2025 Weed Control

Field Test Data

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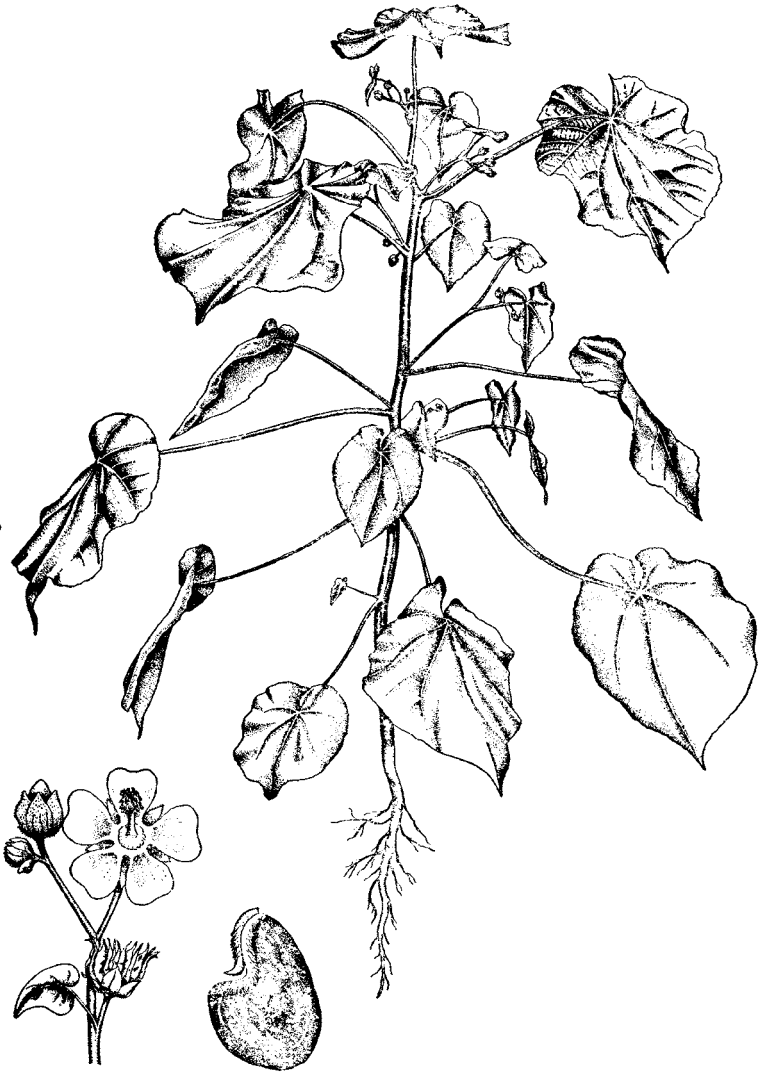

South Dakota State University Extension

Department of **Agronomy, Horticulture & Plant Science**

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- Southeast Experiment Station-Beresford
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- South Dakota Soybean Research and Promotion Council
- South Dakota Wheat Commission
- Crop Protection Industries

Herbicide use information is available in the following extension publications.

- Pest Management Guide: Corn
- Pest Management Guide: Soybean
- Pest Management Guide: Wheat (Small grains)
- Weed Control in Sorghum
- Noxious Weed Control
- Pest Management Guide: Sunflower & Oilseed Crops/Alfalfa
- Weed Control in Pulse Crops
- Weed Control in Pasture & Range

These publications may also be found on the Internet at the following location: extension.sdstate.edu

(You will need to have Acrobat to read PDF files. It can be downloaded from that page.)

NOTE: Data reported in this publication are results from field tests that include labeled product uses, experimental products or experimental rates, combinations or other unlabeled uses for herbicide products. Users are responsible for applying herbicides according to label directions. Refer to the appropriate weed control fact sheet, available from extension regional centers, for herbicide recommendations.

S-0030-2025-Row Crop

Table of Contents

ABBREVIATIONS

Alfa	Alfalfa
Arko	ALS Resistant Kochia
Bare	Bareground
Bdlf	General broadleaf
Bikw	Biennial knapweed
Bisa	Biennial sage
Biww	Biennial wormwood
Blmu	Blue mustard
Blns	Black nightshade
Blvv	Blue vervain
Brgr	Brome grass
Bygr	Barnyardgrass
Cath	Canada thistle
Cocb	Common cocklebur
Colq	Common lambsquarters
Comu	Common mullein
Comw	Common milkweed
Corw	Common ragweed
Cosf	Common sunflower
Cowh	Common waterhemp
Crgr	Crabgrass
Cudo	Curly dock
Dali	Dandelion
Dobr	Downy brome
Fibw	Field bindweed
Fipc	Field pennycress
Fisb	Field sandbur
Ftba	Foxtail barley
Fxtl	General foxtail
Gift	Giant foxtail
Grft	Green foxtail
Guwe	Gumweed
Hocr	Hoary cress
Jabr	Japanese brome
Kocz	Kochia
Lesp	Leafy spurge
Llsa	Lanceleaf sage
Mael	Marshelder
Mata	Marestail
Muth	Musk thistle
Perw	Perennial ragweed
Pesw	Pennsylvania smartweed
Prle	Prickly lettuce
Prpw	Prostrate pigweed
Pumu	Purple mustard
Qugr	Quackgrass
Recl	Red clover
Rrpw	Redroot pigweed
Roft	Robust foxtail
Ruth	Russian thistle
Scru	Scouring rush
Shpu	Shepherdspurse
Stjw	St. Johnswort
Tamu	Tansymustard
Tawh	Tall waterhemp
Tosp	Toothed spurge
VCRR	Visual Crop Response Rating
Vele	Velvetleaf
Vema	Venice mallow
Voal	Volunteer alfalfa
Voca	Volunteer canola
Voco	Volunteer corn
Vomi	Volunteer millet
Vosg	Volunteer sorghum
Vosw	Volunteer Spring wheat
Voww	Volunteer Winter wheat
Wibw	Wild buckwheat
Wimu	Wild mustard
Wioa	Wild oat
Wisf	Wild sunflower
Whcl	White clover
Wocg	Woolly cupgrass
Wwsa	Wormwood sage
Yeft	Yellow foxtail
Yetf	Yellow toadflax

SURFACTANTS

COC	Crop oil concentrate	0.125%	1 pint/100 gallons
MSO	Methylated seed oil	0.25%	1 quart/100 gallons
NIS	Nonionic surfactant	0.5%	2 quart/100 gallons
		1%	1 gallon/100 gallons
AMS	Ammonium sulfate	2%	2 gallon/100 gallons
		4%	4 gallon/100 gallons

VCRR

Crop response ratings (VCRR) of 20% or less usually represents an acceptable level of stunting, discoloration or other effect. Ratings over 30% are considered excessive; 100% represents complete kill. Yields are harvested and reported for studies designed with replications.

PLOT APPLICATIONS

Herbicide treatments are applied with special plot sprayers. Unless otherwise noted, applications are made at 20 gpa and 35 psi using flat fan tips. Each treatment component is measured separately and mixed with water at application. Weed evaluations consist of visual ratings; averaged over replications or multiple ratings per plot. Ratings below 70-75% are considered less than commercially acceptable control; ratings greater than 90% represent a high level of effectiveness and generally reduce significant competition effects.

South Dakota State University Extension

2025
CORN HERBICIDE DEMONSTRATION
Northeast Research Farm

Treatment	Rate/A	5/5/25					7/18/25				10/2/25				10/23/25
		Corw	Rrpw	Wocg	Yeft	Wibw	Corw	Rrpw	Yeft	Wocg	Corw	Rrpw	Yeft	Wocu	Yield
Check	---	0	0	0	0	0	0	0	0	0	0	0	0	0	123
Pre & Post															
Maverick + Aatrex & DiFlexx Duo + RU Powermax 3 + COC + AMS	18 oz + 16 oz & 4 oz + 30 oz + 1% + 3 lb	78	95	60	79	69	99	97	95	90	99	98	98	94	208
Harness & Maverick + Aatrex + RU Pmax 3 + NIS + AMS	32 oz & 14 oz + 16 oz + 30 oz + 0.25% + 3 lb	72	93	68	94	73	99	99	99	97	99	99	99	99	202
Restraint + Atrazine & Callisto + Atrazine + AMS	36 oz + 32 oz & 3 oz + 32 oz + 1.7 lb	79	93	82	93	73	99	98	81	49	99	99	86	48	197
Bicep II Mag + Atrazine & Shieldex + Atrazine + RU Powermax 3 + AMS	1.67 qt + 32 oz & 1.35 oz + 32 oz + 30 oz + 1.7 lb	75	85	64	92	75	97	88	99	89	99	94	98	96	206
Storen + Aatrex & Storen + Aatrex + RU Pmax 3 + NIS + AMS	1.4 qt + 1 pt & 1 qt + 1 pt + 30 oz + 0.5% + 1.7 lb	86	93	70	95	86	99	97	99	87	99	99	99	98	200
Acuron & Acuron + RU Powermax 3 + NIS + AMS	1.75 qt & 1.25 qt + 30 oz + 0.5% +1.7 lb	79	92	65	85	80	99	95	95	89	99	99	99	98	200
Lumax & Acuron GT + Aatrex + NIS + AMS	1.5 qt & 3.75 pt + 0.5 pt + 0.5% + 1.7 lb	81	95	59	78	85	99	98	99	81	99	99	99	91	201
Storen + Aatrex & Halex GT + Aatrex + NIS + AMS	1.7 qt + 1 pt & 3.6 pt + 1 pt + 0.5% + 1.7 lb	80	94	55	92	82	99	97	99	85	99	99	98	94	210
Trivolt + Atrazine & Laudis + Atrazine + RU Pmax 3 + Amsol + Destiny HC	12.5 oz + 1 pt & 3 oz + 1 pt + 30 oz + 2.5% + 0.5%	76	93	91	94	80	99	99	99	93	99	99	98	94	206
Balance Flexx + Harness Xtra 6L & Laudis + Atrazine + RU Pmax 3 + Amsol + Destiny HC	4 oz + 1.25 qt & 3 oz + 1 pt + 30 oz + 2.5% + 0.5%	82	93	70	93	70	99	99	99	97	99	99	99	98	207
Harness Xtra 6L & Capreno + Atrazine + RU Pmax 3 + Amsol + Superb HC	1.8 qt & 3 oz + 0.5 pt + 30 oz + 2.5% + 0.5%	73	93	69	95	77	99	99	99	86	99	99	99	88	202
Harness & Atrazine + Callisto + Accent Q + COC + AMS	3 pt & 1 pt + 3 oz + 0.9 oz + 1% + 1.7 lb	79	94	73	95	75	99	99	94	62	99	99	96	65	202
Coyote & Atrazine + Liberty + RU Powermax 3 + COC + Amsol	2.4 qt & 1 pt + 29 oz + 30 oz + 1% + 0.88 gal	80	94	70	95	70	99	97	94	84	99	99	98	84	206
Surtain & Clarity + RU Powermax 3 + Amsol	15 oz & 8 oz + 30 oz + 0.88 gal	61	87	56	91	69	99	88	97	90	99	95	98	93	201
Resicore REV & 2,4-D amine + RU Powermax 3 + Amsol	3.25 qt & 8 oz + 30 oz + 0.88 gal	88	95	69	95	74	99	99	97	81	99	99	99	75	189
Atrazine & RU Powermax 3 + Amsol	1 pt & 30 oz + 0.88 gal	61	67	43	58	61	93	99	99	99	99	99	99	99	191
Epost															
Laudis + Harness Xtra 6L + DiFlexx + RU Pmax 3 + Amsol	55 oz + 1 pt + 30 oz + 2.5%	–	–	–	–	–	99	99	99	88	99	99	99	94	209
LSD (0.05)		13	5	11	6	13	3	4	7	9	0.5	3	3	7	9

RCB: 4 reps
Variety: DKC 35-34RIB
Planting Date: 5/8/25
Pre: 5/8/25
Epost: 6/17/25 Corn V3-4, 5-7 in; Corw 1-3 in; Rrpw 0.5-2 in; Yeft 2-4 in; Wocu 2-4 in; Wibw 1-5 in.
Post: 6/24/25 Corn V5, 14-16 in; Corw 4-12 in; Rrpw 3-8 in; Yeft 5-12 in; Wocu 5-12 in; Wibw 4-8 in.

Precipitation: (inches)
Pre: 1st week 0.00; 2nd week 2.87

Soil: Clay Loam; 3.2% OM; 6.3 pH

Corw=Common ragweed
Rrpw=Redroot pigweed
Yeft=Yellow foxtail
Wocu=Woolly cupgrass
Wibw=Wild buckwheat

Comments: Common herbicide programs were applied in corn to determine weed control and corn yield. Early season common ragweed control was poor with Pre herbicides which was not unexpected as this species is difficult to manage preemergence due to the large seed size. Variable control of woolly cupgrass was noted in the early season as well but improved after the Post herbicide application. Restraint + Atrazine & Callisto + Atrazine and Harness & Atrazine + Callisto + Accent Q provided the least woolly cupgrass control. All other weed species were controlled greater than 90% at the end of the season. Corn yield was similar with all tested herbicide treatments.

