+Isoxadifen/Resolve+ Dicamba+Isoxadifen+Atrazine+ RUPM+AMS	1.5oz+1.5oz/1oz+ 2.75oz+0.25oz+0.56lb+ 27fl oz+2lb	50	57	86	67	43	60	99	99	99	99	99	99	99	99	99	99	99
POST																		
Resolve+Accent+Isoxadifen+ Impact+Atrazine+Scoil+ AMS	0.75oz+0.5oz+0.25oz+ 0.5fl oz+0.56lb+1% v/v+ 2lb							99	99	99	99	99	89	99	99	99	99	99
Resolve+Harmony GT+Isoxadifen+ Atrazine+RUPM+AMS	0.92oz+0.1oz+0.23oz+ 0.56lb+27fl oz+2lb							99	99	99	99	99	94	99	99	99	99	94
Resolve+Dicamba+Isoxadifen+ Atrazine+RUPM+AMS	1oz+2.75oz+0.25oz+ 0.56lb+27fl oz+2lb							99	99	99	99	99	99	99	99	99	99	99
RUPM+AMS	27fl oz+2lb							96	86	82	83	65	69	96	69	72	73	45
Resovle+Accent+Isoxadifen+ Dicamba+Atrazine+AMS+ Destiny HC	1oz+0.67oz+0.25oz+ 2oz+0.56lb+2lb 0.5pt							99	99	99	99	99	92	99	99	99	99	99
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		11	12	9	10	13	14	1	1	1	2	2	2	1	1	1	2	3

[1]Isoxadifen = a herbicide safener; RUPM = Roundup PowerMax.
Require Q = rimsulfuron & dicamba & isoxadifen safener
Resolve = rimsulfuron DF
Resolve SG = rimsulfuron SG
Resolve Q = rimsulfuron & thifensulfuron & isoxadifen safener

Kixor in corn. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control and crop response to Sharpen (BAS 800 04 H, saflufenacil). Early Pre-plant applications (EPP) were made on April 29, 2008 at 3:00 pm with 43 F air, 43 F soil at a four inch depth, 42% relative humidity, 60% cloud cover, 8 to 12 mph NE wind, dry soil surface and moist subsoil. Soil charateristics were: 24.9% sand, 52.3% silt, 22.9% clay, silt loam texture, 4.1% OM, and 6.8 pH. DeKalb 'DKC38-92' Roundup Ready corn was planted on May 8 followed by the applications of PRE treatments at 1:05 pm, 59 F air, 46 F soil at a four inch depth, 30% relative humidity,100% cloud cover, 0 to 5 mph NE wind, dry soil surface and moist subsoil. POST treatments were applied on June 24 at 9:30 am with 71 F air, 75 F soil surface, 64% relative humidity, 75% clouds, 3 to 5 mph NW wind, dry soil surface, wet subsoil, good crop and no dew present to V2 to V4 (4 to 7 inch) corn. Weeds species present at the time of POST applications were: 1 to 2 inch (1 to 2/yd^2) common lambsquarters; 1 to 6 inch (1 to 10/ft^2) common ragweed; cotyledon to 2 inch (1 to 2/yd^2) common cocklebur; emergence to 2 inch (1 to 3/yd^2) redroot pigweed; 1 to 3 inch (1 to 3/yd^2) hairy nightshade; and 0.5 to 2 inch (10 to 20/yd^2) yellow foxtail. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a backpack-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for EPP and PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles for POST treatments. The experiment had a randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. On June 17, 99% control of yellow foxtail and redroot pigweed for EPP and PRE treaments (49 DAT EPP and 40 DAT PRE). Control of redroot pigweed 14, 28, 56 DAT was 99% control for all POST treatments, except Outlook at 14 fl oz + BAS 800 04 H at 2 fl oz gave 96% control of redroot pigweed.

Table. Kixor in corn (Zollinger and Ries).

		June 17 -EPP/PRE ratings			14 DAT - POST				28 DAT - POST				56 DAT - POST			
Treatment[1]	Rate	Colq	Hans	Corw	Yeft	Colq	Hans	Corw	Yeft	Colq	Hans	Corw	Yeft	Colq	Hans	Corw
	(product/A)	---- % control ----			------ % control ------				------ % control ------				------ % control ------			
EPP																
Integrity	25fl oz	86	99	88	99	88	99	84	99	96	99	86	99	96	99	86
PRE																
Integrity	25fl oz	95	99	96	99	95	99	93	99	95	99	98	99	95	99	98
Sharpen+Guardsman Max	4fl oz +4.56pt	97	99	97	99	95	99	92	99	99	99	99	99	99	99	99
Lumax	6pt	63	73	70	99	68	73	70	99	68	73	70	99	68	73	70
Outlook+Sharpen	14fl oz+4fl oz	93	99	94	99	93	99	93	99	95	99	95	99	95	99	95
Outlook+Sharpen	14fl oz+3.5fl oz	90	99	90	96	93	99	89	98	95	99	90	98	95	99	90
Outlook+Sharpen	14fl oz+3fl oz	81	99	77	94	85	99	75	96	88	99	77	96	88	99	77
Outlook+Sharpen	14fl oz+2.5fl oz	83	99	78	99	85	99	75	99	86	99	75	99	86	99	75
Outlook+Sharpen	14fl oz+2fl oz	58	99	85	99	65	99	50	99	76	99	50	99	73	99	50
PRE/POST																
Integrity/RUPM+ NIS+AMS	17fl oz/22fl oz+ 0.25% v/v+2lb	86	99	86	99	98	99	99	99	99	99	99	99	99	99	99
Sharpen+Guardsman Max/ RUPM+NIS+AMS	3fl oz+2.5pt/ 22fl oz+0.25% v/v+2lb	85	99	88	99	89	99	95	99	99	99	99	99	99	99	99
Harness Xtra/RUPM+ NIS+AMS	2.4pt/22fl oz+ 0.25% v/v+2lb	90	99	83	99	99	99	99	99	99	99	99	99	99	99	99
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		13	3	7	4	12	3	10	3	8	3	7	3	2	8	3

[1]Integrity = BAS 781 02 H = saflufenacil & dimethenamid; Sharpen = BAS 800 04 H = saflufenacil; RUPM = Roundup PowerMax.

Status in corn. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control from Status tank-mixes in corn. DeKalb 'DKC38-92' Roundup Ready corn was planted on May 8, 2008 followed by the application of PRE treatments at 12:50 pm with 52 F air, 47 F soil at a four inch depth, 23% relative humidity, 100% cloud cover, 3 to 5 mph SE wind, dry soil surface and moist subsoil. Soil characteristics were: 29.1% sand, 52.3% silt, 18.6% clay, silt loam texture, 4.2% OM, and 5.9 pH. POST treatments were applied on June 18 at 9:00 am with with 72 F air, 74 F soil surface, 50% relative humidity, 5% clouds, 0 to 3 mph N wind, moist soil surface, wet subsoil, good crop vigor and no dew present to V3 to V5 (5 to 10 inch) corn. Weed species present at the time of POST applications were: 2 to 6 inch (5 to 15/yd^2) common lambsquarters; cotyledon to 5 inch (10 to 30/yd^2) common ragweed; 1 to 4 inch (5 to 25/yd^2) hairy nightshade; cotyledon to bloom (1 to 5/ft^2) wild mustard; 0.5 to 5 inch (5 to 20/ft^2) yellow foxtail; 1 to 2 inch (<1/yd^2) common cocklebur, and emergence to 5 inch (20 to 50/ft^2) redroot pigweed. Weed species in plots with PRE treatments were: cotyledon to 5 inch (1 to 20/yd^2) common ragweed; 1 to 4 inch (5 to 20/yd^2) common lambsquarters; emergence to 6 inch (5 to 20/ft^2) redroot pigweed; cotyledon to 3 inch (1 to 30/yd^2) hairy nightshade; and 2 inch (<1/yd^2) common cocklebur. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot sprayer for POST treatments. The experiment had a randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. On June, 14, slight hail damage was observed but recovered quickly with good growing conditions. Rep 3 had some standing water and stunted growth. On July 2, July 16, and August 13, all treatments gave greater than 98% control of yellow foxtail and wild mustard. No corn injury was observed at any evaluation. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Status in corn (Zollinger and Ries).

Treatment[1]	Rate	June 17 - PRE Ratings					
		Yeft	Wimu	Rrpw	Colq	Hans	Corw
	(product/A)	% control					
PRE/POST							
Outlook/RUWM	12fl oz/22fl oz	92	22	72	62	68	0
G-Max Lite/RUWM+Status	1.6pt/22fl oz+2.5oz	93	23	73	53	80	0
Outlook/RUWM+Headline	12fl oz/22fl oz+6fl oz	93	20	72	48	43	0
Outlook/RUWM+Status+ Headline	12fl oz/22fl oz+2.5oz+6fl oz	92	7	72	47	53	0
Integrity/RUWM	17fl oz/22fl oz	99	85	99	78	98	88
LSD (0.05)		5	14	3	6	12	6

[1]RUWM = Roundup WeatherMax; Integrity = BAS 781 02 H = premix of saflufenacil & dimethenamid.

Table cont. Status in corn (Zollinger and Ries).

Treatment[1]	Rate	July 2 - 14 DAT POST					July 16 - 28 DAT POST					Corn
		Rrpw	Colq	Hans	Corw	Cocb	Rrpw	Colq	Hans	Corw	Cocb	Yield[2]
	(product/A)	% control					% control					- bu/A -
PRE/POST												
Outlook/RUWM	12fl oz/22fl oz	94	94	89	82	93	95	94	89	82	93	173.4
G-Max Lite/RUWM+Status	1.6pt/22fl oz+2.5oz	99	99	99	99	99	99	99	99	99	99	162.9
Outlook/RUWM+Headline	12fl oz/22fl oz+6fl oz	94	95	87	76	95	96	99	89	79	91	155.9
Outlook/RUWM+Status+Headline	12fl oz/22fl oz+2.5oz+6fl oz	99	99	99	99	99	99	99	99	99	98	158.8
Integrity/RUWM	17fl oz/22fl oz	99	99	99	99	99	99	99	99	99	99	172.3
POST												
RUWM	22 fl oz	73	71	71	71	81	74	70	72	72	82	171.8
RUWM+Status	22fl oz+2.5oz	99	99	99	99	99	99	99	99	99	99	160.6
RUWM+Status	22fl oz+5oz	99	99	99	99	99	99	99	99	99	99	159.7
LSD (0.05)		2	1	2	2	2	2	1	2	2	3	23.4

[1]RUWM = Roundup WeatherMax; Integrity = BAS 781 02 H = premix of saflufenacil & dimethenamid.
[2]Yield was standardized to 15.5% moisture.

Resistant weed management systems. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control in corn from several tank-mix herbicide stratagies and application timings. DeKalb 'DKC38-92' Roundup Ready corn was planted on May 8, 2008, followed by the application of PRE treatments at 1:15 pm, 58 F air, 48 F soil at a four inch depth, 27% relative humidity, 100% clouds, 3 to 5 mph SE wind, dry soil surface and moist subsoil. Soil characteristics were: 24.9% sand, 52.3% silt, 22.9% clay, silt loam texture, 4.1% OM and 6.8 pH. EPOST applications were made on June 17 at 11:25 am with 77 F air, 74 F soil surface, 30% relative humidity, 5% clouds, 0 to 6 mph S wind, moist soil surface, wet subsoil, good crop vigor, and no dew present to V3 to V4 (6 to 8 inch) corn. Weed species present at the time of the EPOST applications were: cotyledon to 3 inch (1 to 10/yd^2) common lambsquarters; cotyledon to 4 inch (10 to 35/yd^2) common ragweed; cotyledon to 3 inch (1 to 35/yd^2) hairy nightshade; emergence to 12 inch (1 to 10/yd^2) wild mustard; 0.5 to 3 inch (5 to 50/ft^2) yellow foxtail; and cotyledon to 1 inch (1/yd^2) redroot pigweed. MPOST applications were made on June 24 at 9:45 am with 72 F air, 76 F soil surface, 61% relative humidity, 0% clouds, 0 to 5 mph NW wind, dry soil surface, wet subsoil, and no dew present to V4 to V5 (10 to 16 inch) corn. Weed species present in MPOST treatments were: 2 to 6 inch (1 to 5/yd^2) common lambsquarters; 1 to 8 inch (1 to 10/yd^2) common ragweed; 2 to 6 inch (1/yd^2) hairy nightshade; 8 inch to bloom (1 to 5/yd^2) wild mustard; 1 to 8 inch (10 to 50/ft^2) yellow foxtail; and 1 to 3 inch (1 to 3/yd^2) redroot pigweed. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot spryaer for EPOST and MPOST treatments. The experiment had a randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. Dual II Magnum at 1.26 pt/A was applied PRE across the entire study. The herbicide was not activated from dry weather after application. Yellow foxtail control was 0 to 40% and no apparent control of wimu, rrpw, colq hans, wibw, corw, or cocb. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Resistant weed management systems (Zollinger and Ries).

Treatment[1]	Rate	July 1 - PRE ratings						July 8					
		Yeft	Wimu	Rrpq	Colq	Hans	Corw	Yeft	Wimu	Rrpq	Colq	Hans	Corw
	(product/A)	% control						% control					
PRE/EPOST													
Dual II Magnum/	1.26pt/												
Impact+Herbimax+AMS	0.5fl oz+1% v/v+2lb	99	99	90	78	89	70	99	99	96	86	99	86
Impact+RUPM+AMS	0.5fl oz+22fl oz+2lb	99	99	99	99	99	90	99	99	99	99	99	93
Impact+Herbimax+AMS	0.75fl oz+1% v/v+2lb	99	99	99	87	99	76	99	99	99	88	99	79
Impact+RUPM+AMS	0.75fl oz+22fl oz+2lb	99	99	99	99	99	94	99	99	99	99	99	94
Status+Herbimax+AMS	2.5oz+1% v/v+2lb	99	99	99	99	99	99	99	99	99	99	99	99
Status+RUPM+AMS	2.5oz+22fl oz+2lb	99	99	99	99	99	99	99	99	99	99	99	99
Status+Impact+Herbimax+AMS	5oz+0.75fl oz+1% v/v+2lb	99	99	99	99	99	99	99	99	99	99	99	99
Status+RUPM+AMS	5oz+22fl oz+2lb	99	99	99	99	99	99	99	99	99	99	99	99
RUPM+AMS	22fl oz+2lb	99	99	99	99	99	99	99	99	99	96	99	99
PRE/MPOST													
Dual II Magnum/	1.26pt/												
Impact+Herbimax+AMS	0.5fl oz+1% v/v+2lb	50	50	50	50	50	50	57	57	57	57	57	57
Impact+RUPM+AMS	0.5fl oz+22fl oz+2lb	73	73	73	73	73	73	99	93	99	99	99	83
Impact+Herbimax+AMS	0.75fl oz+1% v/v+2lb	50	35	50	50	50	50	73	73	73	73	73	73
Impact+RUPM+AMS	0.75fl oz+22fl oz+2lb	73	83	75	73	73	73	99	99	99	99	99	98
Status+Herbimax+AMS	2.5oz+1% v/v+2lb	72	72	72	72	72	72	91	75	80	80	80	80
Status+RUPM+AMS	2.5oz+22fl oz+2lb	82	82	82	82	82	82	94	94	94	94	94	94
Status+Impact+Herbimax+AMS	5oz+0.75fl oz+1% v/v+2lb	80	80	80	80	80	80	96	82	90	90	90	90
Status+RUPM+AMS	5oz+22fl oz+2lb	99	99	99	93	99	80	99	99	99	99	99	99
RUPM+AMS	22fl oz+2lb	99	93	96	85	87	77	99	99	99	94	93	96
LSD (0.05)		5	14	7	8	7	10	9	8	6	7	6	7

[1]RUPM = Roundup PowerMax.

Table cont. Resistant weed management systems (Zollinger and Ries).

Treatment[1]	Rate	July 15						July 22						Yield
		Yeft	Wimu	Rrpq	Colq	Hans	Corw	Yeft	Wimu	Rrpq	Colq	Hans	Corw	Corn
	(product/A)	% control						% control						- bu/A -
PRE/EPOST														
Dual II Magnum/	1.26pt/													
Impact+Herbimax+AMS	0.5fl oz+1% v/v+2lb	99	99	96	88	99	86	99	99	96	86	99	86	175.4
Impact+RUPM+AMS	0.5fl oz+22fl oz+2lb	99	99	99	99	99	95	99	99	99	99	99	93	184.8
Impact+Herbimax+AMS	0.75fl oz+1% v/v+2lb	99	99	99	92	99	80	99	99	99	88	99	79	182.8
Impact+RUPM+AMS	0.75fl oz+22fl oz+2lb	99	99	99	99	99	94	99	99	99	99	99	94	162.2
Status+Herbimax+AMS	2.5oz+1% v/v+2lb	99	99	99	99	99	99	99	99	99	99	99	99	182.3
Status+RUPM+AMS	2.5oz+22fl oz+2lb	99	99	99	99	99	99	99	99	99	99	99	99	190.1
Status+Impact+Herbimax+AMS	5oz+0.75fl oz+1% v/v+2lb	99	99	99	99	99	99	99	99	99	99	99	99	173.6
Status+RUPM+AMS	5oz+22fl oz+2lb	99	99	99	99	99	99	99	99	99	99	99	99	180.3
RUPM+AMS	22fl oz+2lb	99	99	99	98	99	99	99	99	99	96	99	99	179.7
PRE/MPOST														
Dual II Magnum/	1.26pt/													
Impact+Herbimax+AMS	0.5fl oz+1% v/v+2lb	57	57	57	57	57	57	57	57	57	57	57	57	175.1
Impact+RUPM+AMS	0.5fl oz+22fl oz+2lb	99	93	99	99	99	83	99	93	99	99	99	84	174.6
Impact+Herbimax+AMS	0.75fl oz+1% v/v+2lb	73	73	73	73	73	73	73	73	73	73	73	73	168.7
Impact+RUPM+AMS	0.75fl oz+22fl oz+2lb	99	99	99	99	99	95	99	99	99	99	99	99	169.5
Status+Herbimax+AMS	2.5oz+1% v/v+2lb	91	75	80	80	80	80	97	94	96	96	97	99	167.1
Status+RUPM+AMS	2.5oz+22fl oz+2lb	94	94	94	94	94	94	94	94	94	94	94	94	172.2
Status+Impact+Herbimax+AMS	5oz+0.75fl oz+1% v/v+2lb	96	82	90	90	90	90	98	83	90	90	90	90	180.8
Status+RUPM+AMS	5oz+22fl oz+2lb	99	99	99	99	99	99	99	99	99	99	99	99	185.0
RUPM+AMS	22fl oz+2lb	99	99	99	94	93	96	99	99	99	96	95	98	182.3
LSD (0.05)		9	8	6	7	6	7	6	7	6	7	6	6	33.5

[1]RUPM = Roundup PowerMax.

Impact in corn. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate crop tolerance and weed efficacy from Impact tank-mixes in corn when applied at three application timings. DeKalb 'DKC38-92' Roundup Ready corn was planted on May 8, 2008 followed by the application of PRE treatments at 2:00 pm, 59 F air, 44 F soil at a four inch depth, 29% relative humidity, 100% clouds, 0 to 6 mph S wind, dry soil surface and moist subsoil. Soil characteristics were: 24.1% sand, 56.1% silt, 19.8% clay, silt loam texture, 4.4% OM and 7.5 pH. POST treatments were applied on June 17 at 10:40 am with 76 F air, 77 F soil surface, 33% relative humidity, 0% clouds, 0 to 6 mph NW wind, dry soil surface, wet subsoil, good crop vigor, and no dew present to V2 to V4 (3 to 7 inch) corn. Weeds present at the time of POST applications were: 0.5 to 2 inch (5 to 50/ft^2) yellow foxtail; 3 to 5 inch (1 to 3/yd^2) wild mustard; emergence to 1 inch (1 to 3/yd^2) redroot pigweed; cotyledon to 3 inch (3 to 15/yd^2) common lambsquarters; cotyledon to 2 inch (1 to 5/yd^2) hairy nightshade; and cotyledon to 4 inch diameter (1 to 5/yd^2) wild buckwheat. LPOST applications were made on June 23 at 1:15 pm with 83 F air, 90 F soil surface, 34% relative humidity, 33% clouds, 3 to 8 mph SE wind, dry soil surface, wet subsoil, excellent crop vigor, and no dew present to V4 to V5 (8 to 14 inch) corn. Weeds present at the time of LPOST applications were: 3 to 7 inch (5 to 50/ft^2) yellow foxtail; 3 to 7 inch (1 to 3/yd^2) wild mustard; 1 to 2 inch (1 to 10/yd^2) redroot pigweed; 2 to 8 inch (1 to 15/yd^2) common lambsquarters; 2 to 4 inch (1 to 2/yd^2) hairy nightshade; and 2 to 6 inch diameter (1 to 5/yd^2) wild buckwheat. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and a backpack-type plot sprayer delivering 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles for POST and LPOSTtreatments. The experiment had a randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. On June 14, slight hail damage was observed but corn quickly recovered with good growing conditions. On June 16, POST applications were made and Dual II Magnum applied PRE gave 20 to 60% yellow foxtail control and gave 0% control of wild mustard, redroot pigweed, common lambsquarters, hairy nightshade, and wild buckwheatl. On June 24 and July 1, injury was slight stunting. Wild mustard control was 99% on July 15 and August 12. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Impact in corn (Zollinger and Ries).

Treatment	Rate	June 24	July 1						
		Corn	Corn	Yeft	Wimu	Rrpw	Colq	Hans	Wibw	Cocb
	(product/A)	% injury	% injury	% control						
PRE										
Dual II Magnum	1pt	0	0	53	0	53	53	22	0	0
PRE/POST										
Dual II Magnum/Impact+Atrazine+Scoil+AMS	1pt/0.5fl oz+0.56lb+1% v/v+1lb	10	10	99	99	99	99	99	93	99
Dual II Magnum/Impact+Atrazine+Scoil+AMS	1pt/0.75fl oz+0.56lb+1% v/v+1lb	12	9	99	99	99	99	99	95	99
Dual II Magnum/Laudis+Atrazine+Scoil+AMS	1pt/2fl oz+0.56lb+1% v/v+1lb	12	10	99	99	99	99	99	99	94
PRE/LPOST										
Dual II Magnum/Impact+Roundup PowerMax+AMS	1pt/0.5fl oz+22fl oz+1lb	0	0	99	99	99	99	99	96	99
Dual II Magnum/Impact+RoundupPowerMax+Atrazine+AMS	1pt/0.5fl oz+22fl oz+0.56lb+1lb	0	0	99	99	99	99	99	93	99
Dual II Magnum/Roundup PowerMax+AMS	1pt/22fl oz+1lb	2	0	80	99	95	70	81	67	90
POST										
Impact+Atrazine+Scoil+AMS	0.5fl oz+0.56lb+1% v/v+1lb	5	3	93	99	99	99	99	86	95
Impact+Atrazine+Scoil+AMS	0.75fl oz+0.56lb+1% v/v+1lb	7	6	96	99	99	99	99	94	99
Laudis+Atrazine+Scoil+AMS	2fl oz+0.56lb+1% v/v+1lb	0	0	99	96	99	99	99	96	99
Laudis+Atrazine+Scoil+AMS	3fl oz+0.56lb+1% v/v+1lb	7	4	99	99	99	99	99	99	96
Untreated		0	0	0	0	0	0	0	0	0
LSD (0.05)		9	9	4	1	4	3	2	4	3

Table cont. Impact in corn (Zollinger and Ries).

Treatment[1]	Rate	July 15 and August 12						
		Corn	Yeft	Rrpw	Colq	Hans	Wibw	Cocb
	(product/A)	% injury	% control					
PRE								
Dual II Magnum	1pt	0	53	53	53	22	0	0
PRE/POST								
Dual II Magnum/Impact+Atrazine+ Scoil+AMS	1pt/0.5fl oz+0.56lb+ 1% v/v+1lb	0	99	99	99	99	99	99
Dual II Magnum/Impact+Atrazine+ Scoil+AMS	1pt/0.75fl oz+0.56lb+ 1% v/v+1lb	0	99	99	99	99	99	99
Dual II Magnum/Laudis+Atrazine+ Scoil+AMS	1pt/2fl oz+0.56lb+ 1% v/v+1lb	10	99	99	99	99	99	99
PRE/LPOST								
Dual II Magnum/Impact+Roundup PowerMax+ AMS	1pt/0.5fl oz 22fl oz+ 1lb	0	99	99	99	99	96	99
Dual II Magnum/Impact+Roundup PowerMax+ Atrazine+AMS	1pt/0.5fl oz+22fl oz+ 0.56lb+1lb	0	99	99	99	99	99	99
Dual II Magnum/Roundup PowerMax+AMS	1pt/22fl oz+1lb	0	80	95	73	83	70	90
POST								
Impact+Atrazine+Scoil+AMS	0.5fl oz+0.56lb+1% v/v+1lb	3	96	99	99	99	88	99
Impact+Atrazine+Scoil+AMS	0.75fl oz+0.56lb+1% v/v+1lb	3	96	99	99	99	95	99
Laudis+Atrazine+Scoil+AMS	2fl oz+0.56lb+1% v/v+1lb	0	99	99	99	99	96	99
Laudis+Atrazine+Scoil+AMS	3fl oz+0.56lb+1% v/v+1lb	3	99	99	99	99	99	99
Untreated		0	0	0	0	0	0	0
LSD (0.05)		4	4	4	3	2	3	2

Weed control in corn. Jenks, Willoughby, and Mazurek. '2K154RR' corn was planted May 20 at 18,000 seeds/A into 30-inch rows. Preemergence treatments were applied May 22. Postemergence treatments were applied June 24 and July 2 at the V2-V3 and V3-V4 stages, respectively. At the June 24 application, redroot pigweed (Rrpw) was 0.5-3" with 0-50 plants/ft^2; wild buckwheat (Wibw) was 1-6 leaf with 0-38 plants/ft^2; kochia (Kocz) was 0.5-4" with 0-11 plants/ft^2; and volunteer RR soybean was VC-V2 with 0-4 plants/ft^2.

All treatments provided excellent pigweed and kochia control. Pigweed and kochia control with acetochlor followed by WideMatch was slightly lower compared to other treatments, but were still above 90% control. Most treatments provided good wild buckwheat control. The split application of glyphosate provided significantly better wild buckwheat control than a single glyphosate application. The single glyphosate application only provided 75% wild buckwheat control. Acetochlor did provide good early-season suppression of wild buckwheat, but was not sufficient for season-long control. Three treatments provided excellent volunteer RR soybean control including Steadfast+Clarity+Atrazine, Option+Status, and WideMatch.