South Dakota State University Extension

2025 CORN HERBICIDE DEMONSTRATION
Southeast Research Farm

Treatment	Rate/A	5/29/25		7/8/25				9/30/25				10/17/25
		Vele	Cowh	Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Yield
Check	---	0	0	0	0	0	0	0	0	0	0	114
Pre & Post												
Maverick + Aatrex & DiFlexx Duo + RU Powermax 3 + COC + AMS	18 oz + 16 oz & 24 oz + 30 oz + 1% + 3 lb	85	99	99	99	99	99	99	99	99	98	181
Harness & Maverick + Aatrex + RU Powermax 3 + NIS + AMS	32 oz & 14 oz + 16 oz + 30 oz + 0.25% + 3 lb	79	99	99	99	99	99	99	99	99	99	175
Restraint + Atrazine & Callisto + Atrazine + AMS	36 oz + 32 oz & 3 oz + 32 oz + 1.7 lb	78	99	99	99	99	91	99	99	99	93	179
Bicep II Mag + Atrazine & Shieldex + Atrazine + RU Powermax 3 + AMS	.67 qt + 32 oz & 1.35 oz + 32 oz + 30 oz + 1.7 lb	76	99	98	99	99	99	99	99	96	99	177
Storen + Aatrex & Storen + Aatrex + RU Powermax 3 + NIS + AMS	1.4 qt + 1 pt & 1 qt + 1 pt + 30 oz + 0.5% + 1.7 lb	92	99	99	99	99	99	99	99	99	99	172
Acuron & Acuron + RU Powermax 3 + NIS + AMS	1.75 qt & 1.25 qt + 30 oz + 0.5% + 1.7 lb	87	99	99	99	99	99	99	99	99	99	177
Lumax & Acuron GT + Aatrex + NIS + AMS	1.5 qt & 3.75 pt + 0.5 pt + 0.5% + 1.7 lb	93	99	99	99	99	99	99	99	99	97	178
Storen + Aatrex & Halex GT + Aatrex + NIS + AMS	1.7 qt + 1 pt & 3.6 pt + 1 pt + 0.5% + 1.7 lb	92	99	99	99	99	99	99	99	99	99	179
Trivolt + Atrazine & Laudis + Atrazine + RU Pmax 3 + Amsol + Destiny HC	12.5 oz + 1 pt & 3 oz + 1 pt + 30 oz + 2.5% + 0.5%	86	99	99	99	99	99	99	99	99	99	172
Balance Flexx + Harness Xtra 6L & Laudis + Atrazine + RU Pmax 3 + Amsol + Destiny HC	4 oz + 1.25 qt &3 oz + 1 pt + 30 oz + 2.5% + 0.5%	89	99	99	99	99	99	99	99	99	99	175
Harness Xtra 6L & Capreno + Atrazine + RU Pmax 3 + Amsol + Superb HC	1.8 qt & 3 oz + 0.5 pt + 30 oz + 2.5% + 0.5%	67	99	99	99	99	99	99	99	99	99	176
Harness & Atrazine + Callisto + Accent Q + COC + AMS	3 pt & 1 pt + 3 oz + 0.9 oz + 1% + 1.7 lb	81	99	99	99	99	99	99	99	99	98	170
Coyote & Atrazine + Liberty + RU Powermax 3 + COC + Amsol	2.4 qt & 1 pt + 29 oz + 30 oz + 1% + 0.88 gal	88	99	99	99	99	99	99	99	99	99	177
Surtain & Clarity + RU Powermax 3 + Amsol	15 oz & 8 oz + 30 oz + 0.88 gal	94	99	99	99	96	99	99	99	98	99	178
Resicore REV & 2,4-D amine + RU Powermax 3 + Amsol	3.25 qt & 8 oz + 30 oz + 0.88 gal	93	99	99	99	99	99	99	99	99	99	109
Atrazine & RU Powermax 3 + Amsol	1 pt & 30 oz + 0.88 gal	77	94	99	93	14	99	99	99	35	99	166
Epost												
Laudis + Harness Xtra 6L + DiFlexx + RU Pmax 3 + Amsol	3 oz + 1.25 qt + 8 oz + 30 oz + 2.5%	–	–	94	99	94	99	98	99	99	95	173
LSD (0.05)		10	3	4	3	4	3	1	–	5	4	14

RCB: 4 reps
Variety: DKC 101-33RIB
Planting Date: 5/5/25
Pre: 5/5/25
Epost: 6/4/25 Corn V3, 6-8 in; Vele cot-0.5 in; Colq 0.5 in; Grft 0.5-2 in.
Post: 6/19/25 Corn V5-6, 18-24 in; Vele 2-6 in; Colq 3-6 in; Cowh 2-8 in; Grft 4-8 in.

Precipitation: (inches)
Pre: 1st week 0.00; 2nd week 0.56

Soil: Silty Clay; 4.3% OM; 6.7 pH

Vele=Velvetleaf
Cowh=Common waterhemp
Colq=Common lambsquarters
Grft=Green foxtail

Comments: Common herbicide programs were applied in corn to determine weed control and corn yield. Variable velvetleaf control with Pre herbicides was apparent but control improve to greater than 90% after the application of Post herbicides. Atrazine & RU Powermax3 provided excellent control of all weeds besides waterhemp. Waterhemp is glyphosate-resistant at this research farm and this herbicide program was included to demonstrate that herbicide program with multiple herbicides in each application is needed for effective weed management. Weed control was 90% or greater at the end of the season with all other herbicide treatments. Corn yield was low with the Resicore REV & 2,4-D amine + RU Powermax3 and Atrazine & RU Powermax3 treatment. Corn was severely lodged in the Resicore REV & 2,4-D amine + RU Powermax3-treated plots which is likely attributed to the lower yield. Poor control of waterhemp in the Atrazine & RU Powermax3-treated plots attributed to the lower yield.

South Dakota State University Extension

2025 CORN HERBICIDE DEMONSTRATION
Volga Research Farm

Treatment	Rate/A	5/28/25			7/9/25			9/26/25			10/20/25
		Wocg	Gift	Colq	Colq	Cowh	Gift	Colq	Cowh	Gift	Yield
Check	---	0	0	0	0	0	0	0	0	0	86
Pre & Post											
Maverick + Aatrex & DiFlexx Duo + RU Powermax 3 + COC + AMS	18 oz + 16 oz & 24 oz + 30 oz + 1% + 3 lb	75	78	97	99	99	93	99	97	87	233
Harness & Maverick + Aatrex + RU Powermax 3 + NIS + AMS	32 oz & 14 oz + 16 oz + 30 oz + 0.25% + 3 lb	87	87	94	99	99	97	99	99	95	238
Restraint + Atrazine & Callisto + Atrazine + AMS	36 oz + 32 oz & 3 oz + 32 oz + 1.7 lb	96	97	99	99	99	62	99	99	71	237
Bicep II Mag + Atrazine & Shieldex + Atrazine + RU Powermax 3 + AMS	1.67 qt + 32 oz & 1.35 oz + 32 oz + 30 oz + 1.7 lb	83	91	98	99	99	97	99	98	97	243
Storen + Aatrex & Storen + Aatrex + RU Powermax 3 + NIS + AMS	1.4 qt + 1 pt & 1 qt + 1 pt + 30 oz + 0.5% + 1.7 lb	76	78	98	99	99	97	99	99	99	245
Acuron & Acuron + RU Powermax 3 + NIS + AMS	1.75 qt & 1.25 qt + 30 oz + 0.5% + 1.7 lb	69	74	97	99	99	99	99	99	99	236
Lumax & Acuron GT + Aatrex + NIS + AMS	1.5 qt & 3.75 pt + 0.5 pt + 0.5% + 1.7 lb	84	80	97	99	99	97	99	99	99	241
Storen + Aatrex & Halex GT + Aatrex + NIS + AMS	1.7 qt + 1 pt & 3.6 pt + 1 pt + 0.5% + 1.7 lb	74	73	98	99	99	99	99	99	99	245
Trivolt + Atrazine & Laudis + Atrazine + RU Pmax 3 + Amsol + Destiny HC	12.5 oz + 1 pt & 3 oz + 1 pt + 30 oz + 2.5% + 0.5%	86	87	98	99	99	99	99	99	99	242
Balance Flexx + Harness Xtra 6L & Laudis + Atrazine + RU Pmax 3 + Amsol + Destiny HC	4 oz + 1.25 qt & 3 oz + 1 pt + 30 oz + 2.5% + 0.5%	87	84	99	99	99	92	99	99	99	239
Harness Xtra 6L & Capreno + Atrazine + RU Pmax 3 + Amsol + Superb HC	1.8 qt & 3 oz + 0.5 pt + 30 oz + 2.5% + 0.5%	72	79	99	99	99	99	99	99	95	245
Harness & Atrazine + Callisto + Accent Q + COC + AMS	3 pt & 1 pt + 3 oz + 0.9 oz + 1% + 1.7 lb	94	94	95	99	99	74	99	99	83	242
Coyote & Atrazine + Liberty + RU Powermax 3 + COC + Amsol	2.4 qt & 1 pt + 29 oz + 30 oz + 1% + 0.88 gal	91	92	99	99	99	98	99	99	99	241
Surtain & Clarity + RU Powermax 3 + Amsol	15 oz & 8 oz + 30 oz + 0.88 gal	90	87	94	99	74	99	99	96	98	239
Resicore REV & 2,4-D amine + RU Powermax 3 + Amsol	3.25 qt & 8 oz + 30 oz + 0.88 gal	83	81	99	99	96	89	99	93	94	217
Atrazine & RU Powermax 3 + Amsol	1 pt & 30 oz + 0.88 gal	80	75	98	99	26	96	99	42	99	207
Epost											
Laudis + Harness Xtra 6L + DiFlexx + RU Pmax 3 + Amsol	3 oz + 1.25 qt + 8 oz + 30 oz + 2.5%	–	–	–	99	99	99	99	99	97	233
LSD (0.05)		19	22	4	–	3	8	–	6	9	21

RCB: 4 reps
Variety: DKC 45-74RIB
Planting Date: 5/6/25
Pre: 5/6/25
Epost: 6/10/25 Corn V3, 6-8 in; Colq 1-3 in; Cowh 1-3 in; Gift 2-6 in.
Post: 6/17/25 Corn V4, 9-12 in; Colq 1-4 in; Cowh 1-4 in; Gift 1-9 in.

Precipitation: (inches)
Pre: 1st week 0.00; 2nd week 1.64

Soil: Clay Loam; 5.4% OM; 6.3 pH

Cowh=Common waterhemp
Colq=Common lambsquarters
Gift=Giant foxtail
Wocg=Woolly cupgrass

Comments: Commonly applied herbicide programs were applied in corn to determine weed control and yield. Variable early season control of woolly control was detected but control improved with Post herbicide application. Variable giant foxtail control was achieved with Restraint + Atrazine & Callisto + Atrazine. Poor waterhemp control was achieved with the Atrazine & RU Powermax3. Waterhemp is glyphosate-resistant at this research farm and this herbicide program was included to demonstrate that herbicide program with multiple herbicides in each application is needed for effective weed management. Weed control was largely 90% or greater at the end of the season with all other herbicide treatments. Corn yielded similarly with all tested herbicide programs.

South Dakota State University Extension

2025
METRIBUZIN IN CORN
Northeast Research Farm

Treatment	Rate/A	6/5/25				6/13/25				6/23/25				10/23/25
		VCRR	Corw	Rrpw	Wocg	VCRR	Corw	Colq	Rrpw	VCRR	Corw	Colq	Rrpw	Yield
Check	---	0	0	0	0	0	0	0	0	0	0	0	0	111
Pre & Post														
Tricor 4F & Interline + RU Pmax 3 + Amsol	2 oz & 32 oz + 30 oz + 0.88 gal													
Tricor 4F & Interline + RU Pmax 3 + Amsol	4 oz & 32 oz + 30 oz + 0.88 gal	1	44	51	20	0	34	53	38	0	39	33	40	191
Tricor 4F & Interline + RU Pmax 3 + Amsol	6 oz & 32 oz + 30 oz + 0.88 gal	2	55	78	18	0	54	70	74	0	60	50	77	191
Tricor 4F & Interline + RU Pmax 3 + Amsol	8 oz & 32 oz + 30 oz + 0.88 gal	4	70	90	15	0	69	86	84	0	70	59	79	195
Tricor 4F & Interline + RU Pmax 3 + Amsol	10 oz & 32 oz + 30 oz + 0.88 gal	2	79	90	23	0	67	76	82	0	74	76	87	196
Tricor 4F & Interline + RU Pmax 3 + Amsol	12 oz & 32 oz + 30 oz + 0.88 gal	4	88	93	31	0	79	86	88	0	87	75	91	195
Aatrex & Interline + RU Pmax 3 + Amsol	16 oz & 32 oz + 30 oz + 0.88 gal	3	86	95	30	0	83	91	92	0	83	86	91	197
Aatrex & Interline + RU Pmax 3 + Amsol	32 oz & 32 oz + 30 oz + 0.88 gal	1	70	80	31	0	60	68	56	0	62	60	62	188
Intrava DX & Interline + RU Pmax 3 + Amsol	13.5 oz & 32 oz + 30 oz + 0.88 gal	0	72	79	29	0	66	74	74	0	65	63	67	195
Intrava DX & Interline + RU Pmax 3 + Amsol	27 oz & 32 oz + 30 oz + 0.88 gal	2	78	91	30	0	84	91	91	2	90	89	84	199
LSD (0.05)		2	17	14	18	–	10	14	10	3	10	11	10	7

RCB: 4 reps
Variety: DKC 35-34RIB
Planting Date: 5/8/25
Pre: 5/8/25
Post: 6/24/25 Corn V5, 14-16 in; Corw 4-12 in; Rrpw 3-8 in; Wocu 5-12 in; Colq 4-8 in.