			Rrpw[b]		Wibw[b]		Kocz[b]		Vosb[b]		Corn
Treatment[a]	Rate	Timing	Jul 17	Aug 19	Jul 17	Aug 19	Jul 17	Aug 19	Jul 17	Aug 19	Yield
			% control								Bu/A
Untreated			0	0	0	0	0	0	0	0	89
Glyphosate + AMS	22 fl oz + 2.5%	Late	100	100	76	75	100	99	0	0	109
Glyphosate + AMS / Glyphosate + AMS	16 fl oz + 2.5% / 22 fl oz + 2.5%	Early / Late	100	100	93	97	100	100	0	0	98
Acetochlor / Glyphosate + AMS + Atrazine + Superb	1.75 pt / 22 fl oz + 2.5% + 0.375 lb ai + 0.5 %	PRE / Late	100	100	88	90	98	100	55	53	106
Balance Pro / Glyphosate + AMS + Atrazine + Superb	2.5 fl oz / 22 fl oz + 2.5% + 0.375 lb ai + 0.5 %	PRE / Late	100	100	86	87	100	100	71	69	105
Acetochlor / Steadfast + Clarity + Atrazine + MSO + UAN	1.75 pt / 0.75 oz + 4 fl oz + 0.375 lb ai + 1.5 pt + 2 qt	PRE / Late	100	100	95	89	93	99	98	100	93
Acetochlor / Option + Status + MSO + UAN	1.75 pt / 1.5 oz + 5 oz + 1.5 pt + 2 qt	PRE / Late	100	100	97	99	96	100	100	100	98
Acetochlor / WideMatch	1.75 pt / 1 pt	PRE / Late	94	91	84	85	93	94	100	100	99
Resolve + Glyphosate + NIS / Glyphosate + AMS	1 oz + 22 fl oz + 1 pt / 22 fl oz + 2.5%	Early / Late	100	100	93	94	100	100	92	87	120
BAS 800 + Agridex + AMS + Outlook	4.4 fl oz + 1 % + 17 lb/100 gal + 18 fl oz	PRE	99	99	87	80	94	94	0	0	125
BAS 800 + Agridex + AMS + Outlook / Glyphosate + AMS	4.4 fl oz + 1 % + 17 lb/100 gal + 18 fl oz / 22 fl oz + 2.5%	PRE / Late	100	100	98	100	100	100	0	0	103
LSD (0.05)			3.1	1.7	9	12.5	3.7	3.6	13.2	13.1	NS
CV			2	1	7	9	2	2	17	17	16

[a] *BAS 800 = BAS 800 04H*

[b] *Rrpw=Redroot pigweed; Wibw=Wild buckwheat; Kocz=Kochia; Vosb=Volunteer RR soybean*

Conventional, LibertyLink, and Roundup Ready corn. Zollinger, Rich K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control and yield from three differing corn varieties. On May 8, 2008, four rows of Pioneer '39D81' conventional corn was planted in a plot sized 10 by 40 feet, plots 101, 201, 301. Four rows of Pioneer '39D85' LibertyLink/Roundup Ready corn was planted adjacent to the Pioneer '39D81' in a plot sized 10 by 40 feet, plots 102, 202, 302. A 10 foot border was placed between and on the outsides of both varieties. DeKalb 'DKC38-33' Roundup Ready corn was then planted and randomized to the entire rest of the study. PRE treatments were applied on May 8 at 2:30 pm with 57 F air, 48 F soil at a four inch depth, 25% relative humidity, 100% cloud cover, 3 to 5 mph SE wind, dry soil surface, and moist subsoil. Soil characteristics were 29.1% sand, 52.3% silt, 18.6% clay, silt loam texture, 4.2% OM, and pH 5.9. POST treatments were applied on June 17 at 1:00 pm with 82 F air, 78 F soil surface, 26% relative humidity, 5% cloud cover, 0 to 8 mph NW wind, moist soil surface, wet subsoil, excellent crop vigor, and no dew present to V3 to V4 (5 to 10 inch) corn hybrids. Weed species present in plots with PRE applications were: 0.5 inch (1 to 10/yd^2) yellow foxtail; 1 to 2 inch (5 to 20/yd^2) common lambsquarters; 0.5 inch (1/yd^2) hairy nightshade; cotyledon to 2 inch (<1/yd^2) common cocklebur; 1 to 3 inch (5 to 10/yd^2) common ragweed; cotyledon to bud initiation (5 to 40/yd^2) wild mustard; and emergence to 0.5 inch (1/yd^2) redroot pigweed. Weed species present in plots with POST only applications were: 0.5 to 4 inch (10 to 100/ft^2) yellow foxtail; 5 to 10 inch (1 to 5/yd^2) common lambsquarters; 1 to 3 inch (1 to 5/yd^2) hairy nightshade; cotyledon to 4 inch (1 to 2/yd^2) common cocklebur; cotyledon to 4 inch (5 to 20/yd^2) common ragweed; cotyledon to 1 inch (1 to 2/yd^2) redroot pigweed; and cotyledon to 8 inch (1 to 30/yd^2) wild mustard. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plots with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot sprayer for POST treatments. The experiment had randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. On June 24 (7 DAT), no corn injury was observed. On July 1 (14 DAT POST), all treatments gave 99% control of yellow foxtail, wild mustard, redroot pigweed, common lambsquarters, hairy nightshade, and common ragweed. On July 15 (28 DAT POST), all treatments gave 99% control of wild mustard and common ragweed. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Convention, LibertyLink, and Roundup Ready corn (Zollinger and Ries).

Treatment[1]	Rate	PRE - 40 DAT						28 DAT - POST					Corn
		Yeft	Wimu	Rrpw	Colq	Hans	Corw	Yeft	Rrpw	Colq	Hans	Cocb	Yield[2]
	(product/A)	% control						% control					- bu/A -
PRE/POST													
Outlook/Status (Conventional corn)	21.3fl oz/5oz	98	35	96	63	65	35	95	99	99	99	99	146.0
Outlook/Liberty (LibertyLink corn)	21.3fl oz/30fl oz	95	40	87	62	75	35	96	99	94	99	70	142.9
(Roundup Ready corn)													
Harness/RUWM+AMS	1.5pt/22fl oz+17lb/100gal	99	57	99	75	92	43	90	99	99	99	70	136.5
Harness+Atrazine/RUWM+AMS	1.5pt+0.42lb/22fl oz+17lb/100gal	99	90	99	90	99	87	94	99	99	99	99	134.0
Harness/RUWM+Status+AMS	1.5pt/22fl oz+5oz+17lb/100gal	99	68	99	83	90	53	91	99	99	99	99	136.8
Harness/RUWM+Buctril+AMS	1.5pt/22fl oz+1pt+17lb/100gal	99	72	99	83	92	53	99	99	99	99	99	130.0
Harness/RUWM+Basis+AMS	1.5pt/22fl oz+0.33oz+17lb/100gal	99	58	99	72	90	53	90	99	99	99	90	145.3
Harness/RUWM+WideMatch+AMS	1.5pt/22fl oz+1.33pt+17lb/100gal	99	70	99	75	93	53	91	99	99	99	99	137.9
POST								68	93	99	87	87	138.7
RUWM+Atrazine+Banvel+AMS	22fl oz+0.42lb+4fl oz+17lb/100gal												
LSD (0.05)		4	7	4	8	6	5	2	2	1	2	1	20

[1]RUWM = Roundup WeatherMax.
[2]Yield was standardized to 15.5% moisture.

Ignite in LibertyLink corn. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate Bayer Crop Science weed control programs and application timings in LibertyLink corn. Pioneer '39D85' LibertyLink/Roundup Ready corn was planted on May 8, 2008 followed by the application of PRE treatments at 3:15 pm with 58 F air, 48 F soil at a four inch depth, 25% relative humidity, 100% cloud cover, 3 to 5 mph SE wind, dry soil surface and moist subsoil. Soil characteristics were: 29.1% sand, 52.3% silt, 18.6% clay, silt loam texture, 4.2% OM, and 5.9 pH. EPOST treatments were applied on June 17 at 12:10 pm with with 85 F air, 79 F soil surface, 29% relative humidity, 5% clouds, 0 to 4 mph NW wind, moist soil surface, wet subsoil, good crop and no dew present to V3 to V5 (6 to 10 inch) corn. Weed species present at the time of EPOST applications were: 2 to 4 inch (5 to 30/yd^2) common lambsquarters; cotyledon to 4 inch (5 to 20/yd^2) common ragweed; 1 to 3 inch (5 to 20/yd^2) hairy nightshade; cotyledon to 3 inch (1 to 5/yd^2) wild mustard; 0.5 to 3 inch (5 to 100/ft^2) yellow foxtail; cotyledon to 4 inch (1/yd^2) common cocklebur; and cotyledon to 1 inch (1 to 5/yd^2) redroot pigweed. MPOST applications were made on June 23 at 1:00 pm with 83 F air 89 F soil surface, 36% relative humidity, 25% clouds, 0 to 5 mph SE wind, dry soil surface, wet subsoil, good crop and no dew present to V4 to V5 (10 to 16 inch) corn. Weed species present at the time of POST applications were: 1 to 4 inch (1 to 10/yd^2) common lambsquarters; 1 to 4 inch (1 to 5/yd^2) common ragweed; 1 to 3 inch (1 to 2/yd^2) hairy nightshade; 3 to 8 inch (1 to 2/yd^2) wild mustard; 0.5 to 4 inch (5 to 50/ft^2) yellow foxtail; 1 to 4 inch (1 to 3/yd^2) common cocklebur; and cotyledon to 2 inch (1 to 3/yd^2) redroot pigweed. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles for EPOST and MPOST treatments. The experiment had a randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. On June 14, some slight hail damage but corn recovered quickly with good growing conditions. On July 1, July 7, July 21, and August 18 wild mustard control was 99%. On July 1, redroot pigweed, hairy nightshade, and common ragweed was 99%. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Ignite in LibertyLink corn (Zollinger and Ries).

Treatment[1]	Rate	June 17 - PRE ratings					July 1		July 7					July 21 and August 18					
		Yeft	Rrpw	Colq	Hans	Corw	Yeft	Colq	Yeft	Rrpw	Colq	Hans	Corw	Yeft	Rrpw	Colq	Hans	Corw	Cocb
	(product/A)	% control					% control		% control					% control					
PRE/MPOST																			
Balance Flexx/Ignite+AMS	3fl oz/23fl oz+2lb	70	99	70	82	68	89	99	82	99	96	96	99	74	99	96	96	99	99
Balance Flexx/Ignite+Laudis+ AMS	3fl oz/23fl oz+2fl oz+ 2lb	65	96	72	82	73	99	99	98	99	99	99	99	91	99	99	99	99	99
Balance Flexx/Ignite+Laudis+ Atrazine+AMS	3fl oz/23fl oz+2fl oz+ 0.42lb+2lb	78	99	72	83	73	99	96	99	99	99	99	99	99	99	99	99	99	96
Corvus/Ignite+Laudis+ Atrazine+AMS	2.5fl oz/23fl oz+2fl oz+ 0.42lb+2lb	72	96	66	82	60	99	99	99	99	99	99	99	99	99	99	99	99	99
EPOST																			
Ignite+Laudis+Atrazine+ AMS	23fl oz+2fl oz+0.42lb+ 2lb						83	99	72	96	96	96	97	72	96	96	96	97	70
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		5	7	4	9	7	2	1	8	4	4	6	3	4	4	4	6	3	1

[1]Corvus = Balance Flexx (isoxaflutole & cyprosulfamide safener) & thiencarbazone; Balance Flexx = isoxaflutole & cyprosulfamide safener.

Balance Flexx and Laudis in corn. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate corn tank-mixes at several different timings. Pioneer '39D85' LibertyLink/Roundup Ready corn was planted on May 8, 2008, followed by the application of PRE treatments at 2:05 pm, 57 F air, 48 F soil at a four inch depth, 25% relative humidity, 100% clouds, 3 to 5 mph SE wind, dry soil surface and moist subsoil. Soil characteristics were: 29.1% sand, 52.3% silt, 18.6% clay, silt loam texture, 4.4% OM and 7.5 pH. EPOST applications were made on June 17 at 12:05 pm with 81 F air, 77 F soil surface, 29% relative humidity, 5% clouds, 0 to 6 mph NW wind, moist soil surface, wet subsoil, good crop vigor, and no dew present to V3 to V4 (6 to 10 inch) corn. Weed species present at the time of the POST applications were: 2 to 4 inch (5 to 30/yd^2) common lambsquarters; cotyledon to 4 inch (5 to 20/yd^2) common ragweed; 1 to 3 inch (5 to 20/yd^2) hairy nightshade; cotyledon to 3 inch (1 to 5/yd^2) wild mustard; 0.5 to 3 inch (5 to 100/ft^2) yellow foxtail; cotyledon to 4 inch (1 to 2/yd^2) common cocklebur; and cotyledon to 1 inch (1 to 5/yd^2) redroot pigweed. MPOST applications were made on June 20 at 10:00 am with 77 F air, 82 F soil surface, 32% relative humidity, 10% clouds, 8 to 12 mph NW wind, moist soil surface, wet subsoil, and no dew present to V3 to V5 (6 to 14 inch) corn. Weeds species in plots with PRE treaments at the time of MPOST applications were: 2 to 6 inch (5 to 30/yd^2) common lambsquarters; cotyledon to 6 inch (5 to 20/yd^2) common ragweed; 0.5 to 5 inch (5 to 100/ft^2) yellow foxtail; cotyledon to 4 inch (1 to 2/yd^2) common cocklebur; and emergence to 0.5 inch (1 to 5/yd^2) redroot pigweed. Weed species in treatments with MPOST only treatments were: 2 to 8 inch (5 to 30/yd^2) common lambsquarters; cotyledon to 7 inch (5 to 30/yd^2) common ragweed; 1 to 5 inch (1 to 15/yd^2) hairy nightshade; cotyledon to 8 inch (1 to 5/yd^2) wild mustard; 2 to 8 inch (2 to 100/ft^2) yellow foxtail; cotyledon to 6 inch (1 to 2/yd^2) common cocklebur; and cotyledon to 1.5 inch (1 to 5/yd^2) redroot pigweed. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot sprayer for EPOST and MPOST treatments. The experiment had a randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. On June 14, slight hail damage was detected but plants recovered quickly from good growing conditions. On June 27 (7 dat), no corn injury observed. On July 4, July 18, and August 15, wild mustard and common ragweed control was 99%. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Balance Flexx and Laudis in corn (Zollinger and Ries).

Treatment[1]	Rate	June 17 - PRE ratings						July 4					July 18 and August 15				
		Yeft	Rrpw	Colq	Hans	Corw	Cocb	Yeft	Rrpw	Colq	Hans	Cocb	Yeft	Rrpw	Colq	Hans	Cocb
	(product/A)	% control						% control					% control				
PRE/MPOST																	
Balance Flexx/Laudis+Atrazine+ Scoil+28% N	3fl oz/3fl oz+0.42lb+ 1.2pt+1.5qt	72	99	75	77	75	0	99	99	99	99	99	91	99	99	99	99
Lumax/Lumax+R-11	1.5qt/1.5qt+0.25% v/v	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99
Balance Flexx/Ignite+AMS	3fl oz/23fl oz+2lb	72	99	71	72	72	0	84	99	99	99	85	73	99	99	99	82
EPOST																	
Laudis+Atrazine+Scoil+28% N	3fl oz+0.42lb+1.2pt+1.5qt							99	99	99	99	99	85	99	99	99	99
EPOST/MPOST																	
Ignite+AMS/Ignite+AMS	11.5fl oz+2lb/11.5fl oz+2lb							72	87	85	90	85	72	72	77	83	73
MPOST																	
Laudis+Atrazine+Ignite+AMS	3fl oz+0.42lb+23fl oz+2lb							99	99	99	99	99	99	99	99	99	99
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		3	NS	5	6	6	10	2	2	5	4	5	7	7	8	6	7

[1]Balance Flexx = isoxaflutole & cyprosulfamide safener.

Corvus and Laudis in corn. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control and crop response from applications of Corvus followed by Laudis in corn. Pioneer '39D85' LibertyLink/Roundup Ready corn was planted on May 8, 2008 followed by the application of PRE treatments at 3:00 pm with 58 F air, 48 F soil at a four inch depth, 25% relative humidity, 100% cloud cover, 3 to 5 mph SE wind, dry soil surface and moist subsoil. Soil characteristics were: 29.1% sand, 52.3% silt, 18.6% clay, silt loam texture, 4.2% OM, and 5.9 pH. MPOST treatments were applied on June 17 at 12:00 pm with with 82 F air, 78 F soil surface, 31% relative humidity, 5% clouds, 0 to 6 mph NW wind, moist soil surface, wet subsoil, good crop vigor and no dew present to V3 to V5 (6 to 10 inch) corn. Weed species present at the time of MPOST applications were: cotyledon to 5 inch (10 to 50/yd^2) common lambsquarters; cotyledon to 3 inch (1 to 5/yd^2) common ragweed; cotyledon to 3 inch (1 to 10/yd^2) hairy nightshade; cotyledon to bolting (1 to 2/yd^2) wild mustard; 0.5 to 4 inch (5 to 75/ft^2) yellow foxtail; emergence to 1 inch (1 to 5/yd^2) redroot pigweed; and 1 to 4 inch (1/yd^2) common cocklebur. Weed species in plots with PRE treatments were: 0.5 to 1 inch (1 to 10/ft^2) yellow foxtail; cotyledon to 3 inch (5 to 35/yd^2) common lambsquarters; and cotyledon to 2 inch (5 to 15/yd^2) hairy nightshade. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles for MPOST treatments. The experiment had a randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. On June 14, some slight hail damage was observed but plants recovered quickly with good growing conditions. On June 17, all PRE treatments gave 99% control of wild mustard and redroot pigweed. On July 1, July 15 and August 12, all treatments gave 99% control of wild mustard and redroot pigweed. On June 24, 7 DAT, no corn injury was observed. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Corvus and Laudis in corn (Zollinger and Ries).

Treatment[1]	Rate	June 17 PRE Ratings					July 1 - 14 DAT MPOST					28 and 56 DAT MPOST				
		Yeft	Colq	Hans	Corw	Cocb	Yeft	Colq	Hans	Corw	Cocb	Yeft	Colq	Hans	Corw	Cocb
	(product/A)	% control					% control					% control				
PRE																
Corvus+Atrazine	2.5fl oz+0.42lb	90	70	77	73	0	93	68	78	75	72	93	72	82	77	73
PRE/MPOST																
Corvus+Atrazine/Laudis+ Atrazine+Herbimax+28% N	2.5fl oz+0.42lb/3fl oz+ 0.42lb+1.2pt+1.5qt	96	68	73	73	0	98	99	99	99	99	98	99	99	99	99
Corvus+Atrazine/Laudis+ Atrazine+Scoil+28% N	2.5fl oz+0.42lb/3fl oz+ 0.42lb+1.2pt+1.5qt	91	65	72	72	0	94	99	99	99	93	94	99	99	99	93
Lumax/Lumax+R-11	1.5qt/1.5qt+0.25% v/v	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99
Harness/Laudis+Atrazine+ Scoil+28% N	2.25pt/3fl oz+0.42lb+ 1.2pt+1.5qt	99	83	91	45	0	99	99	99	99	90	99	99	99	99	91
MPOST																
Laudis+Atrazine+RUPM+AMS	3fl oz+0.42lb+11fl oz+1lb						75	99	99	99	78	75	99	99	99	80
Laudis+Atrazine+RUPM+AMS	3fl oz+0.42lb+22fl oz+1lb						80	99	99	99	89	80	99	99	99	97
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		1	3	4	4	15	3	2	2	3	4	3	2	2	2	3

[1]RUPM = Roundup PowerMax; Corvus = Balance Flexx (isoxaflutole & cyprosulfamide safener) & thiencarbazone.

KIH-485 applied EPP and PRE. Zollinger, Richard K., Ryan L. Hunt, and Jerry L. Ries. Two experiments were setup near Prosper, ND, to evaluate KIH-485 weed control activity (longevity). Study one, KIH-485 was applied as an EPP. EPP treatments were applied with glyphosate on May 8 with 54 F air, 45 F subsoil at a four inch depth, 30% relative humidity, 100% clouds, 0 to 6 mph S wind, dry soil surface, and moist subsoil. No weeds were present at the time of EPP application. Study two, KIH-485 was applied with glyphosate as a PRE. PRE treatments were applied on June 18 with 80 F air, 77 F subsoil at a four inch depth, 28% relative humidity, 10% clouds, 0 to 6 mph NW wind, moist soil surface, and wet subsoil. The PRE study had the following weeds emerged at application: 0.5 to 4 inch (1 to 5/yd^2) yellow foxtail; emergence to bud initiation (1 to 3/yd^2) wild mustard; cotyledon to 4 inch (1 to 2/yd^2) marshelder; cotyledon to 3 inch (5 to 10/yd^2) common lambsquarters; cotyledon to 2 inch (3 to 8/yd^2) hairy nightshade; cotyledon to 3 inch (5 to 10/yd^2) common ragweed. Treatments were applied to the center 6.7 feet of the 10 by 30 foot plots with a backpack-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles. The experiment had a randomized complete block design with four replicates per treatment.

KIH-485 applied EPP: Treatments were applied 8-May-08 onto dry field conditions. Over the next 2 ½ weeks only a total of approximately 0.29 inches of rain was received. On 24-May-08 a weed control rating was made and no weed control had been obtained in any of the treatments. The following day (25-May-08) the rain storms began and about 6.3 inches were received over the next 3 weeks. The rating performed next (17-June-08) showed weed control in all of the EPP treatments, which demonstrated the reach-back of the herbicide on weeds that have already emerged and began to grow vegetatively. On 14-July-08 the ratings dropped, but weed control was still visible.

KIH-485 applied PRE: Treatments were applied with RU PowerMax 17-June-08. From that time until the weed control rating 3.7 inches of rain was received, resulting in activation. In conjunction with the RU PowerMax, nearly all of the wild mustard, marshelder, common lambsquarter, hairy nightshade, and redroot pigweed was controlled.

(Dept of Plant Sciences, North Dakota State University, Fargo).

Table 1. KIH-485 applied EPP (Zollinger, Hunt, Ries).

		June 14						July 14						
Treatment[1]	Rate	Yeft	Wimu	Mael	Colq	Hans	Corw	Yeft	Wimu	Mael	Colq	Hans	Corw	Rrpw
	(product/A)	% control						% control						
RUPM	22 fl oz	0	0	0	0	0	0	0	0	0	0	0	0	0
RUPM+KIH-485	22fl oz+2.1oz	83	44	31	77	88	50	73	62	6	18	87	20	86
RUPM+KIH-485	22fl oz+2.8oz	98	62	34	72	98	57	83	88	30	28	92	36	99
RUPM+KIH-485	22fl oz+3.5oz	99	78	39	90	96	72	85	88	26	35	94	36	99
RUPM+KIH-485	22fl oz+5.6oz	99	81	61	82	96	83	93	90	36	56	92	43	99
RUPM+Dual II Magnum	22fl oz+1.33pt	59	0	0	34	17	0	35	0	0	0	7	0	0
RUPM+Harness	22fl oz+2.25pt	99	70	73	92	99	69	91	79	65	71	93	52	99
LSD (0.05)		8	20	14	17	9	8	4	3	8	6	4	4	2

[1]RUPM = Roundup PowerMax, KIH-485 = pyroxasulfone.

Table 2. KIH-485 applied PRE (Zollinger, Hunt, Ries).

		July 14						
Treatment[1]	Rate	Yeft	Wimu	Mael	Colq	Hans	Corw	Rrpw
	(product/A)	% control						
RUPM	22 fl oz	10	99	99	99	99	68	22
RUPM+KIH-485	22fl oz+1.4ozoz	38	99	99	99	99	73	83
RUPM+KIH-485	22fl oz+2.1oz	54	99	99	99	99	80	93
RUPM+KIH-485	22fl oz+2.8oz	73	99	99	99	99	80	98
RUPM+KIH-485	22fl oz+3.5oz	83	99	99	99	99	88	99
RUPM+Dual II Magnum	22fl oz+1.33pt	63	99	99	99	99	68	44
RUPM+Harness	22fl oz+1.5pt	88	99	99	99	99	90	97
LSD (0.05)		10	NS	NS	NS	NS	3	7

[1]RUPM = Roundup PowerMax, KIH-485 = pyroxasulfone.

Valor plus metribuzin in soybean. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Buffalo, ND, to evaluate weed control from PRE herbicides in soybean. Pioneer '90M60' was planted on May 12, 2008. PRE treatments were applied on May 13 at 10:00 am, 45 F air, 48 F soil at a four inch depth, 76% relative humidity, 100% clouds, 8 to 12 mph NE wind, dry soil surface and moist subsoil. Soil characteristics were: 42.2% sand, 39.6% silt, 19.3% clay, loam texture, 3.6% OM and 7.3 pH. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer with an attached wind screen delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles. The experiment had a randomized complete block design with three replicates per treatment.

No soybean injury was observed. Authority MTZ contains 4 fl oz Authority + 4 oz/A metribuzin.
(Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Valor plus metribuzin in soybean (Zollinger and Ries).

		31 DAT	
Treatment[1]	Rate	Kochia	Mael
	(product/A)	---------- % control ----------	
Sencor	5oz	30	27
Valor SX	2oz	72	69
Valor SX+Sencor	1.75oz+4oz	57	60
Valor SX+Sencor	2oz+3oz	72	60
Valor SX+Sencor	2oz+4oz	63	63
Valor SX+Sencor	2oz+5oz	82	78
Valor SX+Sencor+V-10206	2oz+4oz+1oz	77	70
V-53482	9.6fl oz	58	53
Authority MTZ	11oz	92	87
Untreated		0	0
LSD (0.05)		9	9

[1]V-53482 and V-10206 = a proprietary product from Valent.

Valor + KIH-485 in Roundup Ready soybean. Zollinger, Richard K. And Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control from tank-mixtures of Valor and KIH-485 applied PRE. Asgrow 'AG0401' soybean was planted May 10, 2007. PRE treatments were applied on May 11 at 3:15 pm with 57 F air, 58 soil at a 4 inch depth, 85% relative humidity, 100% cloud cover, 3 to 8 mph E wind, dry soil surface, and wet subsoil. Soil characteristics were 28.2% sand, 45.6% silt, 26.2% clay, loam texture, 3.7% OM, pH 7.7. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plots with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles. The experiment had randomized compete block design with three replicates per treatment.

Weed control increased as herbicide rates increased. All treatments gave 99% control of redroot pigweed at ratings. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Valor + KIH-485 in Roundup Ready Soybean (Zollinger and Ries).

		28 DAT						42 DAT						
Treatment[1]	Rate	Yeft	Colq	Hans	Wibw	Corw	Cocb	Yeft	Wimu	Colq	Hans	Wibw	Corw	Cocb
	(product/A)	---------- % control ----------						---------- % control ----------						
KIH-485	4oz	92	50	95	27	76	0	93	73	50	95	27	72	0
Valor	2oz	68	72	93	43	20	20	68	99	85	95	57	23	20
KIH-485+Valor	1oz+1.47oz	92	75	95	40	20	20	90	99	80	95	76	73	20
KIH-485+Valor	1oz+2oz	96	88	99	70	75	20	96	99	88	99	90	73	20
KIH-485+Valor	1.5oz+1.47oz	90	72	75	58	53	20	90	93	75	99	65	55	20
KIH-485+Valor	1.5oz+2oz	95	86	99	65	52	20	95	99	90	99	82	70	20
KIH-485+Valor	2oz+1.47oz	95	73	90	54	65	20	96	99	83	93	58	65	20
KIH-485+Valor	2oz+2oz	97	95	99	73	73	20	97	99	95	99	85	93	20
KIH-485+Valor	2.5oz+1.47oz	97	88	99	73	73	20	97	99	99	99	77	76	20
KIH-485+Valor	2.5oz+2oz	95	99	99	68	63	20	96	99	96	99	83	87	20
KIH-485+Valor	3oz+1.47oz	99	96	99	81	80	21	99	99	97	99	85	92	21
KIH-485+Valor	3oz+2oz	98	97	99	90	88	20	98	99	98	99	93	93	50
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		4	7	3	9	10	1	4	3	5	1	14	7	1

[1]KIH-485 = pyroxasulfone.