Precipitation: (inches)
Pre: 1st week 0.00; 2nd week 2.87

Soil: Clay Loam; 3.2% OM; 6.3 pH

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)
Corw=Common ragweed
Rrpw=Redroot pigweed
Wocu=Woolly cupgrass
Colq=Common lambsquarters

Comments: Atrazine may be the most applied herbicide in corn. While not commonly applied, metribuzin is also labeled for application in corn and could be an atrazine alternative to areas where carryover and nontarget movement is a concern. The objective of this study was to determine weed control and corn injury + yield with various rates of metribuzin compared with Intrava DX (metribuzin and amicarbizone) and atrazine. Poor woolly cupgrass control was noted with all Pre herbicide treatments. Increasing the metribuzin rate usually increased weed control with minimal corn injury. Higher metribuzin rates provided similar control to both rates of atrazine. Both rates of Intrava DX provided weed control greater or similar to the higher atrazine and metribuzin rates. Corn yield was similar with all tested treatments. Metribuzin rates from 4 to 8 oz/A are labeled in corn. All other rates are off label.

South Dakota State University Extension

2025
METRIBUZIN IN CORN
Southeast Research Farm

Treatment	Rate/A	5/20/25	5/29/25		6/6/25					6/11/25				10/17/25
		VCRR	VCRR	Vele	VCRR	Vele	Colq	Cowh	Grft	VCRR	Vele	Colq	Cowh	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	0	0	0	118
Pre & Post														
Tricor 4F & Interline + RU Pmax 3 + Amsol	2 oz & 32 oz + 30 oz + 0.88 gal	0	0	44	0	52	71	49	68	0	23	72	21	173
Tricor 4F & Interline + RU Pmax 3 + Amsol	4 oz & 32 oz + 30 oz + 0.88 gal	0	0	39	0	67	82	64	68	0	49	89	53	178
Tricor 4F & Interline + R U Pmax 3 + Amsol	6 oz & 32 oz + 30 oz + 0.88 gal	0	0	59	0	63	92	68	76	0	65	95	61	175
Tricor 4F & Interline + RU Pmax 3 + Amsol	8 oz & 32 oz + 30 oz + 0.88 gal	0	0	56	0	68	90	72	86	0	72	92	67	179
Tricor 4F & Interline + RU Pmax 3 + Amsol	10 oz & 32 oz + 30 oz + 0.88 gal	0	0	63	0	72	94	80	90	0	74	94	80	182
Tricor 4F & Interline + RU Pmax 3 + Amsol	12 oz & 32 oz + 30 oz + 0.88 gal	0	0	74	0	76	92	83	86	0	84	99	85	179
Aatrex & Interline + RU Pmax 3 + Amsol	16 oz & 32 oz + 30 oz + 0.88 gal	0	0	59	0	57	89	64	78	0	38	92	31	176
Aatrex & Interline + RU Pmax 3 + Amsol	32 oz & 32 oz + 30 oz + 0.88 gal	0	0	62	0	63	93	72	71	0	39	99	39	176
Intrava DX & Interline + RU Pmax 3 + Amsol	13.5 oz & 32 oz + 30 oz + 0.88 gal	0	0	51	0	73	94	79	82	0	78	99	85	176
Intrava DX & Interline + RU Pmax 3 + Amsol	27 oz & 32 oz + 30 oz + 0.88 gal	0	0	71	0	74	87	82	86	7	91	99	94	173
LSD (0.05)		–	–	13	–	16	16	18	22	2	13	7	14	8

RCB: 4 reps
Variety: DKC 101-33RIB
Planting Date: 5/5/25
Pre: 5/5/25
Post: 6/19/25 Corn V5-6, 18-24 in; Vele 2-8 in; Colq 2-12 in; Cowh 2-14 in; Grft 4-12 in.

Precipitation: (inches)
Pre: 1st week 0.00; 2nd week 0.56

Soil: Silty Clay; 4.3% OM; 6.7 pH

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)
Vele=Velvetleaf
Colq=Common lambsquarters
Cowh=Common waterhemp
Grft=Green foxtail

Comments: Atrazine may be the most applied herbicide in corn. While not commonly applied, metribuzin is also labeled for application in corn and could be an atrazine alternative to areas where carryover and nontarget movement is a concern. The objective of this study was to determine weed control and corn injury + yield with various rates of metribuzin compared with Intrava DX (metribuzin and amicarbizone) and atrazine. Variable velvetleaf control was noted with all Pre herbicide treatments before Post herbicide application. All metribuzin rates provided similar levels control of common lambsquarters, waterhemp and green foxtail with minimal corn injury. Poor control of waterhemp was noted with both rates of atrazine. Both rates of Intrava DX provided weed control greater or similar to the higher metribuzin rates. Corn yield was similar with all tested treatments. Metribuzin rates from 4 to 8 oz/A are labeled in corn. All other rates are off label.

South Dakota State University Extension

2025
METRIBUZIN IN CORN
Volga Research Farm

Treatment	Rate/A	5/22/25	5/28/25				6/4/25				6/10/25				10/20/25
		VCRR	VCRR	Colq	Cowh	Gift	VCRR	Colq	Cowh	Gift	VCRR	Colq	Cowh	Gift	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	0	0	0	0	81
Pre & Post															
Tricor 4F & Interline + RU Pmax 3 + Amsol	2 oz & 32 oz + 30 oz + 0.88 gal	0	0	10	5	10	0	53	33	20	0	57	30	23	226
Tricor 4F & Interline + RU Pmax 3 + Amsol	4 oz & 32 oz + 30 oz + 0.88 gal	0	0	65	43	43	0	62	44	10	0	81	53	20	235
Tricor 4F & Interline + RU Pmax 3 + Amsol	6 oz & 32 oz + 30 oz + 0.88 gal	0	0	85	65	67	0	77	60	25	0	78	57	25	241
Tricor 4F & Interline + RU Pmax 3 + Amsol	8 oz & 32 oz + 30 oz + 0.88 gal	0	0	95	72	64	0	89	62	45	0	93	66	40	245
Tricor 4F & Interline + RU Pmax 3 + Amsol	10 oz & 32 oz + 30 oz + 0.88 gal	0	0	92	85	76	0	89	71	45	0	92	70	40	245
Tricor 4F & Interline + RU Pmax 3 + Amsol	12 oz & 32 oz + 30 oz + 0.88 gal	0	0	91	79	80	1	95	74	55	0	99	72	55	237
Aatrex & Interline + RU Pmax 3 + Amsol	16 oz & 32 oz + 30 oz + 0.88 gal	0	0	87	61	59	0	84	30	23	0	82	31	13	227
Aatrex & Interline + RU Pmax 3 + Amsol	32 oz & 32 oz + 30 oz + 0.88 gal	0	0	93	70	55	0	87	30	23	0	89	36	18	234
Intrava DX & Interline + RU Pmax 3 + Amsol	13.5 oz & 32 oz + 30 oz + 0.88 gal	0	0	97	82	81	1	91	77	81	1	90	70	69	243
Intrava DX & Interline + RU Pmax 3 + Amsol	27 oz & 32 oz + 30 oz + 0.88 gal	0	0	97	90	83	8	93	84	80	31	93	81	82	225
Bellum + Atrazine + Strelius II + RU Powermax 3 + NIS + AMS	3 oz + 1 qt + 1 pt + 25 oz + 0.25% + 1.7 lb	5		79	59	71	1	99		94	0	99		97	204
LSD (0.05)		–	–	12	14	14	2	12	9	15	5	10	9	15	11

RCB: 4 reps
Variety: DKC 45-74RIB
Planting Date: 5/6/25
Pre: 5/6/25
Post: 6/17/25 Corn V4, 12-15 in; Colq 2-12 in; Cowh 2-9 in; Gift 5-12 in.

Precipitation: (inches)
Pre: 1st week 0.00; 2nd week 1.64

Soil: Clay Loam; 4.4% OM; 5.5 pH

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)
Colq=Common lambsquarters
Cowh=Common waterhemp
Gift=Giant foxtail

Comments: Atrazine may be the most applied herbicide in corn. While not commonly applied, metribuzin is also labeled for application in corn and could be an atrazine alternative to areas where carryover and nontarget movement is a concern. The objective of this study was to determine weed control and corn injury + yield with various rates of metribuzin compared with Intrava DX (metribuzin and amicarbizone) and atrazine. Giant foxtail control was highly variable and poor throughout the duration of the study. Increasing the metribuzin rate usually increased weed control with minimal corn injury. Higher metribuzin rates provided similar control to both rates of atrazine. However, waterhemp control was poor with both rates of atrazine. Both rates of Intrava DX provided weed control greater or similar to the higher metribuzin rates. Corn yield was similar with all tested treatments. Metribuzin rates from 4 to 8 oz/A are labeled in corn. All other rates are off label.

South Dakota State University Extension

2025
METRIBUZIN + TANK-MIX PARTNERS IN CORN
Northeast Research Farm

Treatment	Rate/A	6/5/25					6/13/25					6/23/25					10/23/25
		Corw	Colq	Rrpw	Yeft	Wocg	Corw	Colq	Rrpw	Yeft	Wocg	Corw	Colq	Rrpw	Yeft	Wocg	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	107
Pre & Post																	
Tricor 4F	6 oz	67	68	53	25	20	56	72	48	13	10	69	75	68	18	0	201
Clarity	1 pt	77	64	49	30	25	58	51	30	3	3	50	28	38	0	0	188
Tricor 4F + Clarity	6 oz + 1 pt	76	75	75	62	33	55	75	60	25	25	56	74	68	40	10	202
Callisto	3 oz	69	91	78	62	23	62	90	68	19	13	73	97	79	50	3	202
Tricor 4F + Callisto	6 oz + 3 oz	75	92	88	55	30	73	97	87	31	15	71	97	92	55	13	208
Balance Flexx	3 oz	54	84	75	56	29	64	93	56	25	13	70	93	81	40	10	201
Tricor 4F + Balance Flexx	6 oz + 3 oz	68	91	83	53	45	73	99	77	53	49	75	93	80	53	52	208
Harness	2 pt	71	81	90	80	65	63	66	91	69	56	57	79	90	76	53	206
Tricor 4F + Harness	6 oz + 2 pt	78	88	91	85	66	75	88	97	80	60	74	89	97	76	57	211
Zidua SC	4 oz	65	70	69	66	54	62	60	59	56	39	53	54	65	56	38	203
Tricor 4F + Zidua SC	6 oz + 4 oz	70	77	80	66	45	62	66	76	48	30	66	74	78	60	30	206
Prowl H2O	2 pt	48	50	45	50	35	38	30	28	28	13	20	20	35	28	13	200
Tricor 4F + Prowl H2O	6 oz + 2 pt	64	83	77	61	58	62	60	62	55	40	60	65	66	48	53	204
LSD (0.05)		6	–			6	3	–			4	–	–			16	

RCB: 4 reps
Variety: DKC 35-34RIB
Planting Date: 5/8/25
Pre: 5/8/25

Soil: Clay Loam; 3.2% OM; 6.3 pH

Precipitation: (inches)
Pre: 1st week 0.00; 2nd week 2.87

Corw=Common ragweed
Colq=Common lambsquarters
Rrpw=Redroot pigweed
Yeft=Yellow foxtail
Wocu=Woolly cupgrass

Comments: The objective of this study was to determine weed control and corn yield with metribuzin alone or with various tank-mix partners. Poor woolly cupgrass and yellow foxtail control was noted with all herbicide treatments. Select tank mixtures improved common ragweed, common lambsquarters and redroot pigweed control compared with metribuzin alone. Relatively poor weed control is likely attributable to no rainfall within one week after application. The high rainfall (2.87') within two weeks after application could have leached some of the herbicides into the soil to decrease control as well. Corn yield was similar with all tested treatments.

South Dakota State University Extension

2025
HG15 YIELD DRAG IN CORN
Northeast Research Farm

Treatment	Rate/A	7/11/25		7/30/25	10/23/25
		Stunt	VCRR	Height	Yield Bu/A
Check	—	0	0	80	188
Pre					
Dual II Magnum	1.33 pt	0	0	90	200
Warrant	1.5 qt	3	0	83	198
Epost					
Dual II Magnum	1.33 pt	8	0	83	194
Warrant	1.5 qt	10	0	83	192
Mpost					
Dual II Magnum	1.33 pt	11	0	80	186
Warrant	1.5 qt	14	0	81	183
Pre & Epost					
Dual II Magnum & Dual II Magnum	1.33 pt & 1.33 pt	0	0	90	198
Warrant & Warrant	1.5 qt & 1.5 qt	6	0	82	199
Pre & Mpost					
Dual II Magnum & Dual II Magnum	1.33 pt & 1.33 pt	0	0	87	198
Warrant & Warrant	1.5 qt & 1.5 qt	0	0	82	196
Epost & Mpost					
Dual II Magnum & Dual II Magnum	1.33 pt & 1.33 pt	10	1	84	193
Warrant & Warrant	1.5 qt & 1.5 qt	3	0	83	194
Pre & Epost $ Mpost					
Dual II Magnum & Dual II Magnum & Dual II Magnum	1.33 pt & 1.33 pt & 1.33 pt	1	0	81	197
Warrant & Warrant & Warrant	1.5 qt & 1.5 qt & 1.5 qt	4	0	84	198
LSD (0.05)		9	1	5	7

RCB: 4 reps
Variety: DKC 35-34RIB
Planting Date: 5/8/25
Pre: 5/8/25
Epost: 6/17/25 Corn V3-4, 5-7 in.
Mpost: 6/24/25 Corn V5, 14-16 in.

Soil: Clay Loam; 3.2% OM; 6.3 pH

Precipitation: (inches)
Pre: 1st week 0.00; 2nd week 2.87

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)

Comments: More residual herbicides are being recommended to be applied at the postemergence timing. Some of these residual herbicides are readily available (i.e., Dual II Magnum) and others are encapsulated (i.e., Warrant) which are available after the encapsulation is broken down by water. The objective of this study was to determine if multiple applications of Dual II Magnum or Warrant could impact corn yield. Corn injury was noted two weeks after the last herbicide application. Most injury occurred when both herbicides were applied to emerged corn. No substantial corn stunting was noted. Corn yield was largely the same across treatments. However, Warrant applied MPost provided yield lower than some other treatments.

South Dakota State University Extension

2025
SURTAIN PRE VS COMPETITORS
Southeast Research Farm

Treatment	Rate/A	6/6/25			6/12/25				6/25/25				7/15/25				10/17/25
		Vele	Cowh	Grft	Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	140
Pre																	
Acuron + Atrazine	60 oz + 16 oz	98	98	87	99	99	99	79	93	96	92	78	98	98	96	78	187
Resicore REV + Atrazine	60 oz + 32 oz	95	98	96	98	99	99	98	98	99	97	95	96	99	98	88	184
TriVolt + Atrazine	15 oz + 32 oz	91	98	93	98	99	99	99	97	99	97	90	93	96	87	83	183
Storen + Atrazine	40 oz + 32 oz	93	96	94	99	99	99	95	99	99	95	96	99	98	99	81	184
Surtain	14 oz	81	91	85	79	86	94	86	85	92	86	80	78	82	73	78	172
Surtain + Atrazine	14 oz + 32 oz	73	97	80	76	96	95	77	79	97	87	73	76	97	85	69	176
Surtain + Callisto	14 oz + 3 oz	93	98	82	98	98	99	78	96	96	91	69	95	99	92	63	180
Surtain + Atrazine + Callisto	14 oz + 32 oz + 3 oz	91	98	73	99	97	99	72	96	98	95	72	97	98	98	61	178
Pre & Post																	
Surtain + Atrazine + Callisto & Status + Zidua SC + RU Pmax 3 + AMS + Induce	14 oz + 32 oz + 3 oz & 5 oz + 2.7 oz + 30 oz + 1.7 lb + 0.25%	91	98	93	99	99	99	99	98	99	99	91	99	99	99	95	181
LSD (0.05)		5	3	11	4	6	4	13	8	6	8	15	7	6	6	13	11

RCB: 4 reps
Variety: DKC 101-33RIB
Planting Date: 5/5/25
Pre: 5/5/25
Post: 6/4/25 Corn V3, 6-8 in; Vele cot, 0.5 in; Grft 0.5-2 in; Colq 0.5 in; Cowh cot.-1.5 in.

Precipitation: (inches)
Pre: 1st week 0.00; 2nd week 0.56

Soil: Silty Clay; 4.6% OM; 6.6 pH

Vele=Velvetleaf
Cowh=Common waterhemp
Colq=Common lambsquarters
Grft=Green foxtail

Comments: Surtain (encapsulated Sharpen and Zidua) is a new Pre herbicide for corn. The objective of this study was to compare the effectiveness of Surtain alone and mixed with other herbicides with other standard Pre corn herbicides alone or in mixture. Surtain alone provided lower weed control than other standard corn Pre herbicide. Mixtures of Atrazine, Callisto and Atrazine + Callisto with Surtain increased weed control. Surtain programs with a Post herbicide provided effective and consistent weed control. Corn yield was similar with all tested herbicide treatments. The results of this study suggest that Surtain can effectively manage weeds but tank mixtures and a Post herbicide is likely needed to manage weeds season long.

South Dakota State University Extension

2025
INTRAVA DX IN CORN
Volga Research Farm

Treatment	Rate/A	5/28/25				6/10/25				6/24/25			10/20/25
		VCRR	Colq	Cowh	Gift	VCRR	Colq	Cowh	Gift	Colq	Cowh	Gift	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	0	0	70
Pre													
Intrava DX	10 oz	0	90	69	73	0	76	57	48	94	63	45	183
Atrazine	24 oz	0	87	70	67	0	66	35	13	51	49	0	128
Moccasin II Plus + Atrazine + Intrava DX	1 pt + 24 oz + 10 oz	0	92	90	84	0	69	70	78	76	67	67	207
Moccasin II Plus + Atrazine + Intrava DX	1 pt + 24 oz + 16 oz	0	95	90	88	11	77	68	82	86	68	73	192
Moccasin II Plus + Atrazine + Intrava DX	1 pt + 24 oz + 20 oz	0	95	92	92	19	69	73	88	95	76	80	188
Pre & Epost													
Harness + Intrava DX & Atrazine + COC + RU Powermax 3	32 oz + 10 oz & 24 oz + 4 qt/100 gal + 24 oz	0	88	90	79	0	66	84	75	98	97	99	243
Intrava DX + Motif & Resicore + Atrazine + COC + RU Powermax 3	10 oz + 3.5 oz & 45 oz + 24 oz + 4 qt/100 gal + 24 oz	0	95	89	86	1	69	74	65	99	99	99	247
Surestart II + Atrazine & Resicore + Atrazine + COC + RU Powermax 3	32 oz + 24 oz & 45 oz + 24 oz + 4 qt/100 gal + 24 oz	0	90	91	82	0	72	79	78	99	99	98	247
LSD (0.05)		–	7	6	12	4	16	8	12	16	10	18	28

RCB: 4 reps
Variety: DKC 45-74RIB
Planting Date: 5/6/25
Pre: 5/6/25
Post: 6/10/25 Corn V3, 6-8 in; Colq 1-2 in; Cowh 1-2 in; Gift 1-4 in.

Precipitation: (inches)
Pre: 1st week 0.00; 2nd week 1.64

Soil: Clay Loam; 5.4% OM; 6.3 pH

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)
Colq=Common lambsquarters
Cowh=Common waterhemp
Gift=Giant foxtail

Comments: The objective of this study was to compare Intrava DX with other common corn herbicides. Intrava DX applied Pre only gave low weed control and yield at the end of the season. When Intrava DX was applied Pre and other herbicides were applied Epost, weed control and yield were much greater.

South Dakota State University Extension

2025 SOYBEAN DEMONSTRATION Northeast Research Farm

Treatment	Rate/A	6/23/25			7/24/25			10/2/25			10/3/25
		Colq	Rrpw	Yeft	Colq	Rrpw	Yeft	Colq	Rrpw	Yeft	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	9
PPI & Post											
Treflan + Tricor 4F & Cobra + Select Max + Dual Mag + NIS	2 pt + 0.5 pt & 12 oz + 16 oz + 1 pt + 0.25%	89	82	81	69	99	99	71	99	99	48
Pre & Post											
Fierce EZ & Perpetuo + Liberty + Select Max + AMS + NIS	6 oz & 6 oz + 32 oz + 9 oz +	90	94	84	99	99	99	99	99	99	51
Fierce MTZ & Perpetuo + Liberty + Select Max + AMS + NIS	3 lb + 0.25%	94	97	85	99	99	99	99	99	99	50
Experimental & Enlist One + Liberty + AMS	16 oz & 6 oz + 32 oz + 9 oz +	89	89	91	99	99	98	99	99	99	51
Zidua Pro & Liberty + AMS	3 lb + 0.25%	89	88	73	99	99	95	99	99	99	51
Broadaxe XC + Tricor DF & Dual Mag + Liberty + AMS + NIS	40 oz & 32 oz + 43 oz + 1.7 lb	96	94	86	99	99	96	99	98	96	49
Tendovo & Dual Mag + Liberty + AMS + NIS	6 oz & 43 oz + 1.7 lb	92	94	78	99	99	94	98	99	97	51
Pursuit + Dual Mag & Cobra + Select Max + COC	32 oz + 5 oz & 1.5 pt + 32 oz + 2 lb + 0.5%	85	75	79	74	99	99	74	97	99	46
Sonic & Liberty + RU Powermax 3 + Enlist One + Amsol	1.75 qt & 1.5 pt + 32 oz + 2 lb + 0.5%	90	78	49	99	99	99	99	99	99	50
Fierce MTZ & Cobra + RU Powermax 3 + msol + COC	4 oz + 1.33 pt & 12 oz + 16 oz + 1%	93	99	92	99	99	98	99	99	99	48
Dual Magnum & RU Powermax 3 + Amsol	6.45 oz & 32 oz + 30 oz + 32 oz + 0.88 gal	80	66	83	94	94	98	99	99	99	48
Dual Magnum & RU Powermax 3 + Amsol	1.5 pt & 12 oz + 30 oz + 0.88 gal + 1%	95	85	50	99	60	50	82	26		38
LSD (0.05)		6	9	9	4	2	4	6	1	2	2

RCB: 4 reps
Variety: Mustang 10E125
Planting Date: 5/30/25
Pre: 5/30/25
Post: 7/2/25 Soy 2-3 tri, 5-7 in; Colq 2-9 in; Rrpw 1-8 in; Yeft 3-9 in.

Precipitation: (inches)
Pre: 1st week 0.25; 2nd week 1.78

Soil: Clay Loam; 4.1% OM; 5.8 pH

Colq=Common lambsquarters
Rrpw=Redroot pigweed
Yeft=Yellow foxtail

Comments: Common soybean herbicides were compared to determine weed control and yield differences. Control with Pre herbicides was at least 80% for most treatments. Some herbicides tested were poor on redroot pigweed and yellow foxtail. Control increased to 90% or greater with most Post herbicides. Herbicide programs relying on Cobra resulted in poor common lambsquarters control. Soybean yield was similar across herbicide programs; Pursuit + Dual Mag & Cobra + Select Max yielded lower than some programs.

South Dakota State University Extension

2025 SOYBEAN DEMONSTRATION Southeast Research Farm

Treatment	Rate/A	6/25/25				7/23/25				9/30/25				10/1/25
		Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	0	0	0	14
PPI & Post														
Treflan + Tricor 4F & Cobra + Select Max + Dual Mag + NIS	2 pt + 0.5 pt & 12 oz + 16 oz + 1 pt + 0.25%	98	99	90	99	97	95	90	99	95	93	88	99	50
Pre & Post														
Fierce EZ & Perpetuo + Liberty + Select Max + AMS + NIS	6 oz & 6 oz + 32 oz + 9 oz + 3 lb + 0.25%	98	96	79	89	99	95	97	99	99	97	95	99	53
Fierce MTZ & Perpetuo +Liberty + Select Max + AMS+ NIS	16 oz & 6 oz + 32 oz + 9 oz + 3 lb + 0.25%	99	91	84	87	99	98	97	99	99	96	99	99	50
Experimental & Enlist One + Liberty + AMS	40 oz & 32 oz + 43 oz + 1.7 lb	99	94	97	95	99	99	99	99	99	99	99	99	50
Zidua Pro & Liberty + AMS	6 oz & 43 oz + 1.7 lb	99	98	96	99	99	98	97	99	99	98	98	99	48
Broadaxe XC + Tricor DF & Dual Mag + Liberty +AMS+NIS	32 oz + 5 oz & 1.5 pt + 32 oz + 2 lb + 0.5%	94	98	83	91	99	98	98	99	99	96	95	99	51
Tendovo & Dual Mag + Liberty + AMS + NIS	1.75 qt & 1.5 pt + 32 oz + 2 lb + 0.5%	97	98	92	95	99	98	97	99	99	96	99	99	51
Pursuit + Dual Mag & Cobra + Select Max + COC	4 oz + 1.33 pt & 12 oz + 16 oz + 1%	99	98	74	99	99	94	85	99	99	93	84	99	48
Sonic & Liberty + RU Pmax 3 + Enlist One + Amsol	6.45 oz & 32 oz + 30 oz + 32 oz + 0.88 gal	99	97	86	97	99	99	99	99	99	99	99	99	55
Fierce MTZ & Cobra + RU Pmax 3 + Amsol + COC	1.5 pt & 12 oz + 30 oz + 0.88 gal + 1%	98	98	92	98	99	99	95	99	99	99	94	99	52
Dual Magnum & RU Powermax 3 + Amsol	1.33 pt & 30 oz + 0.88 gal	86	91	68	94	99	99	67	99	99	99	52	99	49
LSD (0.05)		3	5	9	11	1	3	9	–	2	5	11	–	4

RCB: 4 reps
Variety: Mustang 20E723
Planting Date: 5/29/25
PPI/Pre: 5/29/25
Post: 7/1/25 Soy 3-4 tri, 9 in; Vele 2-9 in; Colq 2-7 in; Cowh 2-8 in; Grft 3-8 in.

Precipitation: (inches)
Pre: 1st week 0.68; 2nd week 0.00

Soil: Clay; 4.3% OM; 7.0 pH

Vele=Velvetleaf
Cowh=Common waterhemp
Colq=Common lambsquarters
Grft=Green foxtail

Comments: Common soybean herbicides were compared to determine weed control and yield differences. Most Pre herbicides provided 85% or greater on velvetleaf, common lambsquarters, and green foxtail. Waterhemp control with Pre herbicides was variable, where control ranged from 68 to 97%. Weed control was at least 90% for herbicide treatments excluding Dual Magnum & RU Powermax 3 where waterhemp control was never greater than 67%. Waterhemp at this farm is glyphosate-resistant and this herbicide program was included to demonstrate that single active ingredient herbicide applications will likely not be effective. Soybean yields were similar with all herbicide programs.