PRE weed control in soybean. Zollinger, Richard K. And Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control in soybean from treatments applied PRE . Asgrow 'AG0401' soybean was planted May 10, 2007. PRE treatments were applied on May 11 at 2:40 pm with 58 F air, 58 soil at a 4 inch depth, 75% relative humidity, 100% cloud cover, 3 to 5 mph E wind, dry soil surface, and wet subsoil. Soil characteristics were 29.5% sand, 45.2% silt, 25.3% clay, loam texture, 3.9% OM, pH 7.5. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plots with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles. The experiment had randomized compete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. Injury was stunting and slight chlorosis. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. PRE weed control in soybean (Zollinger and Ries).

		28 DAT								42 DAT								66 DAT						
Treatment[1]	Rate	Soyb[2]	Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb	Soyb	Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb	Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb
	(product/A)	% inj	% control							% inj	% control							% control						
Valor	2oz	5	74	91	96	99	74	53	20	5	77	99	96	99	89	53	7	63	99	96	99	90	65	7
C06-5	14fl oz	12	88	99	99	99	76	71	20	12	79	99	99	99	73	60	13	73	99	99	99	87	63	13
C06-6	14fl oz	8	81	92	86	99	68	43	20	8	78	95	91	99	80	50	13	83	99	91	99	87	83	13
KIH-485	4oz	4	94	99	94	97	37	67	20	4	94	99	93	97	43	63	13	94	99	95	97	90	85	13
Valor+KIH-485	3oz+4oz	23	99	99	99	99	91	96	20	23	99	99	99	99	80	96	20	99	99	99	99	90	98	20
C06-5+KIH-485	14fl oz+4oz	18	99	99	99	99	99	98	20	18	99	99	99	99	90	83	20	99	99	99	99	90	92	20
C06-6+KIH-485	14fl oz+4oz	13	99	99	99	99	85	90	20	13	99	99	99	99	85	90	20	99	99	99	99	96	93	20
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		4	6	6	6	1	11	9	NS	4	5	3	6	1	5	9	12	5	NS	5	1	5	7	12

[1]C06-5 and C06-6 are proprietary products from Valent, KIH-485 = pyroxasulfone.
[2]Soyb = soybean.

Kixor in soybean. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control and crop response from Sharpen (BAS 800 04 H, saflufenacil). 7 DBP (days before planting) treatments were applied on May 8, 2008 at 1:45 pm with 58 F air, 45 F soil at a four inch depth, 27% relative humidity, 100% clouds, 3 to 5 mph SE wind, dry soil surface and moist subsoil. Soil characteristics were: 24.1% sand, 56.1% silt, 19.8% clay, silt loam texture, 4.4% OM and 7.5 pH. Asgrow 'AGO401' Roundup Ready soybean was planted May 15. POST applications were made on June 23 at 1:45 pm with 85 F air, 89 F soil surface, 38% relative humidity, 25% clouds, 0 to 5 mph SE wind, dry soil surface, wet subsoil, good crop vigor, and no dew present to V2 to V3 soybean. Weed species present at the time of POST applications were: 2 to 6 inch (1 to 10/yd^2) common lambsquarters; 2 to 4 inch (5 to 20/yd^2) common ragweed; cotyledon to bloom (1 to 3/yd^2) wild mustard; 0.5 to 6 inch (5 to 50/ft^2) yellow foxtail; cotyledon to 1 inch (20 to 50/yd^2) redroot pigweed; 2 to 8 inch diameter (1 to 15/yd^2) wild buckwheat; 1 to 3 inch (1 to 5/yd^2) hairy nightshade; and 1 to 3 inch (1/yd^2) common cocklebur. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot sprayer for POST treatments. The experiment had a randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying crop emergence. Weeds germinated prior to effective precipitation which explains lack of early season weed control. Warmer weather and effective precipitation did not occur until beginning of June. Wild mustard control was 99% at 14 and 28 DAT POST. Crop was destroyed after final evaluation. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Sharpen (saflufenacil) in soybean (Zollinger and Ries).

Treatment[1]	Rate	40 DAT - 7 DBP							
		Yeft	Wimu	Rrpw	Colq	Hans	Wibw	Corw	Cocb
	(product/A)	% control							
7 DBP/POST									
Sharpenr+Herbimax+AMS/RUO+R-11+AMS	1fl oz+1% v/v+2lb/1qt+0.25% v/v+2lb	13	33	0	43	40	40	43	0
RUO+R-11+AMS/RUO+R-11+AMS	1qt+0.25% v/v+2lb/1qt+0.25% v/v+2lb	0	0	0	0	0	0	0	0
RUO+2,4-D Ester+R-11+AMS/ RUO+R-11+AMS	1qt+1pt+0.25% v/v+2lb/ 1qt+R-11+2lb	0	0	0	0	0	0	0	0
Sharpen+RUO+Herbimax+AMS/ RUO+R-11+AMS	1fl oz+1qt+1% v/v+2lb/ 1qt+0.25% v/v+2lb	22	0	57	50	0	23	43	0
Sharpen+RUO+Herbimax+AMS/ RUO+R-11+AMS	2fl oz+1qt+1% v/v+2lb/ 1qt+0.25% v/v+2lb	85	55	99	73	83	53	53	20
Sharpen+Prowl H_2O+RUO+Herbimax+AMS/ RUO+R-11+AMS	1fl oz+3pt+1qt+1% v/v+2lb/ 1qt+0.25% v/v+2lb	93	13	99	82	90	63	65	20
Untreated		0	0	0	0	0	0	0	0
LSD (0.05)		9	13	4	6	2	9	7	5

[1]Sharpen = BAS 800 04 H = saflufenacil; RUO = Roundup Original.

Table cont. Sharpen (saflufenacil) in soybean (Zollinger and Ries).

Treatment[1]	Rate	14 DAT - POST							28 DAT - POST						
		Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb	Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb
	(product/A)	% control							% control						
7 DBP/POST															
Sharpen+Herbimax+AMS/ RUO+R-11+AMS	1fl oz+1% v/v+2lb/ 1qt+0.25% v/v+2lb	88	98	89	95	89	88	99	88	98	98	99	96	96	99
RUO+R-11+AMS/ RUO+R-11+AMS	1qt+0.25% v/v+2lb/ 1qt+0.25% v/v+2lb	85	87	71	71	67	67	90	85	95	99	99	99	99	99
RUO+2,4-D Ester+R-11+AMS/ RUO+R-11+AMS	1qt+1pt+0.25% v/v+2lb/ 1qt+R-11+2lb	88	95	85	91	83	89	94	88	96	99	99	99	99	99
Sharpen+RUO+Herbimax+AMS/ RUO+R-11+AMS	1fl oz+1qt+1% v/v+2lb/ 1qt+0.25% v/v+2lb	90	96	86	95	90	86	99	90	96	93	98	92	99	99
Sharpen+RUO+Herbimax+AMS/ RUO+R-11+AMS	2fl oz+1qt+1% v/v+2lb/ 1qt+0.25% v/v+2lb	99	99	95	99	96	91	99	99	99	99	99	99	99	99
Sharpen+Prowl H_2O+RUO+ Herbimax+AMS/RUO+R-11+AMS	1fl oz+3pt+1qt+ 1% v/v+2lb/1qt+0.25% v/v+2lb	99	99	98	99	99	96	99	99	99	99	99	99	98	99
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		4	5	6	5	10	6	6	4	5	3	2	4	2	NS

[1]Sharpen = BAS 800 04 H = saflufenacil; RUO = Roundup Original.

Valor and Spartan in soybean. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control from PRE herbicides in soybean. Asgrow 'AGO604' Roundup Ready soybean was planted on May 12, 2008, followed by the application of PRE treatments at 10:00 am, 54 F air, 46 F soil at a four inch depth, 46% relative humidity, 100% clouds, 8 to 12 mph SE wind, dry soil surface and moist subsoil. Soil characteristics were: 27.1% sand, 48.8% silt, 24.1% clay, loam texture, 3.8% OM and 7.1 pH. POST applications were made on June 23 at 2:10 pm with 86 F air, 91 F soil surface, 37% relative humidity, 30% clouds, 0 to 5 mph SE wind, dry soil surface, wet subsoil, good crop vigor, and no dew present to V1 to V3 soybean. Weed species present at the time of POST applications were: 1 to 5 inch (1 to 5/yd^2) common lambsquarters; 4 to 8 inch (5 to 30/yd^2) common ragweed; 3 to 7 inch (<1/yd^2) wild mustard; 2 to 5 inch (5 to 25/yd^2) yellow foxtail; emergence to 2 inch (1 to 2/yd^2) redroot pigweed; and 2 to 8 inch diameter (1/yd^2) wild buckwheat. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot sprayer for POST treatments. The experiment had a randomized complete block design with three replicates per treatment.

On June 18 (37 DAT PRE), 99% control of common lambsquarters, redroot pigweed, and wild buckwheat.
On July 7 (14 DAT POST), 99% control of wild mustard, redroot pigweed, and common lambsquarters.
On July 28 and August 18, 99% control of wild mustard. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Valor and Spartan in soybean (Zollinger and Ries).

		37 DAT - PRE		14 DAT - POST			28 and 56 DAT - POST				
Treatment[1]	Rate	Yeft	Corw	Yeft	Wibw	Corw	Yeft	Rrpw	Colq	Wibw	Corw
	(product/A)	- % control -		--- % control ---			-------- % control --------				
PRE											
Valor SX	2oz	50	58	80	78	58	82	83	99	96	58
Valor SX	3oz	50	58	93	99	99	92	99	99	99	99
PRE/POST											
Valor SX/RUWM+AMS	1.5oz/22fl oz+2.5lb	50	58	88	99	99	90	99	99	99	99
Valor SX/RUWM+AMS	2oz/22fl oz+2.5lb	50	53	96	99	92	96	99	98	99	96
Valor SX/RUWM+AMS	2.5oz/22fl oz+2.5lb	53	57	97	99	99	97	99	99	99	99
Valor SX/RUWM+AMS	3oz/22fl oz+2.5lb	50	67	95	99	99	98	99	99	99	99
Valor SX+Intrro/RUWM+AMS	1.5oz+1qt/22fl oz+2.5lb	99	62	98	99	99	99	99	99	99	99
Valor SX+Intrro/RUWM+AMS	2oz+1qt/22fl oz+2.5lb	99	68	99	96	98	99	99	99	96	98
Valor SX+Intrro/RUWM+AMS	2oz+2qt/22fl oz+2.5lb	99	67	99	99	99	99	99	99	99	99
Valor SX+FirstRate/RUWM+AMS	2oz+0.4oz/22fl oz+2.5lb	95	95	99	99	99	99	99	99	99	99
Valor SX+FirstRate/RUWM+AMS	2.5oz+0.5oz/22fl oz+2.5lb	91	93	97	99	99	98	99	99	99	99
Spartan+Pursuit/RUWM+AMS	2.75fl oz+0.5oz/22fl oz+2.5lb	50	60	96	99	95	96	99	99	99	95
Authority Assist/RUWM+AMS	6fl oz/22fl oz+2.5lb	50	63	98	99	96	95	99	99	99	96
Authority MTZ/RUWM+AMS	12oz/22fl oz+2.5lb	50	80	95	99	99	97	99	99	99	99
POST											
RUWM	22fl oz			92	99	99	92	99	99	99	99
LSD (0.05)		4	10	4	8	5	4	1	1	2	5

[1]RUWM = Roundup WeatherMax.

Classic herbicide in soybean. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control and crop response from the herbicide Classic. Asgrow 'AGO604' Roundup Ready soybean was planted on May 12, 2008, followed by the application of PRE treatments at 10:45 am, 55 F air, 46 F soil at a four inch depth, 41% relative humidity, 100% clouds, 8 to 12 mph SE wind, dry soil surface and moist subsoil. Soil characteristics were: 24.1% sand, 56.1% silt, 19.8% clay, silt loam texture, 4.4% OM and 7.5 pH. POST applications were made on June 20 at 11:00 am with 78 F air, 83 F soil surface, 34% relative humidity, 10% clouds, 8 to 12 mph NW wind, dry soil surface, moist subsoil, good crop vigor, and no dew present to unifoliate to V2 soybean. Weed species present at the time of POST applications were: 1 to 3 inch (1 to 5/yd^2) common lambsquarters; cotyledon to 3 inch (1 to 10/ft^2) common ragweed; cotyledon to 8 inch (1 to 5/yd^2) wild mustard; 0.5 to 5 inch (10 to 100/ft^2) yellow foxtail; emergence to 0.5 inch (1 to 30/yd^2) redroot pigweed; 1 to 5 inch diameter (1 to 10/yd^2) wild buckwheat; and 1 to 2 inch (1 to 5/yd^2) hairy nightshade. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer with an attached wind screen delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot sprayer for POST treatments. The experiment had a randomized complete block design with three replicates per treatment.

On June 16, another flush of weeds emerged in the PRE treatments from previous rain which reduced weed control. All PRE treatments gave 99% control of wild mustard and redroot pigweed. Soybean injury was yellowing and stunting. On July 4 and 18, all treatments gave 99% control of wild mustard and redroot pigweed. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Classic herbicide in soybean (Zollinger and Ries).