South Dakota State University Extension

2025 SOYBEAN DEMONSTRATION Volga Research Farm

Treatment	Rate/A	6/13/25			7/22/25			9/26/25			9/29/25
		Colq	Cowh	Gift	Colq	Cowh	Gift	Colq	Cowh	Gift	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	19
PPI & Post											
Treflan + Tricor 4F & Cobra + Select Max + Dual Mag + NIS	2 pt + 0.5 pt & 12 oz + 16 oz + 1 pt + 0.25%	83	85	84	71	96	94	82	94	97	52
Pre & Post											
Fierce EZ & Perpetuo + Liberty + Select Max + AMS + NIS	6 oz & 6 oz + 32 oz + 9 oz + 3 lb + 0.25%	70	69	59	98	85	88	94	87	94	53
Fierce MTZ & Perpetuo + Liberty + Select Max + AMS + NIS	16 oz & 6 oz + 32 oz + 9 oz +	87	78	72	98	87	94	99	86	95	56
Experimental & Enlist One + Liberty + AMS	3 lb + 0.25%	97	98	84	99	99	98	99	99	99	60
Zidua Pro & Liberty + AMS	40 oz & 32 oz + 43 oz + 1.7 lb	99	95	96	99	94	98	99	89	99	59
Broadaxe XC + Tricor DF & Dual Mag + Liberty + AMS + NIS	6 oz & 43 oz + 1.7 lb	99	96	75	99	95	91	99	92	99	58
Tendovo & Dual Mag + Liberty + AMS + NIS	32 oz + 5 oz & 1.5 pt + 32 oz + 2 lb + 0.5%	99	92	87	99	94	96	99	88	96	56
Pursuit + Dual Mag & Cobra + Select Max + COC	1.75 qt & 1.5 pt + 32 oz + 2 lb + 0.5%	99	76	94	98	92	94	99	90	93	56
Sonic & Liberty + RU Powermax 3 + Enlist One + Amsol	4 oz + 1.33 pt & 12 oz + 16 oz + 1%	99	93	68	99	98	99	99	99	99	58
Fierce MTZ & Cobra + RU Powermax 3 + Amsol + COC	6.45 oz & 32 oz + 30 oz + 32 oz + 0.88 gal	90	86	66	99	99	99	99	98	99	54
Dual Magnum & RU Powermax 3 + Amsol	1.5 pt & 12 oz + 30 oz + 0.88 gal + 1%	56	72	74	99	65	99	99	69	99	53
LSD (0.05)		7	9	16	2	8	7	5	10	7	5

RCB: 4 reps
Variety: Mustang 13E335
Planting Date: 5/9/25
PPI/Pre: 5/10/25
Post: 67/1/25 Soy 6 tri, 10-12 in; Colq 3-10 in; Cowh 2-8 in; Gift 4-12 in.

Precipitation: (inches)
Pre: 1st week 0.6; 2nd week 1.72

Soil: Clay Loam; 5.2% OM; 6.0 pH

Cowh=Common waterhemp
Colq=Common lambsquarters
Gift=Giant foxtail

Comments: Common soybean herbicides were compared to determine weed control and yield differences. Pre herbicides provided variable control of weed species tested. Control improved with the application of Post herbicides. Dual Magnum & RU Powermax3 provided poor waterhemp control due to glyphosate-resistant waterhemp at this farm. This program was included to demonstrate that single active ingredient herbicide applications may not be as effective was multiple active ingredient herbicide applications. Soybean yield was similar across herbicide programs.

South Dakota State University Extension

2025
LIBERTY + MIX PARTNERS
Northeast Research Farm

Treatment	Rate/A	7/10/25			7/18/25			7/24/25		10/3/25
		Rrpw	Colq	Yeft	Colq	Rrpw	Yeft	Rrpw	Yeft	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	9
Pre & Post										
Dual Magnum & Liberty + Amsol	1 pt & 22 oz + 3 qt	81	87	68	93	80	69	77	54	47
Dual Magnum & Liberty + Amsol	1 pt & 32 oz + 3 qt	92	94	78	96	95	82	89	73	49
Dual Magnum & Liberty + Amsol	1 pt & 43 oz + 3 qt	95	93	84	93	93	93	90	87	50
Dual Magnum & Liberty + Amsol + MSO	1 pt & 32 oz + 3 qt + 1%	91	90	68	92	92	78	81	65	50
Dual Magnum & Liberty + Amsol + NIS	1 pt & 32 oz + 3 qt + 0.5%	92	91	80	96	89	83	86	79	49
Dual Magnum & Liberty + Amsol + Basagran 5L + COC	1 pt & 32 oz + 3 qt + 1.6 pt + 1%	96	93	75	99	98	88	94	80	50
Dual Magnum & Liberty + Amsol + Poast + COC	1 pt & 32 oz + 3 qt + 1.5 pt + 1%	90	84	91	87	91	92	87	96	49
Dual Magnum & Liberty + Amsol + Dual Magnum	1 pt & 32 oz + 3 qt + 1 pt	95	90	67	88	91	80	92	74	49
Dual Magnum & Liberty + Amsol + Perpetuo	1 pt & 32 oz + 3 qt + 8 oz	94	94	70	94	93	81	91	75	49
LSD (0.05)		4	5	6	6	6	6	9	9	3

RCB: 4 reps
Variety: Mustang 10E125
Planting Date: 5/30/25
Pre: 5/30/25
Post: 7/2/25 Soy 2-3 tri, 5-7 in; Colq 2-9 in; Rrpw 1-8 in; Yeft 3-9 in.

Precipitation: (inches)
Pre: 1st week 0.25; 2nd week 1.78

Soil: Clay Loam; 4.1% OM; 5.8 pH

Colq=Common lambsquarters
Rrpw=Redroot pigweed
Yeft=Yellow foxtail

Comments: The objective of this demonstration was to compare Liberty effectiveness for weed control with different tank-mix partners. Liberty applied at 22 oz provided poor control compared with the herbicide applied at 32 or 43 oz. Adjuvants (MSO and NIS) did not improve control compared with Liberty applied alone at a similar rate (32 oz). Basagran did not improve broadleaf weed nor did Poast improve yellow foxtail control when mixed with Liberty. Weed control benefits were not evident with the addition of Dual Magnum or Perpetuo. Soybean yields were similar with the tested treatments. While the benefits of tank-mixing products with Liberty were not evident in this demonstration, multiple herbicides and tactics should always be implemented to ensure effective weed management.

South Dakota State University Extension

2025
LIBERTY + MIX PARTNERS
Southeast Research Farm

Treatment	Rate/A	7/8/25				7/15/25				7/23/25				10/1/25
		Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	0	0	0	11
Pre & Post														
Dual Magnum & Liberty + Amsol	1 pt & 22 oz + 3 qt	86	86	80	91	82	85	77	85	81	80	73	86	49
Dual Magnum & Liberty + Amsol	1 pt & 32 oz + 3 qt	87	93	89	93	90	98	88	95	93	93	82	98	51
Dual Magnum & Liberty + Amsol	1 pt & 43 oz + 3 qt	93	94	89	98	96	94	87	99	96	94	87	99	54
Dual Magnum & Liberty + Amsol + MSO	1 pt & 32 oz + 3 qt + 1%	91	88	82	90	95	94	89	99	99	85	82	99	50
Dual Magnum & Liberty + Amsol + NIS	1 pt & 32 oz + 3 qt + 0.5%	96	90	85	96	97	91	82	97	98	81	80	98	50
Dual Magnum & Liberty + Amsol + Basagran 5L + COC	1 pt & 32 oz + 3 qt + 1.6 pt + 1%	98	96	94	96	99	98	99	98	99	97	96	97	51
Dual Magnum & Liberty + Amsol + Poast + COC	1 pt & 32 oz + 3 qt + 1.5 pt + 1%	96	83	81	94	96	86	82	99	92	69	78	99	52
Dual Magnum & Liberty + Amsol + Dual Magnum	1 pt & 32 oz + 3 qt + 1 pt	98	93	88	98	98	96	93	99	98	92	86	99	54
Dual Magnum & Liberty + Amsol + Perpetuo	1 pt & 32 oz + 3 qt + 8 oz	98	90	88	95	94	95	90	97	95	89	91	97	51
LSD (0.05)		9	5	5	5	8	7	7	7	7	9	8	4	5

RCB: 4 reps
Variety: Mustang 20E723
Planting Date: 5/29/25
Pre: 5/29/25
Post: 7/1/25 Soy 3-4 tri, 9 in; Vele 2-9 in; Colq 2-7 in; Cowh 2-8 in; Grft 3-8 in.

Precipitation: (inches)
Pre: 1st week 0.68; 2nd week 0.00

Soil: Clay; 4.6% OM; 6.1 pH

Vele=Velvetleaf
Cowh=Common waterhemp
Colq=Common lambsquarters
Grft=Green foxtail

Comments: The objective of this demonstration was to compare Liberty effectiveness for weed control with different tank-mix partners. Liberty provided similar weed control with all tested rates. Adjuvants (MSO and NIS) did not improve control compared with Liberty applied alone at a similar rate (32 oz). Basagran did not improve broadleaf weed nor did Poast improve green foxtail control when mixed with Liberty. Weed control benefits were not evident with the addition of Dual Magnum or Perpetuo. Soybean yields were similar with the tested treatments. While the benefits of tank-mixing products with Liberty were not evident in this demonstration, multiple herbicides and tactics should always be implemented to ensure effective weed management.

South Dakota State University Extension

2025
LIBERTY + MIX PARTNERS
Volga Research Farm

Treatment	Rate/A	7/9/25			7/17/25			7/22/25			9/29/25
		Colq	Cowh	Gift	Colq	Cowh	Gift	Colq	Cowh	Gift	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	26
Pre & Post											
Dual Magnum & Liberty + Amsol	1 pt & 22 oz + 3 qt	90	65	75	99	60	97	97	49	96	54
Dual Magnum & Liberty + Amsol	1 pt & 32 oz + 3 qt	93	75	78	99	79	97	99	70	97	55
Dual Magnum & Liberty + Amsol	1 pt & 43 oz + 3 qt	94	78	88	99	80	99	99	71	99	56
Dual Magnum & Liberty + Amsol + MSO	1 pt & 32 oz + 3 qt + 1%	92	72	84	98	71	96	99	58	95	53
Dual Magnum & Liberty + Amsol + NIS	1 pt & 32 oz + 3 qt + 0.5%	90	73	80	99	73	97	99	69	97	55
Dual Magnum & Liberty + Amsol + Basagran 5L + COC	1 pt & 32 oz + 3 qt + 1.6 pt + 1%	92	85	84	99	90	99	99	88	99	56
Dual Magnum & Liberty + Amsol + Poast + COC	1 pt & 32 oz + 3 qt + 1.5 pt + 1%	93	77	91	99	76	99	99	63	99	54
Dual Magnum & Liberty + Amsol + Dual Magnum	1 pt & 32 oz + 3 qt + 1 pt	92	76	87	99	75	99	99	64	99	55
Dual Magnum & Liberty + Amsol + Perpetuo	1 pt & 32 oz + 3 qt + 8 oz	94	78	91	99	79	99	99	76	99	53
LSD (0.05)		3	5	6	1	6	5	2	10	5	3

RCB: 4 reps
Variety: Mustang 13E335
Planting Date: 5/9/25
Pre: 5/9/25
Post: /1/25 Soy 6 tri, 10-12 in; Colq 3-14 in; Cowh 2-12 in; Gift 3-12 in.

Precipitation: (inches)
Pre: 1st week 0.60; 2nd week 1.72

Soil: Clay Loam; 5.2% OM; 6.0 pH

Cowh=Common waterhemp
Colq=Common lambsquarters
Gift=Giant foxtail

Comments: The objective of this demonstration was to compare Liberty effectiveness for weed control with different tank-mix partners. Liberty applied at 22 oz provided poor waterhemp control compared with the herbicide applied at 32 or 43 oz. Common lambsquarters and giant foxtail were effectively controlled at all rates. Adjuvants (MSO and NIS) did not improve control compared with Liberty applied alone at a similar rate (32 oz). Basagran improved waterhemp control when mixed with Liberty. Poast mixed with Liberty did not improve giant foxtail control. Weed control benefits were not evident with the addition of Dual Magnum or Perpetuo. Soybean yields were similar with the tested treatments. While the benefits of tank-mixing products with Liberty were not evident in this demonstration, multiple herbicides and tactics should always be implemented to ensure effective weed management.

South Dakota State University Extension

2025
2,4-D, GLUFOSINATE and LACTOFEN
Northeast Research Farm

Treatment	Rate/A	7/10/25				7/18/25				7/24/25			10/3/25
		Rrpw	Yeft	Colq	VCRR	VCRR	Rrpw	Colq	Yeft	Colq	Rrpw	Yeft	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	0	0	10
Pre & Post													
Enlist One	32 oz	60	0	99	0	0	76	90	–	99	78	–	47
Liberty + Amsol	32 oz + 3 qt	82	63	98	0	0	73	91	62	97	70	59	49
Cobra + COC	12 oz + 1%	91	0	55	11	12	89	62	–	48	92	–	33
Enlist One + Liberty + Amsol	32 oz + 32 oz + 3 qt	93	62	99	4	4	88	98	64	98	85	57	50
Enlist One + Cobra + COC	32 oz + 12 oz + 1%	80	0	86	11	10	87	87	–	99	93	–	45
Liberty + Amsol + Cobra + COC	32 oz + 3 qt + 12 oz + 1%	95	62	89	14	13	89	84	53	81	80	52	46
Enlist One + Liberty + Amsol + Cobra + COC	32 oz + 32 oz + 3 qt + 12 oz + 1%	94	61	99	15	9	96	98	57	99	95	51	46
LSD (0.05)		8	5	11	3	2	7	6	7	6	8	9	4

RCB: 4 reps
Variety: Mustang 10E125
Planting Date: 5/30/25
Pre: 5/16/24
Post: 7/2/25 Soy 2-3 tri, 5-7 in; Colq 5-7 in; Rrpw 4-9 in; Yeft 5-8 in.

Precipitation: (inches)
Pre: 1st week; 2nd week

Soil: Clay Loam; 4.1% OM; 5.8 pH

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)
Colq=Common lambsquarters
Rrpw=Redroot pigweed
Yeft=Yellow foxtail

Comments: The objective of this study was to determine weed control with Enlist, Liberty, and Cobra alone or in combination with each other. Cobra and Liberty + Cobra provided the lowest common lambsquarters control; all other treatments provided control greater than 95%. Yellow foxtail control was poor with all tested treatments. Redroot pigweed control was greatest with the combinations of herbicide mixtures compared with Enlist One and Liberty applied alone. Soybean injury was apparent but was never greater than 15%. Injury subsided by the end of the season. Cobra yielded the lowest, likely due to a lack of yellow foxtail control. All other treatments provided similar soybean yield.

2025
2,4-D, GLUFOSINATE and LACTOFEN
Southeast Research Farm

Treatment	Rate/A	7/8/25					7/15/25					7/23/25				10/1/25
		Vele	Colq	Cowh	Grrft	VCRR	VCRR	Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Pre & Post																
Enlist One	32 oz	68	63	57	0	0	0	99	90	79	0	99	99	87	–	56
Liberty + Amsol	32 oz + 3 qt	91	89	81	86	0	0	99	82	74	85	98	89	75	87	53
Cobra + COC	12 oz + 1%	67	49	82	3	13	8	86	49	82	0	87	44	91	–	32
Enlist One + Liberty + Amsol	32 oz + 32 oz + 3 qt	91	91	84	80	1	0	99	97	94	93	99	99	98	95	52
Enlist One + Cobra + COC	32 oz + 12 oz + 1%	81	69	79	0	10	10	96	83	86	0	97	94	97	–	53
Liberty + Amsol + Cobra + COC	32 oz + 3 qt + 12 oz + 1%	92	87	90	86	10	8	95	79	95	92	95	78	96	99	50
Enlist One + Liberty + Amsol + Cobra + COC		92	94	89	78	12	11	99	98	98	84	99	99	97	91	50

RCB: 4 reps
Variety: Mustang 20E723
Planting Date: 5/29/25
Pre: 5/14/24
Post: 7/1/25 Soy 3-4 tri, 9 in; Vele 1-10 in; Colq 3-8 in; Cowh 2-9 in; Grft 2-10 in.

Precipitation: (inches)
Pre: 1st week; 2nd week

Soil: Clay; 4.6% OM; 6.1 pH

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)
Vele=Velvetleaf
Colq=Common lambsquarters
Cowh=Common waterhemp
Grft=Green foxtail

Comments: The objective of this study was to determine weed control with Enlist, Liberty, and Cobra alone or in combination with each other. All treatments provided similar velvetleaf control. Cobra and Liberty + Cobra provided the lowest common lambsquarters control; all other treatments provided control greater than 85%. Waterhemp control with Liberty was lower (75%) than all other tested treatments, where control ranged from 87 to 97%. Green foxtail control was similar with all tested treatments, ranging from 87 to 99%. Soybean injury was apparent but was never greater than 13%. Injury subsided by the end of the season. Cobra yielded the lowest, likely due to a lack of common lambsquarters and yellow foxtail control. All other treatments provided similar soybean yield.

2025
2,4-D, GLUFOSINATE and LACTOFEN
Southeast Research Farm

Treatment	Rate/A	7/1/24	8/2/24	10/1/24		
		Kocz	Kocz	Kocz	Kocz-Count	Kocz-Height
Check	—	0	0	0	45	16
Post						
Enlist One	32 oz	28	24	35	19	9
Liberty + Amsol	32 oz + 3 qt	50	70	60	19	6
Cobra + COC	12 oz + 1%	75	86	81	5	2
Enlist One + Liberty + Amsol	32 oz + 32 oz + 3 qt	54	81	74	7	3
Enlist One + Cobra + COC	32 oz + 12 oz + 1%	81	91	93	4	2
Liberty + Amsol + Cobra + COC	32 oz + 3 qt + 12 oz + 1%	83	96	95	3	2
Enlist One + Liberty + Amsol + Cobra + COC	32 oz + 32 oz + 3 qt + 12 oz + 1%	83	97	96	3	1
LSD (0.05)		7	4	6	10	3

RCB: 4 reps
Post: 5/17/25 Kocz 3-6 in.

Soil: Silty Clay; 3.5% OM; 6.7 pH

Kocz=Kochia

Comments: The objective of this study was to determine early season kochia control with Enlist, Liberty, and Cobra alone or in combination with each other. Enlist One, Liberty and Enlist One + Liberty provided poor kochia control at the end of the season. Cobra was more effective than Enlist One or Liberty. All treatments including Cobra provided greater control. Liberty + Cobra is likely an effective mixture to manage kochia in soybean.

South Dakota State University Extension

2025
2,4-D & GLUFOSINATE-DAY OR NIGHT
Volga Research Farm

Treatment	Rate/A	7/9/25			7/17/25			7/22/25			9/29/25
		Vele	Colq	Cowh	Vele	Cowh	Grft	Colq	Cowh	Grft	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	29
Day 1:30 p.m.											
Enlist One	32 oz	55	51	0	80	76	–	77	81	–	53
Liberty + AMS	32 oz + 3 lb	88	84	82	91	76	99	94	77	99	54
Enlist One + Liberty + AMS	32 oz + 32 oz + 3 lb	93	85	82	99	97	99	99	94	99	54
Enlist One + Liberty + AMS	32 oz + 43 oz + 3 lb	93	87	84	99	96	99	99	93	99	55
Night 9:00 p.m.											
Enlist One	32 oz	49	32	0	77	49	–	71	57	–	51
Liberty + AMS	32 oz + 3 lb	87	73	80	93	63	99	95	55	99	56
Enlist One + Liberty + AMS	32 oz + 32 oz + 3 lb	89	77	80	97	88	94	99	83	92	55
Enlist One + Liberty + AMS	32 oz + 43 oz + 3 lb	90	84	79	98	92	96	97	92	99	55
LSD (0.05)		7	7	4	7	7	4	6	5	3	4

RCB: 4 reps
Variety: Mustang 13E335
Planting Date: 5/9/25
Day: 7/2/25 Soy V6; Cowh 8 in; Colq 10 in; Gift 10 in.
Night: 7/2/25 Soy V6; Cowh 8 in; Colq 10 in; Gift 10 in.

Precipitation: (inches)
Pre: 1st week 1.64; 2nd week 1.74

Soil: Clay Loam; 5.2% OM; 6.0 pH

Cowh=Common waterhemp
Colq=Common lambsquarters
Gift=Giant foxtail

Comments: The objective of this study was to determine the effect of applying Enlist, Liberty, and Enlist+Liberty during the day or night. All treatments provided similar common lambsquarters and giant foxtail control. Waterhemp control was lower when Enlist and Liberty were applied at night but control increased when the two herbicides were tank mixed and applied at night. While the yields across treatments were not different, the implications of surviving waterhemp producing seeds to be managed in future growing seasons is of great concern.

South Dakota State University Extension

2025
ROW SPACING, UAN and HERBICIDES
Southeast Research Farm

Treatment	Row Spacing	Rate/A	6/25/25				7/23/25				10/1/25
			Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Yield Bu/A
Check	Wide	—	0	0		0	0	0		0	11
Check	Narrow	—	0	0	0	0	0	0	0	0	15
Pre											
UAN 28%	Wide	16.67 gal	0	0	0	0	0	0	0	0	7
UAN 28%	Narrow	16.67 gal	0	0	0	0	0	0	0	0	11
Pre & Post											
Fierce EZ & Enlist One + Liberty + Amsol	Wide	6 oz & 32 oz + 32 oz + 3 qt	92	98	74	91	99	99	99	98	54
Fierce EZ & Enlist One + Liberty + Amsol	Narrow	6 oz & 32 oz + 32 oz + 3 qt	94	97	80	92	99	99	99	99	56
UAN 28% + Fierce EZ & Enlist One + Liberty + Amsol	Wide	16.67 gal + 6 oz & 32 oz + 32 oz + 3 qt	92	98	80	86	99	99	99	96	54
UAN 28% + Fierce EZ & Enlist One + Liberty + Amsol	Narrow	16.67 gal + 6 oz & 32 oz + 32 oz + 3 qt	96	96	82	93	99	99	99	97	55
LSD (0.05)			6	4	4	5	–	–	0.5	4	5

RCB: 4 reps
Variety: Mustang 20E723
Planting Date: 5/29/25
Pre: 5/29/25
Post: 7/2/25 Soy 3-4 tri, 9 in; Vele 9 in; Colq 8 in; Cowh 8 in; Grft 10 in.

Precipitation: (inches)
Pre: 1st week 0.68; 2nd week 0.00

Soil: Clay; 4.6% OM; 6.1 pH

Vele=Velvetleaf
Colq=Common lambsquarters
Cowh=Common waterhemp
Grft=Green foxtail

Comments: The objective of this study was to evaluate the effect of row spacing and soil-applied nitrogen with or without herbicides on weed management in soybean. Weed control with Fierce EZ with or without UAN was similar in both row spacings. Weed control was greater than 95% after Post herbicide application. The results suggest that weed control and yield is similar with tested treatments. More research is needed to determine the effect on the soil seedbank and weed growth.

South Dakota State University Extension

2025
ROW SPACING, UAN and HERBICIDES
Volga Research Farm

Treatment	Row Spacing	Rate/A	6/27/25			7/30/25			9/29/25
			Colq	Cowh	Grft	Colq	Colq	Grft	Kocz
Check	Wide	—	0	0	0	0	0	0	23
Check	Narrow	—	0	0	0	0	0	0	28
Pre									
UAN 28%	Wide	16.67 gal	0	0	0	0	0	0	22
UAN 28%	Narrow	16.67 gal	0	0	0	0	0	0	24
Pre & Post									
Zidua Pro & Avalanche Ultra + Select Max + NIS		6 oz & 24 oz + 16 oz + 0.25%	99	74	96	99	64	99	53
Tendovo & Flexstar + Dual Magnum + Fusilade DX + NIS		2.35 pt & 12 oz + 1 pt + 12 oz + 0.25%	87	78	80	82	73	81	65
Warrant + Mauler & Cobra + Perpetuo + Raptor + NIS		48 oz + 8 oz & 12.5 oz + 6 oz + 5 oz + 0.25%	73	79	63	99	96	62	99
Dual Magnum & Flexstar + COC		1.67 pt & 12 oz + 1%	82	65	83	80	61	59	52
EPP & Pre & Post									
Fierce EZ & Enlist One + Liberty + Amsol	Wide	6 oz & 32 oz + 32 oz + 3 qt	83	96	83	99	99	97	49
Fierce EZ & Enlist One + Liberty + Amsol	Narrow	6 oz & 32 oz + 32 oz + 3 qt	90	93	82	99	99	99	54
UAN 28% + Fierce EZ & Enlist One + Liberty + Amsol	Wide	16.67 gal + 6 oz & 32 oz + 32 oz + 3 qt	88	95	84	99	99	97	48
UAN 28% + Fierce EZ & Enlist One + Liberty + Amsol	Narrow	16.67 gal + 6 oz & 32 oz + 32 oz + 3 qt	84	94	79	99	99	99	53
LSD (0.05)			7	5	7	–	0.5	1	3

RCB: 4 reps
Variety: Mustang 13E335
Planting Date: 5/28/25
Pre: 5/28/25
Post: 7/9/25 Soy 6 tri-R1, 15 in; Colq 8 in; Cowh 8 in; Grft 12 in.

Precipitation: (inches)
Pre: 1st week 0.05; 2nd week 0.21

Soil: Clay Loam; 5.1% OM; 5.6 pH

Colq=Common lambsquarters
Cowh=Common waterhemp
Grft=Green foxtail
Yeft=Yellow foxtail

Comments: The objective of this study was to evaluate the effect of row spacing and soil-applied nitrogen with or without herbicides on weed management in soybean. Weed control with Fierce EZ with or without UAN was similar in both row spacings. Weed control was greater than 95% after Post herbicide application. The results suggest that weed control and yield are similar with tested treatments. More research is needed to determine the effect on the soil seedbank and weed growth.