Treatment	Rate	June 16 - PRE ratings					June 27	July 4						July 18					
		Yeft	Colq	Hans	Wibw	Corw	Soyb[1]	Soyb	Yeft	Colq	Hans	Wibw	Corw	Soyb	Yeft	Colq	Hans	Wibw	Corw
	(product/A)	% control					% injury	% injury	% control					% injury	% control				
PRE																			
Classic+Harmony GT+Valor SX	0.33oz+0.5oz+2oz	92	90	98	86	89	0	5	73	86	98	75	75	7	73	94	98	77	72
Classic+Affinity Broadspec	0.083oz+1oz	50	60	82	71	63	20	3	40	95	99	84	65	5	40	95	99	85	62
Classic+Harmony Extra	0.33oz+0.6oz	50	67	87	69	83	20	8	50	94	99	83	73	13	50	94	99	86	73
POST																			
Classic+Affinity Broadspec+ R-11+AMS	0.33oz+0.4oz+ 0.25% v/v+2lb						20	40	74	99	99	92	66	47	74	99	99	94	75
Classic+Harmony GT+ R-11+AMS	0.33oz+0.3oz+ 0.25% v/v+2lb						20	5	68	96	73	91	70	3	68	98	88	93	70
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		2	8	6	3	7	10	14	6	9	4	7	6	9	6	7	5	4	6

[1]Soyb = soybean.

Tackle in Roundup Ready soybean. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control from Tackle treatments applied at two application timings. Burndown (21 days before planting) treatments were applied on May 12, 2008, at 10:15 am with 56 F air, 46 F soil at a four inch depth, 41% relative humidity, 100% clouds, 8 to 12 mph SE wind, dry soil surface and moist subsoil. Soil characteristics were: 24.1% sand, 56.1% silt, 19.8% clay, silt loam texture, 4.4% OM and 7.5 pH. Asgrow 'AGO801' Roundup Ready soybean was planted on June 2 followed by the application of a glyphosate burndown application of 22 fl oz/A to treatments that will receive POST a treatment. POST applications (21 days after planting) were made on June 23 at 1:15 pm with 84 F air, 90 F soil surface, 32% relative humidity, 30% clouds, 0 to 5 mph SE wind, dry soil surface, moist subsoil, good crop vigor, and no dew present to cotyledon to unifoliate soybean. Weed species present at the time of POST treatments were: 1 to 3 inch (1 to 5/yd^2) common lambsquarters; 1 to 2 inch (5 to 30/yd^2) common ragweed; cotyledon to 1 inch (5 to 10/yd^2) hairy nightshade; 3 inch to bloom (1 to 3/yd^2) wild mustard; emergence to 4 inch (5 to 50/ft^2) yellow foxtail; emergence to 1 inch (10 to 50/yd^2) redroot pigweed; 1 to 3 inch (<1/yd^2) common cocklebur; and 2 to 5 inch diameter (1 to 2/yd^2) wild buckwheat. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for Burndown treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot sprayer for the glyphosate and POST treatments. The experiment had a randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. Soybean was delayed in planting and burndown application of treatments 6 to 9 because of lack of weed germination, lack of rainfall, and lack of residual control from treatments 1 to 5. No soybean injury was observed at any evaluation. On June 24, July 7, July 21,and August 18, there was 99% control of wild mustard, redroot pigweed, and hairy nightshade. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Tackle in Roundup Ready soybean (Zollinger and Ries).

		June 24					July7, July 21, and August 18				
Treatment	Rate	Yeft	Colq	Wibw	Corw	Cocb	Yeft	Colq	Wibw	Corw	Cocb
	(product/A)	% control					% control				
Burndown											
Tackle	1qt	87	87	83	73	77	93	96	96	88	94
Tackle+AMS	1qt+2.5lb	87	87	84	75	78	96	96	96	82	94
Tackle+AMS+R-11	1qt+2.5lb+0.125% v/v	87	87	85	72	99	99	99	99	80	99
Extreme+AMS+R-11	3pt+2.5lb+0.125% v/v	86	86	87	72	74	99	99	99	82	99
Burndown/POST											
Tackle+AMS/Tackle+AMS	1qt+2.5lb/1qt+2.5lb	86	84	84	71	75	99	99	99	99	99
POST											
Tackle	1qt	99	99	99	99	99	99	99	99	99	99
Tackle+AMS	1qt+2.5lb	99	99	99	99	99	99	99	99	99	99
Tackle+AMS+R-11	1qt+2.5lb+0.125% v/v	99	99	99	99	99	99	99	99	99	99
Extreme+AMS+R-11	3pt+2.5lb+0.125% v/v	99	99	99	99	99	99	99	99	99	99
Untreated		0	0	0	0	0	0	0	0	0	0
LSD (0.05)		3	3	3	3	2	3	4	5	7	7

LibertyLink vs. Roundup Ready soybean Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Casselton, ND, to evaluate weed control and yield from two resistant soybean types. SoyGenetics 'SG0678LL' LibertyLink soybean and Asgrow 'AGO801' Roundup Ready soybean was planted on May 15, 2008, followed by the application of PRE treatments at 11:25 am, 65 F air, 50 F soil at a four inch depth, 33% relative humidity, 0% clouds, 0 to 3 mph NW wind, dry soil surface and moist subsoil. Soil characteristics were: 9.1% sand, 56% silt, 34.9% clay, silty clay loam texture, 5.4% OM and 7.8 pH. EPOST applications (22 days after emergence) were made on June 18 at 10:30 am with 80 F air, 78 F soil surface, 35% relative humidity, 20% clouds, 0 to 4 mph SE wind, moist soil surface, wet subsoil, good crop vigor, and no dew present to unifoliate to V1 soybean varieties. Weed species present at the time of EPOST applications were: 1 to 5 inch (1 to 5/yd^2) common lambsquarters; 4 to 8 inch (5 to 30/yd^2) common ragweed; 3 to 7 inch (<1/yd^2) wild mustard; 2 to 5 inch (5 to 25/yd^2) yellow and green foxtail; emergence to 2 inch (1 to 2/yd^2) redroot pigweed; 2 to 4 inch (1 to 5/yd^2) venice mallow; 1 to 5 inch (<1/yd^2) common cocklebur; and 2 to 8 inch diameter (1/yd^2) wild buckwheat. MPOST applications (44 days after emergence) were made on July 10 at 1:00 pm with 78 F air, 82 F soil surface, 40% relative humidity, 0% clouds, 6 to 10 mph SE wind, dry soil surface, wet subsoil, good crop vigor, and no dew present to V5 to V7, R1 initiation, (6 to 12 inch) soybean varieties. Generally, the first applications gave 99% control of weeds so no weed types, sizes, or densities will be given. Treatments were applied to the entire 20 by 50 foot plots with a bicycle-type plot sprayer with an attached 10 foot boom delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot sprayer with an attached 10 foot boom for POST treatments. The experiment had a randomized complete block design with six replicates per treatment.

No injury was observed. Early spring weather was cool and dry. Growth of soybean was very slow. Weather turned wet in June with standing water. The fall was very wet with more periodic standing water. The LibertyLink soybean matured at a faster rate than the Roundup Ready soybean, by 7 to 10 days. Harvest was delayed about a month due to very wet soil conditions and no frost. Yield differences could be due to varietal differences in the cool dry spring, excess water, and maturity development. Yield was adjusted to 13.5% moisture. Another possible explanation for yield differences could be planting rate. LL soybean was larger than RR soybean. LL soybean was 2710 seeds/lb and RR soybean was 3260 seeds/lb. A seeding rate of 70 bu/A was used for both seed types. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. LibertyLink vs. Roundup Ready soybean (Zollinger and Ries).

		34 DAT - PRE					14 DAT EPOST							
Treatment[1]	Rate	Fxtl[2]	Wimu	Rrpw	Colq	Wibw	Fxtl	Wimu	Rrpw	Colq	Vema	Colq	Wibw	Cocb
	(product/A)	% control					% control							
PRE/EPOST/MPOST														
Authority First/Ignite+AMS/ Ignite+AMS	4oz/22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	99	99	99	99	99	99	99	99	99
Authority First/RUPM+AMS/ RUPM+AMS	4oz/22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	99	99	99	99	99	99	99	99	99
LSD (0.05)		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

[1]RUPM = Roundup PowerMax.
[2]Fxtl = green and yellow foxtail.

Table cont. LibertyLink vs. Roundup Ready soybean (Zollinger and Ries).

		31 DAT - EPOST and 14 DAT MPOST									Yield
Treatment[1]	Rate	Fxtl[2]	Wimu	Rrpw	Colq	Wibw	Vema	Colq	Wibw	Cocb	Soybean
	(product/A)	% control									- bu/A -
PRE/EPOST/MPOST											
Authority First/Ignite+AMS/ Ignite+AMS	4oz/22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	80	80	99	99	99	99	99	99	99	32.4
Authority First/RUPM+AMS/ RUPM+AMS	4oz/22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	99	99	99	99	99	22.6
LSD (0.05)		10	10	NS	NS	NS	NS	NS	NS	NS	3.2

[1]RUPM = Roundup PowerMax.
[2]Fxtl = green and yellow foxtail.

Ignite in LibertyLink soybean. Zollinger, Richard K. and Jerry L. Ries. Two identical experiments were setup at Casselton, ND, and Buffalo, ND, to evaluate weed control, crop tolerance, and yield using Ignite treatments in LibertLink soybean.

At Casselton, SoyGenetics 'SG0678LL' LibertyLink soybean was planted on May 15, 2008 followed by PRE applications 11:00 am with 63 F air, 50 F soil at a 4 inch depth, 33% relative humidity, 0% clouds, 0 to 3 mph NW wind, dry soil surface and moist subsoil. Soil characteristics were: 9.1% sand, 56% silt, 34.9% clay, 5.4% OM and 7.8 pH. EPOST (22 days after emergence, DAE) treatments were applied on June 18 at 10:45 am with 80 F air, 78 F soil surface, 35% relative humidity, 20% clouds, 0 to 4 mph SE wind, moist soil surface, wet subsoil, good crop vigor, and no dew present to unifoliate to 1 trifoliate (1 to 3 inch) soybean. Weed species present at the time of EPOST applications were: 0.5 to 2 inch (5 to 30/ft^2) green and yellow foxtail; emergence to 0.5 inch (1 to 25/ft^2) venice mallow; emergence to 2 inch (1/yd^2) wild mustard; 1 to 2 inch (1 to 3/yd^2) redroot pigweed; 1 to 4 inch (1 to 2/yd^2) common lambsquarters; 1 to 3 inch diameter (1/yd^2) wild buckwheat; and 1 to 3 inch (1/yd^2) common cocklebur. MPOST (44 DAE) treatments were applied on July 10 at 12:45 pm with 78 F air, 82 F soil surface, 40% relative humidity, 0% clouds, 6 to 10 mph W wind, moist soil surface, wet subsoil, good crop vigor, and no dew present to V5 to V7, R1 initiation (6 to 12 inch) soybean. Generally, the first applications gave 99% control of weeds so no weed types, sizes, or densities will be given.

At Buffalo, SoyGenetics 'SG0678LL' LibertyLink soybean was planted on May 15, 2008 followed by PRE applications 4:30 pm with 73 F air, 60 F soil at a 4 inch depth, 21% relative humidity, 60% clouds, 0 to 3 mph W wind, dry soil surface and moist subsoil. Soil characteristics were: 38.4% sand, 42.6% silt, 19.1% clay, 3.5% OM and 6.7 pH. EPOST (22 days after emergence, DAE) treatments were applied on June 18 at 12:30 pm with 80 F air, 86 F soil surface, 24% relative humidity, 10% clouds, 0 to 5 mph E wind, dry soil surface, moist subsoil, good crop vigor, and no dew present to 1 trifoliate (2 inch) soybean. Weed species present at the time of EPOST applications were: 0.5 to 4 inch (5 to 30/ft^2) yellow foxtail; 1 to 2 inch (1 to 2/yd^2) redroot pigweed; 1 to 2 inch (1 to 2/yd^2) common lambsquarters; and 1 to 4 inch (1/yd^2) wild mustard. MPOST (44 DAE) treatments were applied on July 10 at 11:50 am with 75 F air, 77 F soil surface, 47% relative humidity, 0% clouds, 0 to 5 mph E wind, dry soil surface, moist subsoil, good crop vigor, and no dew present to V5 to V7, R1 initiation (10 to 12 inch) soybean. Generally, the first applications gave 99% control of weeds so no weed types, sizes, or densities will be given.

Treatments were applied to the entire 20 by 30 foot plots with a bicycle-type plot sprayer with an attached 10 foot boom delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot sprayer with an attached 10 foot boom for POST treatments. The experiment had a randomized complete block design with three replicates per treatment.

No injury was observed at either location and the spring weather was very cool and dry. Growth of soybean was very slow. Weather turned wet in June, and Casselton had some standing water. The fall was very wet, at both locations, with more periodic standing water at Casselton. The LibertyLink soybean matured at a faster rate than the Roundup Ready soybean, by 7 to 10 days. Harvest was delayed about a month due to very wet soil conditions and no frost. Yield differences could be due to varietal differences in the cool dry spring, excess water, and maturity development. Buffalo weather conditions were drier, warmer, and had a lighter soil, soybeans grew faster and were larger at applications. Yield was adjusted to 13.5% moisture. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table 1. Ignite in LibertyLink soybean, Casselton (Zollinger and Ries).