South Dakota State University Extension

2025
HG15 POST RESIDUAL YIELD DRAG
Northeast Research Farm

Treatment	Rate/A	7/18/25		7/24/25			10/3/25
		VCRR	Stunt	VCRR	Stunt	Height (in.)	Yield Bu/a
Check	—	0	0	0	0	19	48
Pre							
Dual Magnum	1.33 pt	0	0	0	1	21	47
Warrant	1.5 qt	0	1	0	0	19	49
Epost							
Dual Magnum	1.33 pt	2	1	0	0	20	48
Warrant	1.5 qt	2	9	0	4	17	47
Mpost							
Dual Magnum	1.33 pt	4	1	8	3	17	48
Warrant	1.5 qt	3	2	0	1	18	49
Pre & Epost							
Dual Magnum & Dual Magnum	1.33 pt & 1.33 pt	1	1	0	0	20	49
Warrant & Warrant	1.5 qt & 1.5 qt	0	1	0	0	19	48
Pre & Mpost							
Dual Magnum & Dual Magnum	1.33 pt & 1.33 pt	3	1	1	0	20	48
Warrant & Warrant	1.5 qt & 1.5 qt	0	1	0	0	19	49
Epost & Mpost							
Dual Magnum & Dual Magnum	1.33 pt & 1.33 pt	5	2	1	0	18	47
Warrant & Warrant	1.5 qt & 1.5 qt	4	5	2	3	18	47
Pre & Epost & Mpost							
Dual Magnum & Dual Magnum & Dual Magnum	1.33 pt & 1.33 pt & 1.33 pt	4	1	0	1	19	46
Warrant & Warrant & Warrant	1.5 qt & 1.5 qt & 1.5 qt	0	2	3	1	18	47
LSD (0.05)		3	3	6	2	2	3

RCB: 4 reps
Variety: Mustang 10E125
Planting Date: 5/30/25
Pre: 5/30/25
Epost: 6/29/25 Soy 2 tri.
Mpost: 7/10/25 Soy 4-5 tri, 10-12 in.

Precipitation: (inches)
Pre: 1st week 0.25; 2nd week 1.78

Soil: Clay Loam; 4.1% OM; 5.8 pH

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)

Comments: More residual herbicides are being recommended to be applied at the postemergence timing. Some of these residual herbicides are readily available (i.e., Dual II Magnum) and others are encapsulated (i.e., Warrant) which are available after the encapsulation is broken down by water. The objective of this study was to determine if multiple applications of Dual II Magnum or Warrant could impact soybean yield. Soybean injury was noted two weeks after the last herbicide application. Most injury occurred when both herbicides were applied to emerged soybean. No substantial soybean stunting was noted. Soybean yield was the same across treatments.

South Dakota State University Extension

2025
HG15 POST RESIDUAL YIELD DRAG
Volga Research Farm

Treatment	Rate/A	7/17/25		7/22/25			9/29/25
		VCRR	Stunt	VCRR	Stunt	Height (in.)	Yield Bu/A
Check	—	0	0	0	0	22	51
Pre							
Dual Magnum	1.33 pt	0	0	0	0	22	53
Warrant	1.5 qt	0	1	0	1	22	53
Epost							
Dual Magnum	1.33 pt	0	1	0	1	22	53
Warrant	1.5 qt	0	0	0	0	21	53
Mpost							
Dual Magnum	1.33 pt	0	0	0	0	20	50
Warrant	1.5 qt	0	1	0	0	20	51
Pre & Epost							
Dual Magnum & Dual Magnum	1.33 pt & 1.33 pt	0	0	0	0	21	53
Warrant & Warrant	1.5 qt & 1.5 qt	0	0	0	0	22	54
Pre & Mpost							
Dual Magnum & Dual Magnum	1.33 pt & 1.33 pt	0	0	0	0	21	52
Warrant & Warrant	1.5 qt & 1.5 qt	0	0	0	0	21	51
Epost & Mpost							
Dual Magnum & Dual Magnum	1.33 pt & 1.33 pt	0	0	0	0	21	52
Warrant & Warrant	1.5 qt & 1.5 qt	0	0	0	0	21	51
Pre & Epost & MPost							
Dual Magnum & Dual Magnum & Dual Magnum	1.33 pt & 1.33 pt & 1.33 pt	0	0	0	0	21	54
Warrant & Warrant & Warrant	1.5 qt & 1.5 qt & 1.5 qt	0	2	0	1	22	53
LSD (0.05)		–	2	–	1	1	3

RCB: 4 reps
Variety: Mustang 13E335
Planting Date: 5/28/25
Pre: 5/28/25
Epost: 6/27/25 Soy 2 tri, 6-7 in.
Mpost: 7/9/25 Soy V6-R1, 10-12 in

Soil: Clay Loam; 5.1% OM; 5.6 pH

Precipitation: (inches)
Pre: 1st week 0.05; 2nd week 0.21

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)

Comments: More residual herbicides are being recommended to be applied at the postemergence timing. Some of these residual herbicides are readily available (i.e., Dual II Magnum) and others are encapsulated (i.e., Warrant) which are available after the encapsulation is broken down by water. The objective of this study was to determine if multiple applications of Dual II Magnum or Warrant could impact soybean yield. Very low levels of soybean injury was noted two weeks after the last herbicide application. No substantial soybean stunting was noted. Soybean yield was the same across treatments.

2025
GROUP 15 RESIDUAL HERBICIDES IN SOYBEANS
Volga Research Farm

Treatment	Rate/A	7/2/25			7/17/25			9/26/25			9/29/25
		Colq	Cowh	Grft	Colq	Cowh	Grft	Colq	Cowh	Grft	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	31
Pre & Post											
Sonic & Enlist One + Liberty Ultra + RU Pmax 3 + Superb HC + AMS	5 oz & 2 pt + 24 oz + 20 oz + 0.5% + 2 lb	75	78	79	99	96	89	99	96	92	52
Sonic + Dual II Mag & Enlist One + Liberty Ultra + RU Pmax 3 + Superb HC + AMS	5 oz + 2 pt & 2 pt + 24 oz + 20 oz + 0.5% + 2 lb	83	86	85	99	99	99	99	99	99	51
Sonic + Zidua SC & Enlist One + Liberty Ultra + RU Pmax 3 + Superb HC + AMS	5 oz + 3.5 oz & 2 pt + 24 oz + 20 oz + 0.5% + 2 lb	79	87	80	99	99	99	99	99	99	50
Sonic + Dual II Mag & Enlist One + Liberty Ultra + RU Pmax 3 + Superb HC + AMS	5 oz + 1 pt & 2 pt + 24 oz + 20 oz + 0.5% + 2 lb	78	89	88	99	99	99	99	99	99	53
Sonic + Zidua SC & Enlist One + Liberty Ultra + RU Pmax 3 + Superb HC + AMS	5 oz + 1.75 oz & 2 pt + 24 oz + 20 oz + 0.5% + 2 lb	84	88	84	99	98	98	99	99	98	52
Sonic & Enlist One + Liberty Ultra + RU Pmax 3 + Dual II Mag + Superb HC + AMS	5 oz & 2 pt + 24 oz + 20 oz + 2 pt + 0.5% + 2 lb	85	82	82	99	97	95	99	98	99	50
Sonic & Enlist One + Liberty Ultra + RU Pmax 3 + Zidua SC + Superb HC + AMS	5 oz & 2 pt + 24 oz + 20 oz + 3.5 oz + 0.5% + 2 lb	83	84	63	99	98	91	99	99	98	49
Sonic & Enlist One + Liberty Ultra + RU Pmax 3 + Dual II Mag + Superb HC + AMS	5 oz & 2 pt + 24 oz + 20 oz + 1 pt + 0.5% + 2 lb	79	80	73	99	98	93	99	99	99	51
Sonic & Enlist One + Liberty Ultra + RU Pmax 3 + Zidua SC + Superb HC + AMS	5 oz & 2 pt + 24 oz + 20 oz + 1.75 oz + 0.5% + 2 lb	80	85	75	99	97	96	99	98	98	49
Sonic + Dual II Mag & Enlist One + Liberty Ultra + RU Pmax 3 + Dual II Mag + Superb HC + AMS	5 oz + 1 pt & 2 pt + 24 oz + 20 oz + 1 pt + 0.5% + 2 lb	89	93	81	99	99	99	99	99	99	51
Sonic + Zidua SC & Enlist One + Liberty Ultra + RU Pmax 3 + Zidua SC + Superb HC + AMS	5 oz + 1.75 oz & 2 pt + 24 oz + 20 oz + 1.75 oz + 0.5% + 2 lb	82	89	77	99	98	98	99	99	98	50
LSD (0.05)		8	8	12	–	2	5	0.5	2	4	4

RCB: 4 reps
Variety: Mustang 13E335
Planting Date: 5/28/25
Pre: 5/28/25
Post: 7/1/25 Soy 3-4 tri, 8-10 in; Colq 2-10 in; Cowh 2-8 in; Grft 2-12 in.

Precipitation: (inches)
Pre: 1st week 0.05; 2nd week 0.21

Soil: Clay Loam; 5.1% OM; 5.6 pH

Colq=Common lambsquarters
Cowh=Common waterhemp
Grft=Green foxtail
Yeft=Yellow foxtail

Comments: The objective of this study was to determine the need for a soil residual herbicide (Dual II Mag or Zidua) to be applied with a Post herbicide to manage later emerging weeds. Weed control was variable with all Pre herbicide treatments where control ranged from 63 to 93% for all species. After the Post herbicide application, weed control was greater than 90% for all herbicide treatments. These results suggest that a soil residual herbicide can be applied with a Post herbicide to manage later emerging weeds but a Pre herbicide program containing multiple herbicides (i.e., Sonic or Sonic + Zidua) can be equally as effective.

South Dakota State University Extension

2025
SONIC BOOM ON SANDY SOILS
Southeast Research Farm

Treatment	Rate/A	6/12/25			6/25/25			7/1/25			7/8/25			10/1/25
		Chlor	Nec	Stunt	Chlor	Nec	Stunt	Stunt	Chlor	Nec	Chlor	Nec	Stunt	Yield Bu/A
Check & Enlist One + Liberty Ultra + Enversa + MSO + AMS	— & 32 oz + 24 oz + 48 oz + 1 pt + 3 lb	0	0	0	0	0	0	0	0	0	0	0	0	56
Pre & Post														
Sonic Boom & Enlist One + Liberty Ultra + Enversa + MSO + AMS	12 oz & 32 oz + 24 oz + 48 oz + 1 pt + 3 lb	0	0	0	0	0	2	2	0	0	0	0	1	57
Sonic Boom & Enlist One + Liberty Ultra + Enversa + MSO + AMS	14 oz & 32 oz + 24 oz + 48 oz + 1 pt + 3 lb	0	0	0	0	0	4	0	0	0	0	0	1	57
Sonic Boom & Enlist One + Liberty Ultra + Enversa + MSO + AMS	16 oz & 32 oz + 24 oz + 48 oz + 1 pt + 3 lb	0	0	0	0	0	3	1	0	0	0	0	1	55
Sonic Boom & Enlist One + Liberty Ultra + Enversa + MSO + AMS	18 oz & 32 oz + 24 oz + 48 oz + 1 pt + 3 lb	0	0	0	0	0	5	1	0	0	0	0	1	58
Sonic Boom & Enlist One + Liberty Ultra + Enversa + MSO + AMS	20 oz & 32 oz + 24 oz + 48 oz + 1 pt + 3 lb	0	0	0	0	0	6	12	0	0	0	0	2	58
Spartan + Tricor 4F & Enlist One + Liberty Ultra + Enversa + MSO + AMS	5.6 oz + 11.1 oz & 32 oz + 24 oz + 48 oz + 1 pt + 3 lb	0	0	0	1	0	8	4	0	0	0	0	2	58
LSD (0.05)		–	–	–	1	–	4	5	–	–	–	–	3	4

RCB: 4 reps
Variety: Pioneer P19A66E
Planting Date: 5/29/25
Pre: 5/29/25
Post: 7/1/25 Soy 3-4 tri, 9 in

Soil: Clay; 4.3% OM; 7.0 pH

Precipitation: (inches)
Pre: 1st week 0.68; 2nd week 0.00

Comments: The objective of this study was to determine soybean safety and yield with various rates of Sonic Boom (sulfentrazone and metribuzin). The study site was selected due to the relatively high pH that could cause more injury from the herbicides applied Pre. Some soybean stunting was noticed throughout the trial but at the end of the season, plants grew out of the injury. Soybean yield was similar between all tested rates of Sonic Boom and the comparison treatment of Enlist One + Liberty Ultra. The results of this study provides evidence that labeled rates of Sonic Boom will likely be safe on soybean.

South Dakota State University Extension

2025
ENVERSA & KYBER IN SOYBEAN
Volga Research Farm

Treatment	Rate/A	7/2/25	7/9/25				7/22/25			9/29/25
		VCRR	VCRR	Colq	Cowh	Gift	Colq	Cowh	Gift	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	30
Pre & Epost										
Kyber Pro & Enlist One + RU Powermax 3 + Amsol	1 pt & 32 oz + 30 oz + 2.5%	6	2	99	98	99	99	99	99	65
Kyber Pro & Enlist One + RU Powermax 3 + Enversa + Amsol	1 pt & 32 oz + 30 oz + 48 oz + 2.5%	3	1	99	97	99	99	99	99	66
Kyber Pro & Enlist One + Liberty Ultra + MSO + Amsol	1 pt & 32 oz + 24 oz + 1% + 2.5%	9	2	99	99	97	99	99	98	66
Kyber Pro & Enlist One + Liberty Ultra + Enversa + MSO + Amsol	1 pt & 32 oz + 24 oz + 48 oz + 1% + 2.5%	7	2	99	99	98	99	99	95	66
Sonic Boom & Enlist One + RU Powermax 3 + Dual Magnum + Amsol	14 oz & 32 oz + 30 oz + 1 pt + 2.5%	8	3	99	99	99	99	99	99	68
Sonic Boom & Enlist One + Liberty Ultra + Dual Magnum + MSO + Amsol	14 oz & 32 oz + 24 oz + 1 pt + 1% + 2.5%	10	6	99	99	89	99	99	92	66
LSD (0.05)		2	3	–	3	3	–	1	5	6

RCB: 4 reps
Variety: Brevant B152EE
Planting Date: 5/9/25
Pre: 5/10/25
Post: 6/27/25 Soy 3-4 tri, 10-12 in; Colq 2-9 in; Cowh 2-9 in; Gift 3-10 in.