Treatment	Rate	34 DAT PRE and 17 DAT EPOST, Fxtl[1]	Wimu	Rrpw	Colq	Vema	Wibw	Cocb	31 DAT EPOST and 14 DAT MPOST Fxtl	Wimu	Rrpw	Colq	Vema	Wibw	Cocb	Yield Soybean
		% control							% control							- bu/A -
PRE/EPOST/MPOST																
Valor SX/ Ignite+AMS/ Ignite+AMS	2oz/ 22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	99	99	99	80	99	99	99	99	99	99	30.4
Valor SX+FirstRate/ Ignite+AMS/ Ignite+AMS	2oz+0.3oz/ 22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	99	99	99	80	99	99	99	99	99	99	31.2
Valor SX+Sencor/ Ignite+AMS/ Ignite+AMS	2oz+4.6oz/ 22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	99	99	99	80	99	99	99	99	99	99	31.6
Authority First/ Ignite+AMS/ Ignite+AMS	4oz/ 22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	99	99	99	80	99	99	99	99	99	99	30.6
EPOST/MPOST																
Ignite+AMS/ Ignite+AMS	22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	99	99	99	70	99	75	99	99	99	99	30.8
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0	15.2
LSD (0.05)		NS	NS	NS	NS	NS	NS	NS	7	NS	9	NS	NS	NS	NS	5.9

[1]Fxtl = green and yellow foxtail.

Table 2. Ignite in LibertyLink soybean, Buffalo (Zollinger and Ries).

Treatment	Rate	34 DAT PRE, 17 DAT EPOST, 31 DAT EPOST and 14 DAT MPOST Yeft	Wimu	Rrpw	Colq	Yield Soybean
		% control				- bu/A -
PRE/EPOST/MPOST						
Valor SX/Ignite+AMS/ Ignite+AMS	2oz/22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	46.6
Valor SX+FirstRate/Ignite+AMS/ Ignite+AMS	2oz+0.3oz/22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	45.2
Valor SX+Sencor/Ignite+AMS/ Ignite+AMS	2oz+4.6oz/22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	46.8
Authority First/Ignite+AMS/ Ignite+AMS	4oz/22fl oz+8.5lb/100gal/ 22fl oz+8.5lb/100gal	99	99	99	99	46.8
EPOST/MPOST						
Ignite+AMS/Ignite+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal	99	99	99	99	45.0
Untreated		0	0	0	0	38.9
LSD (0.05)		NS	NS	NS	NS	6.9

LibertyLink soybean. Zollinger, Rich K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control and crop response to LibertyLink soyben. SoyGenetics 'SG0678LL' soybean was planted on May 10, 2007. PRE treatments were applied on May 11 at 3:40 pm with 58 F air, 58 F soil at a four inch depth, 85% relative humidity, 100% cloud cover, 5 to 8 mph E wind, wet soil surface, and wet subsoil. Soil characteristics were 28.2% sand, 45.6% silt, 26.2% clay, loam texture, 3.7% OM, and 7.7 pH. PRE treatments were applied on May 11 at 3:40 pm with 58 F air, 58 F soil surface, 85% relative humidity, 100% cloud cover, 5 to 8 mph E wind, wet soil surface, and wet subsoil. EPOST and MPOST treatments were applied at the same time due to wet weather conditions that delayed the earlier EPOST application. EPOST and MPOST applications were applied on June 21 at 10:45 am with 74 F air, 72 F soil surface, 40% relative humidity, 50% cloud cover, 8 to 13 mph SE wind, dry soil surface, moist subsoil, excellent crop vigor, and no dew present to V3 to V4 (8 to 12 inch) soybean. Weed species present in plots with PRE applications were: 1 to 6 inch (5 to 20/ft^2) yellow foxtail; 1 to 6 inch (1/yd^2) common lambsquarters; 2 to 4 inch (1 to 3/yd^2) hairy nightshade; 1 to 3 inch (1/yd^2) common cocklebur; 1 to 3 inch (1/yd^2) common ragweed; and 2 to 6 inch (1 to 3/yd^2) redroot pigweed. Weed species present in plots with POST only applications were: 6 to 12 inch (5 to 20/ft^2) yellow foxtail; 6 to 12 inch (5 to 10/ yd^2) common lambsquarters; 4 to 8 inch (3 to 5/yd^2) hairy nightshade; 4 to 10 inch (1 to 2/yd^2) common cocklebur; 4 to 12 inch (1 to 2/yd^2) wild mustard; and 2 to 4 inch (1/yd^2) wild buckwheat. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plots with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles for POST treatments. The experiment had randomized complete block design with three replicates per treatment.

No injury was observed at any rating. 99% control of wild mustard, common lambsquarters, hairy nightshade, common ragweed, and common cocklebur at 14 and 28 DAT POST was observed. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table LibertyLink soybean (Zollinger and Ries).

		June 21							14 DAT			28 DAT		
Treatment	Rate	Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb	Yeft	Rrpw	Wibw	Yeft	Rrpw	Wibw
	(product/A)	% control							% control			% control		
PRE/MPOST														
Sencor/Ignite+AMS	6oz/22fl oz+8.5lb/100gal	72	72	72	63	29	63	20	98	91	96	87	82	93
Prowl H_2O/Ignite+AMS	32fl oz/22fl oz+8.5lb/100gal	69	70	68	43	33	32	20	98	75	96	85	70	95
Authority First/Ignite+AMS	4oz/22floz+8.5lb/100gal	79	99	99	99	99	98	92	98	99	99	87	99	99
Authority First/Liberty+AMS	4oz/32floz+8.5lb/100gal	76	99	99	99	99	98	92	95	99	99	78	96	99
Spartan/Ignite+AMS	5fl oz/22fl oz+8.5lb/100gal	53	99	99	99	68	47	27	90	99	99	73	94	99
EPOST														
Ignite+AMS	22fl oz+8.5lb/100gal								94	67	99	83	33	99
Liberty+AMS	32fl oz+8.5lb/100gal								95	74	99	77	40	99
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		8	3	4	6	9	8	6	2	6	4	6	13	3

[1]Ignite = 2.33 lb/gal glufosinate .
[2]Liberty = 1.67 lb/gal glufosinate .

Weed control in LibertyLink soybean with row spacing. Zollinger, Rich K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to weed control and crop response to LibertyLink soybean planted in 15 and 30 inch row spacings and multiple application timings and rates. Two separate studies were setup, one planted at a 15 inch row spacing, and the other planted at a 30 inch row spacing. On June 1, 2007, both studies were planted to SoyGenetics 'SG0678LL' LibertyLink soybean followed by the application of PRE treatments at 10:45 am with 65 F air, 61 F soil at a four inch depth, 95% relative humidity, 100% cloud cover, 5 to 8 mph SE wind, dry soil surface, and wet subsoil. Soil characteristics were 28.2% sand, 45.6% silt, 26.2% clay, loam texture, 3.9% OM, pH 7.5.

15 and 30 inch row spacing studies:

Timing of applications for both studies were virtually made at the same time. Application information below is for both row spacing studies. Therefore, there are no differences in weed species, sizes, and densities. Slight soybean stage differences were observed at 32 DAP and 42 DAP applications, see below.

PRE applications were made June1 at 10:45 am with 65 F air, 61 F subsoil at a four inch depth,95% relative humidity, 100% clouds, 5 to 8 mph SE wind, dry soil surface and moist suboil. 21 DAP (days after planting treatments) were applied on June 22 at 4:15 pm with 83 F air, 82 F soil surface, 35% relative humidity, 30% cloud cover, 3 to 5 mph S wind, dry soil surface, moist subsoil, excellent crop vigor, and no dew present to cotyledon to one trifoliate soybean. Weed species present at the time of 21 DAP applications were: 2 to 6 inch (5 to 30/ft^2) yellow foxtail; 3 to 6 inch (1 to 5/yd^2) common cocklebur; 1 to 3 inch (1/yd^2) common ragweed; cotyledon to 2 inch (1 to 5/yd^2) common lambsquarters; 1 to 3 inch (1/yd^2) hairy nightshade; and 6 to 12 inch (1 to 5/yd^2) volunteer corn. 28 DAP treatments were applied on June 29 at 9:05 am with 72 F air, 79 F soil surface, 59% relative humidity, 0% cloud cover, 3 to 5 mph N wind, dry soil surface, moist subsoil, excellent crop vigor, and no dew present to V2 to V3 (4 to 6 inch) soybean. Weed species present in plots with 28 DAP applications were: 2 to 10 inch (1 to 5/yd^2) volunteer corn; 2 to 10 inch (10 to 50/ft^2) yellow foxtail; 4 to 12 inch (1 to 10/yd^2) common cocklebur; 1 to 3 inch (5 to 10/yd^2) common ragweed; 1 to 3 inch (1 to 3 /yd^2) common lambsquarters; 1 to 3 inch (2 to 3/yd^2) redroot pigweed; 1 to 3 inch (2 to 5/yd^2) hairy nightshade; and 3 inch diameter (1/yd^2) wild buckwheat. 32 DAP treatments were applied on July 3 at 10:10 am with 78 F air, 82 F soil surface, 58% relative humidity, 0% cloud cover, 4 to 7 mph N wind, dry soil surface, moist subsoil, excellent crop vigor, and no dew present to V4 to V6 (10 to 14 inch) soybean in 15 inch rows, and V3 to V6 (8 to 12 inch) soybean in 30 inch rows. Weed species present at the time of 32 DAP treatments were: 5 to 10 inch (1 to 5/yd^2) volunteer corn; 8 inch to tillering (10 to 20/ft^2) yellow foxtail; 8 to 15 inch (1 to 3/yd^2) common cocklebur; 5 to 15 inch (1 to 10/yd^2) common ragweed; 5 to 8 inch (1 to 3 /yd^2) common lambsquarters; 3 to 8 inch (2 to 3/yd^2) redroot pigweed; 3 to 8 inch (2 to 5/yd^2) hairy nightshade; and vining (1/yd^2) wild buckwheat. 42 DAP treatments were applied on July 13 at 10:00 am with 75 F air, 79 F soil surface, 53% relative humidity, 10% cloud cover, 4 to 8 mph SW wind, dry soil surface, moist subsoil, excellent crop vigor, and no dew present to R1 (12 to 20 inch) soybean for 15 inch rows, and V4 to V8 (12 to 20 inch) for 30 inch rows. Weed species present at the time of 42 DAP treatments were: 5 to 10 inch (1 to 5/yd^2) volunteer corn; 4 to 12 inch (1 to 10/ft^2) yellow foxtail; 2 to 4 inch (1/yd^2) common lambsquarters; 3 to 6 inch (5 to 10/yd^2) redroot pigweed; and 3 to 6inch (3 to 8/yd^2) hairy nightshade.

56 and 64 DAP treatments were not applied, studies were destroyed at pod set on July 25. No differences in weed pressure, sizes, and types between the two differing row spacings. Although, the soybean stages were different at the 32 DAP and 42 DAP applications, see above. No crop injury was observed. Weed ratings under 99% were from regrowth, not uncontrolled weeds. 5 to 10% stunting and stand loss was observed from Prowl H_2O applied PRE. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table 1. Weed control in LibertyLink soybean with row spacing - 15 inch rows (Zollinger and Ries).

Treatment[1]	Rate	20 DAP							35 DAP						
		Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb	Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb
	(product/A)	% control							% control						
PRE/21 DAP															
Prowl H_2O/Ignite+AMS	3pt/22fl oz+8.5lb/100gal	58	80	83	27	28	27	13	93	92	95	93	99	95	99
Authority First/Ignite+AMS	4oz/22fl oz+8.5lb/100gal	72	99	99	99	99	99	99	96	99	99	99	99	99	99
PRE/32 DAP															
Prowl H_2O/Ignite+AMS	3pt/22fl oz+8.5lb/100gal	72	83	83	27	28	27	13	72	73	73	73	91	75	37
Authority First/Liberty 200+AMS	994oz/22fl oz+8.5lb/100gal	72	99	99	99	99	99	99	77	99	99	99	99	95	96
21 DAP/42 DAP															
Ignite+AMS/Ignite+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal								91	88	95	89	99	99	99
Ignite+AMS/Ignite+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal								92	89	96	95	99	99	99
28 DAP/56 DAP (56 DAP not applied)															
Ignite+AMS/Ignite+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal								73	84	84	88	89	96	99
Ignite+AMS/Ignite+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal								86	93	93	95	89	96	99
32 DAP/64 DAP (64 DAP not applied)															
Ignite+AMS/Ignite+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal														
Ignite+AMS/Ignite+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal														
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		5	5	3	3	3	3	12	6	5	5	6	5	6	9

[1]Ignite = 2.33 lb/gal glufosinate.

Table 1 cont. Weed control in LibertyLink soybean with row spacing - 15 inch rows (Zollinger and Ries).

Treatment[1]	Rate	47 DAP							55 DAP						
		Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb	Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb
	(product/A)	% control							% control						
PRE/21 DAP															
Prowl H_2O/Ignite+AMS	3pt/22fl oz+8.5lb/100gal	65	72	68	70	70	99	98	53	70	68	70	67	99	99
Authority First/Ignite+AMS	4oz/22fl oz+8.5lb/100gal	90	99	99	99	99	99	99	83	99	99	99	9	99	99
PRE/32 DAP															
Prowl H_2O/Ignite+AMS	3pt/22fl oz+8.5lb/100gal	99	99	99	99	99	99	99	99	99	99	99	99	99	99
Authority First/Liberty 200+AMS	994oz/22fl oz+8.5lb/100gal	72	99	99	99	99	99	98	60	99	99	99	99	99	72
21 DAP/42 DAP															
Ignite+AMS/Ignite+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal	84	83	95	99	99	99	99	86	93	95	99	99	99	99
Ignite+AMS/Ignite+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal	83	99	99	99	99	99	99	85	99	99	99	99	99	99
28 DAP/56 DAP (56 DAP not applied)															
Ignite+AMS/Ignite+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal	84	72	78	99	99	99	99	84	76	55	99	73	99	99
SP-17385+AMS/SP-17385+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal	95	93	62	99	99	99	99	95	76	55	99	99	99	99
32 DAP/64 DAP (64 DAP not applied)															
Ignite+AMS/Ignite+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal	99	99	99	99	99	99	99	99	99	99	99	99	99	99
Ignite+AMS/Ignite+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal	99	99	99	99	99	99	99	99	99	99	99	99	99	99
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		5	4	7	2	3	3	2	4	4	7	3	3	NS	2

[1]Ignite = 2.33 lb/gal glufosinate.

Table 2. Weed control in LibertyLink soybean with row spacing - 30 inch rows (Zollinger and Ries).

Treatment[1]	Rate	20 DAP							35 DAP						
		Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb	Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb
	(product/A)	% control							% control						
PRE/21 DAP															
Prowl H_2O/SP–17385+AMS	3pt/22fl oz+8.5lb/100gal	72	83	83	27	28	27	13	89	90	97	94	99	98	99
Authority First/SP–17385+AMS	4oz/22fl oz+8.5lb/100gal	72	99	99	99	99	99	99	95	99	99	99	99	99	99
PRE/32 DAP															
Prowl H_2O/SP–17385+AMS	3pt/22fl oz+8.5lb/100gal	72	83	83	27	27	27	13	70	68	68	68	87	73	43
Authority First/Liberty 72200+AMS	994oz/22fl oz+8.5lb/100gal	72	99	99	99	99	99	99	75	99	99	99	99	94	91
21 DAP/42 DAP															
SP-17385+AMS/SP-17385+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal								93	90	99	89	99	99	99
SP-17385+AMS/SP-17385+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal								92	91	98	95	99	99	99
28 DAP/56 DAP (56 DAP not applied)															
SP-17385+AMS/SP-17385+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal								70	84	84	87	85	93	99
SP-17385+AMS/SP-17385+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal								84	91	91	93	85	91	99
32 DAP/64 DAP (64 DAP not applied)															
SP-17385+AMS/SP-17385+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal														
SP-17385+AMS/SP-17385+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal														
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		5	3	3	3	3	3	12	7	6	4	5	6	8	5

[1]SP-17385 = 2.33 lb/gal glufosinate = Ignite.

Table 2 cont. Weed control in LibertyLink soybean with row spacing - 30 inch rows (Zollinger and Ries).

Treatment[1]	Rate	47 DAP							55 DAP						
		Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb	Yeft	Rrpw	Colq	Hans	Wibw	Corw	Cocb
	(product/A)	% control							% control						
PRE/21 DAP															
Prowl H_2O/SP–17385+AMS	3pt/22fl oz+8.5lb/100gal	65	68	99	82	99	99	99	58	68	99	82	99	99	99
Authority First/SP–17385+AMS	4oz/22fl oz+8.5lb/100gal	58	99	99	99	9	99	99	47	99	99	99	99	99	99
PRE/32 DAP															
Prowl H_2O/SP–17385+AMS	3pt/22fl oz+8.5lb/100gal	99	99	99	99	99	86	69	99	99	99	99	99	90	99
Authority First/Liberty 72200+AMS	994oz/22fl oz+8.5lb/100gal	77	94	96	99	99	99	92	32	96	96	99	99	99	92
21 DAP/42 DAP															
SP-17385+AMS/SP-17385+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal	70	99	99	99	99	99	99	70	99	99	99	99	99	99
SP-17385+AMS/SP-17385+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal	77	99	99	99	99	99	99	82	99	99	99	99	99	99
28 DAP/56 DAP (56 DAP not applied)															
SP-17385+AMS/SP-17385+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal	69	77	85	85	99	83	99	63	75	85	85	86	80	90
SP-17385+AMS/SP-17385+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal	81	77	68	73	68	99	85	70	70	67	70	62	99	77
32 DAP/64 DAP (64 DAP not applied)															
SP-17385+AMS/SP-17385+AMS	22fl oz+8.5lb/100gal/22fl oz+8.5lb/100gal	93	99	99	99	99	99	99	82	99	99	99	82	99	99
SP-17385+AMS/SP-17385+AMS	29fl oz+8.5lb/100gal/29fl oz+8.5lb/100gal	98	99	99	99	99	99	99	98	99	99	99	99	99	99
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		5	9	4	5	2	8	13	13	5	4	4	6	5	6

[1]SP-17385 = 2.33 lb/gal glufosinate = Ignite.

Cadet herbicide in corn and soybean. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate weed control and crop response to Cadet treatments in soybean and corn. On May 12, 2008, two rows of Dekalb 'DKC38-92' Roundup Ready corn and two rows of Asgrow "AGO604' Roundup Ready soybean was planted in each plot. POST applications were on June 24 at 10:05 am with with 78 F air, 80 F soil surface, 58% relative humidity, 0% clouds, 0 to 5 mph NW wind, dry soil surface, wet subsoil, excellent crop vigor and no dew present to V4 to V5 (10 to 16 inch) corn and V1 to V3 (2 to 5 inch) soybean. Weed species present at the time of POST applications were: 2 to 8 inch (1 to 15/yd^2) common lambsquarters; 2 to 4 inch (1 to 5/yd^2) common ragweed; 2 to 4 inch (1 to 2/yd^2) hairy nightshade; cotyledon to 8 inch (1/yd^2) wild mustard; 3 to 8 inch (5 to 20/ft^2) yellow foxtail; 2 to 5 inch (1/yd^2) common cocklebur, and 1 to 2 inch (1 to 10/yd^2) redroot pigweed. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a backpack-type plot sprayer delivering 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles. The experiment had a randomized complete block design with three replicates per treatment.

The month of May was dry and cold delaying emergence. Warmer weather and effective precipitation did not occur until beginning of June. At 14 and 28 DAT ratings, there was no visual injury to corn and soybeans. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Cadet herbicide in corn and soybean (Zollinger and Ries).

		3 DAT		7 DAT		7 DAT							14 and 28 DAT						
Treatment[1]	Rate	Corn	Soyb[2]	Corn	Soyb	Yeft	Wimu	Rrpw	Colq	Hans	Wibw	Corw	Yeft	Wimu	Rrpw	Colq	Hans	Wibw	Corw
	(product/A)	- % injury -		- % injury -		- - - - - - - - - - - - - % control - - - - - - - - - - - - -							- - - - - - - - - - - - - % control - - - - - - - - - - - - -						
Cadet+R-11	0.6floz+0.25% v/v	6	16	1	16	10	20	20	20	20	20	20	10	20	20	20	20	20	20
Cadet+R-11	0.9floz+0.25% v/v	7	21	7	21	20	22	22	22	22	22	22	20	22	22	22	22	22	22
Cadet+Scoil	0.6floz+1% v/v	20	30	20	30	30	32	32	32	32	32	32	30	32	32	32	32	32	32
Cadet+Scoil	0.9floz+1% v/v	26	33	26	33	38	42	42	42	42	42	42	38	42	42	42	42	42	42
RUPM+Cadet+ R-11+AMS	8fl oz+0.6fl oz+ 0.25% v/v+1lb	8	22	8	22	86	99	53	53	53	53	53	96	99	62	62	65	62	65
RUPM+Cadet+ R-11+AMS	8fl oz+0.9fl oz+ 0.25% v/v+1lb	11	27	11	27	90	99	58	58	58	58	58	95	99	83	78	73	73	65
RUPM+Cadet+ Destiny HC+AMS	8fl oz+0.6fl oz+ 0.5pt+1lb	13	26	13	26	96	99	65	65	65	65	65	96	99	96	93	93	75	67
RUPM+Cadet+ Destiny HC+AMS	8fl oz+0.9fl oz+ 0.5pt+1lb	16	31	16	31	98	99	72	72	72	72	72	98	99	98	97	98	82	76
LSD (0.05)		2	4	2	4	4	6	9	9	9	9	9	4	6	6	6	7	7	7

[1]RUPM = Roundup PowerMax.
[2]Soyb = soybean.

Common ragweed control. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Mayville, ND, to evaluate common ragweed controlled. PRE treatments were applied on May 1, 2008, at 10:30 am with 50 F air, 44 F soil at a four inch depth, 51% relative humidity, 100% cloud cover, 6 to 12 mph NE wind, dry soil surface and moist subsoil. Soil characteristics were: 68.4% sand, 22.8% silt, 8.8% clay, sandy loam texture, 3.1% OM, and 7.2 pH. POST treatments were applied on July 2 at 10:00 am with with 64 F air, 68 F soil surface, 60% relative humidity, 40% clouds, 8 to 14 mph N wind, moist soil surface, wet subsoil, and no dew present to non-cropland. Weed species present at the time of POST treatments were: 1 to 6 inch (1 to 10/yd^2) common ragweed; and 1 to 18 inch (1 to 15/yd^2) common lambsquarters. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer with an attached wind screen delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot sprayer for POST treatments. The experiment had a randomized complete block design with three replicates per treatment.

Study site was continuous RR soybean for several years with one or more applications of only glyphosate each year. Common ragweed biotypes that were no longer controlled by glyphosate resulted. Treatments represent many possible control strategies in both soybean and dry bean. Results show that once low levels of glyphosate resistance develops in common ragweed, achieving complete control is unlikely using most all chemical options available in soybean and dry bean. ALS (FirstRate and Permit) and PPO (Flexstar and Reflex) resistant common ragweed has been documented in other areas of the U.S. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Common ragweed control (Zollinger and Ries).

		50 DAT - PRE		14 DAT - POST	
Treatment[1]	Rate	Colq	Corw	Colq	Corw
	(product/A)	---- % control ----		---- % control ----	
PRE					
Valor SX	2oz	40	47	43	40
Valor SX	3oz	60	57	91	66
FirstRate	0.3oz	53	83	50	77
GangsterValor+Gangster FirstRate	1.5oz+0.3oz	85	80	78	73
Permit	0.5oz	57	70	67	63
Permit	0.67oz	70	85	73	76
PRE/POST					
Valor/FirstRate+R-11+28% N	2oz/0.2oz+0.25% v/v+2.5% v/v	30	40	43	93
Valor/FirstRate+R-11+28% N	2oz/0.3oz+0.25% v/v+2.5% v/v	47	53	43	97
Valor/Flexstar+Scoil	2oz/0.75pt+1% v/v	37	40	72	94
Permit/Reflex+Herbimax	0.5oz/0.75pt+1% v/v	60	60	68	83
FirstRate/RUPM+AMS	0.3oz/22fl oz+2lb	53	60	91	71
POST					
FirstRate+R-11+28% N	0.3oz+0.25% v/v+2.5% v/v			38	91
Flexstar+Herbimax	0.75pt+1% v/v			68	83
Permit+R-11+28% N	0.67oz+0.25% v/v+2.5% v/v			47	90
Rezult Poast+Rezult Basagran+Raptor+ Reflex+Scoil	0.6pt+0.6pt+1fl oz+ 4fl oz+1.5pt			40	40
RUPM+AMS	22fl oz+2lb			93	65
RUPM+FirstRate+R-11+AMS	22fl oz+0.3oz+0.25% v/v+2lb			92	81
RUPM+Flexstar+Destiny HC	22fl oz+0.75pt+0.5pt			88	66
RUPM+Permit+R-11+AMS	22fl oz+0.67oz+0.25% v/v+2lb			94	92
LSD (0.05)		9	7	9	9

[1]RUPM = Roundup PowerMax.

Volunteer Roundup Ready canola in soybean. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Casselton, ND, to evaluate volunteer canola and weed control in soybean. Proseed '50 Calibur' Roundup Ready canola was planted perpendicular to the plot lengths on May 13, 2008, followed by the planting of Asgrow 'AGO604' Roundup Ready soybean to each plot length. PRE treatments were applied on May 14 at 2:40 pm with with 68 F air, 52 F soil at a four inch depth, 16% relative humidity, 5% clouds, 5 to 10 mph SW wind, dry soil surface and moist subsoil. Soil characteristics were: 9.1% sand, 56% silt, 34.9% clay, silty clay loam texture, 5.4% OM and 7.8 pH. POST applications were made on June 20 at 12:20 pm with 80 F air, 87 F soil surface, 23% relative humidity, 0% clouds, 5 to 8 mph NW wind, dry soil surface, wet subsoil, good crop vigor, and no dew present to V1 to V3 soybean. Weed species present at the time of POST only applications were: 2 to 6 inch (V2 to V4, 15-20% bud initiation, 1 to 15/ft^2) canola; cotyledon to 3 inch (1 to 10/yd^2) common lambsquarters; cotyledon to 2 inch (5 to 20/ft^2) venice mallow; and emergence to 1 inch (1 to 21/ft^2) redroot pigweed. Weed species with PRE treatments were: V2 to V4 (1 to 5/yd^2) canola. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plot with a bicycle-type plot sprayer delivering 17 gpa at 40 psi through 11002 Turbo TeeJet nozzles for PRE treatments and 8.5 gpa at 40 psi through 11001 Turbo TeeJet nozzles with a backpack-type plot sprayer for POST treatments. The experiment had a randomized complete block design with three replicates per treatment.

All PRE treatments gave 99% control of redroot pigweed and common lambsquarters. All treatments at 14, 28, and 56 DAT gave 99% control of redroot pigweed, common lambsquarters, and venice mallow. (Dept of Plant Sciences, North Dakota State University, Fargo).

Table. Volunteer Roundup Ready canola in soybean (Zollinger and Ries).

		28 DAT - PRE		14, 28 and 56 DAT - POST
Treatment	Rate	Vema	Canola	Canola
	(product/A)	- - % control - -		- - - % control - - -
PRE/POST				
Valor SX/RUPM+AMS	2oz/22fl oz+2.5lb	98	57	57
Valor SX/RUPM+AMS	2.5oz/22fl oz+2.5lb	99	72	68
Valor SX/RUPM+AMS	3oz/22fl oz+2.5lb	99	88	88
POST				
RUPM	22fl oz			0
RUPM+Phoenix+AMS	22fl oz+8fl oz+2.5lb			62
Untreated		0	0	0
LSD (0.05)		2	5	6

[1]RUPM = Roundup PowerMax.