Precipitation: (inches)
Pre: 1st week 0.60; 2nd week 1.72

Soil: Clay Loam; 5.2% OM; 6.0 pH

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)
Colq=Common lambsquarters
Cowh=Common waterhemp
Gift=Giant foxtail

Comments: This study investigated weed control and soybean injury + yield between the preemergence herbicides Kyber Pro, Enversa, and Sonic Boom. Early season soybean injury was apparent but never exceeded 10%. At the end of the season, all weeds were controlled greater than 90%. Yields were greater than 60 Bu/A, suggesting the herbicides effectively managed weeds and the injury did not cause a yield loss.

South Dakota State University Extension

2025
AUTHORITY & ANTHEM MAXX PROGRAMS FOR RESIDUAL CONTROL IN SOYBEAN
Volga Research Farm

Treatment	Rate/A	5/22/25	5/28/25	6/10/25			6/24/25			7/2/25			9/29/25
		VCRR	VCRR	Colq	Cowh	Gift	Colq	Cowh	Gift	Colq	Cowh	Gift	Yield Bu/A
Check	—	0	0	0	0	0	0	0	0	0	0	0	27
Pre													
Authority Supreme	8 oz	0	0	99	94	80	94	80	70	92	74	70	46
Authority Edge	8 oz	0	0	99	95	83	95	75	66	95	73	54	34
Tendovo	56 oz	0	0	99	99	96	97	86	86	94	80	84	52
Anthem Maxx	4 oz	0	0	85	93	87	83	74	68	73	67	73	42
Pre & Post													
Authority Supreme & Anthem Maxx	6.5 oz & 2.4 oz	0	0	99	92	90	94	79	71	94	79	76	47
Authority Edge & Anthem Maxx	7 oz & 3 oz	0	0	99	96	77	96	78	57	92	81	62	40
LSD (0.05)		–	–	6	6	13	11	6	15	8	9	12	6

RCB: 4 reps
Variety: Brevant B152EE
Planting Date: 5/9/25
Pre: 5/10/25
Post: 6/27/25 Soy 3-4 tri, 10-12 in; Colq 2-9 in; Cowh 2-9 in; Gift 3-10 in.

Precipitation: (inches)
Pre: 1st week 0.26; 2nd week 0.84

Soil: Clay Loam; 5.2% OM; 6.0 pH

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)
Colq=Common lambsquarters
Cowh=Common waterhemp
Gift=Giant foxtail

Comments: The objective of this study was to determine the effectiveness of Authority and Anthem Maxx herbicides to manage weeds in soybean. Authority Edge provided low grass weed control which in return provided a lower soybean yield compared with other herbicide programs. While some of the Pre only herbicide programs provided effective weed management and relatively high yields, Post herbicides should be used to manage later emerging weeds to keep yield potential great.

South Dakota State University Extension

2025
ZIDUA PRO COMPARISONS
Southeast Research Farm

Treatment	Rate/A	6/12/25				6/25/25				7/1/25				7/8/25			
		Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft
Check	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre																	
Tendovo	48 oz	91	99	99	99	85	91	95	96	73	93	87	93	83	89	83	91
Kyber	16 oz	87	99	94	99	81	93	84	99	71	90	82	95	73	83	83	92
Zidua Pro	6 oz	97	99	99	99	96	97	89	99	98	97	90	97	90	92	89	99
Boundary	24 oz	72	99	98	99	60	92	88	99	56	91	85	94	25	82	74	92
Spartan + Tricor 4F	3.92 oz + 8 oz	86	99	97	99	80	93	81	88	70	93	79	90	63	86	75	90
Authority Supreme	6.5 oz	70	99	85	99	74	91	81	94	68	90	83	95	52	89	82	89
LSD (0.05)		10	0.5	7	–	16	6	11	7	20	6	10	6	36	11	10	9

RCB: 4 reps
Variety: Mustang 20E723
Planting Date: 5/29/25
Pre: 5/29/25

Soil: Clay; 4.8% OM; 7.0 pH

Precipitation: (inches)
Pre: 1st week 0.68; 2nd week 0.00

Vele=Velvetleaf
Colq=Common lambsquarters
Cowh=Common waterhemp
Grft=Green foxtail

Comments: The study was conducted to determine the effectiveness of Zidua Pro (Pursuit, Sharpen, and Zidua) compared with other commonly applied soybean Pre herbicides. Several products provided poor control of velvetleaf. This result is not unexpected as velvetleaf is difficult to manage with Pre herbicides due to the large seed size. However, Zidua Pro and Tendovo effectively managed velvetleaf. Weed control across species ranged from 74 to 99% with all tested herbicides. These results suggest that Zidua Pro is an effective Pre herbicide in soybean compared with other commonly applied Pre herbicides.

South Dakota State University Extension

2025
LIBERTY ULTRA RELATIVE HUMIDITY
Southeast Research Farm

Treatment	Rate/A	7/15/25				7/23/25				7/31/25			
		Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft
Check	—	0	0	0	0	0	0	0	0	0	0	0	0
Pre													
Outlook	5 oz	0	0	0	0	0	0	0	0	0	0	0	0
Pre & Post1													
Outlook & Surmise 5	5 oz & 18.4 oz	91	77	89	94	83	67	87	92	86	78	92	96
Outlook & Interline	5 oz & 36 oz	95	90	92	97	87	80	89	99	91	91	91	98
Outlook & Liberty Ultra	5 oz & 24 oz	88	94	94	99	86	90	90	98	86	95	94	99
Pre & Post2													
Outlook & Surmise 5	5 oz & 21.5 oz	82	87	79	83	77	73	66	85	78	75	79	93
Outlook & Interline	5 oz & 43 oz	89	92	88	93	80	86	78	93	82	87	83	94
Outlook & Liberty Ultra	5 oz & 29 oz	84	93	82	88	76	89	74	90	72	90	81	89
Outlook & Liberty Ultra	5 oz & 34 oz	93	96	88	92	85	91	84	97	90	97	91	97
LSD (0.05)		9	7	7	6	13	9	11	9	14	8	6	6

RCB: 4 reps
Variety: Mustang 20E723
Planting Date: 5/29/25
Pre: 5/29/25
Post1: 7/1/25 Soy 3-4 tri, 9 in; Vele 2-9 in; Colq 2-7 in; Cowh 2-8 in; Grft 3-8 in.
Post2: 7/7/25 Soy 5 tri, 9-12 in; Vele 10-22 in; Colq 8-26 in; Cowh 10-15 in; Grft 12-17 in.

Precipitation: (inches)
Pre: 1st week 0.68; 2nd week 0.00

Soil: Clay; 4.8% OM; 7.0 pH

Vele=Velvetleaf
Colq=Common lambsquarters
Cowh=Common waterhemp
Grft=Green foxtail

Comments: The objective of this study was to evaluate glufosinate formulations (Liberty Ultra, Interline and Surmise 5) applied under different environmental conditions on weed control. Note that weeds were larger than 4" at the times of application. No control differences were detected between herbicide treatments and application timings. These results suggest that all glufosinate formulations applied at an effective rate will provide similar weed control. Weeds were treated at a larger size to determine differences between herbicides and timings; weeds should smaller than 4" at the time of application for greater control.

2025
LIBERTY ULTRA FORMULATION SUPERIORITY
Southeast Research Farm

Treatment	Rate/A	7/8/25				7/15/25				7/23/25				7/31/25			
		Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft	Vele	Colq	Cowh	Grft
Check	---	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre																	
Outlook	5 oz	13	75	75	80	80	83	79	92	0	0	0	0	0	0	0	0
Pre & Post																	
Outlook & Surmise 5	5 oz & 18.4 oz	75	85	89	89	68	75	82	99	66	75	87	94	65	77	88	95
Outlook & Surmise 5 + NIS	5 oz & 18.4 oz + 0.25%	71	89	87	91	60	85	75	96	68	73	88	92	64	68	88	95
Outlook & Interline	5 oz & 36 oz	73	89	93	95	54	88	72	99	62	73	91	88	53	70	87	95
Outlook & Liberty Ultra	5 oz & 24 oz	73	89	88	89	78	87	73	97	68	88	89	97	64	89	91	96
LSD (0.05)		13	6	4	5	26	15	13	5	12	14	6	8	15	10	5	1

RCB: 4 reps
Variety: Mustang 20E723
Planting Date: 5/29/25
Pre: 5/29/25
Post: 7/1/25 Soy 3-4 tri, 9 in; Vele 2-9 in; Colq 2-7 in; Cowh 2-8 in; Grft 3-8 in.

Precipitation: (inches)
Pre: 1st week 0.68; 2nd week 0.00

Soil: Clay; 4.8% OM; 7.0 pH

Vele=Velvetleaf
Colq=Common lambsquarters
Cowh=Common waterhemp
Grft=Green foxtail

Comments: The objective of this study was to compare weed control between various glufosinate formulations (Liberty Ultra, Interline, and Surmise 5) applied at similar active ingredient rate. Weed control was similar across herbicide treatments. Weeds were treated at a larger size to determine differences between herbicides and timings; weeds should smaller than 4” at the time of application for greater control.

South Dakota State University Extension

2025 ADJUVANTS WITH GLUFOSINATE & GLYPHOSATE IN SOYBEANS

Northeast Research Farm

Treatment	Rate/A	7/11/25			7/18/25		7/24/25	
		Wimu	Rrpw	Yeft	Rrpw	Yeft	Rrpw	Yeft
Check	—	0	0	0	0	0	0	0
Post								
Liberty Ultra + AMS + Activator 90	14 oz + 3 lb + 0.25%	99	59	46	63	46	66	48
Liberty Ultra + AMS + Agrasyst 90	14 oz + 3 lb + 0.25%	97	66	46	71	49	65	43
Liberty Ultra + Full Load + AMS	14 oz + 0.25% + 2 lb	99	61	49	66	54	59	46
Cornerstone 5 Plus + Full Load	20 oz + 0.25%	99	93	93	90	97	85	92
Cornerstone 5 Plus + Class Act NG	20 oz + 4%	97	91	96	85	99	83	97
Cornerstone 5 Plus + NIS + AMS	20 oz + 0.25% + 3.4 lb	99	92	96	92	99	90	94
LSD (0.05)		5	12	9	10	8	8	9

RCB: 4 reps
Variety: Mustang 10E125
Planting Date: 5/30/25
Post: 7/3/25 Soy 2-3 tri, 10 in; Rrpw 4-12 in; Wimu 7-12 in; Yeft 6-14 in.

Soil: Clay Loam; 3.0% OM; 6.1 pH

Rrpw=Redroot pigweed
Wimu=Wild mustard
Yeft=Yellow foxtail

Comments: Different adjuvants were applied with Liberty Ulta or Cornerstone 5 to determine the effect on weed control. Lower rates were utilized for each herbicide to determine weed control differences with the various adjuvants. End of season weed control did not differ between the adjuvants for each herbicide.

South Dakota State University Extension

2025
POST RESIDUALS IN WHEAT
Northeast Research Farm

Treatment	Rate/A	6/23/25 Plant/Ft²							8/11/25 Plant/Ft²								8/27/25
		Corw	Colq	Cowh	Wibw	Wioa	Bygr	Yeft	Corw	Colq	Cowh	Wibw	Wioa	Bygr	Yeft	Wocg	Yield Bu/A
Check	—	10	16	12	7	8	19	8	4	6	1	1	0	0	11	0	19
Post																	
Huskie Complete	13.7 oz	1	1	7	2	3	30	2	0	0	1	0	0	1	3	20	39
Huskie Complete + Prowl H2O	13.7 oz + 3 pt	1	1	5	0	3	22	0	0	0	0	0	0	1	2	18	41
Huskie Complete + Zidua SC	13.7 oz + 4 oz	0	1	5	2	1	23	0	0	0	1	0	0	0	6	8	45
Huskie Complete + Prowl H2O + Zidua SC	13.7 oz + 3 pt + 4 oz	0	2	2	0	3	17	0	0	0	0	1	0	0	4	2	42
LSD (0.05)		2	5	6	4	4	21	6	1	2	2	1	0.5	1	11	13	5

RCB: 3 reps
Variety: Driver
Planting Date: 4/16/25
Post: 5/31/25 Sp Wht 3-4 lf tiller, 8-11 in; Colq 1-4 in; Wibw 1-3 in; Bygr 2 lf, 1-2 in; Yeft 2 lf, 1-2 in.

Soil: Clay Loam; 3.0% OM; 6.1 pH

Corw=Common ragweed
Colq=Common lambsquarters
Cowh=Common waterhemp
Wibw=Wild buckwheat
Wioa=Wild oat
Bygr=Barnyardgrass
Yeft=Yellow foxtail
Wocg=Woolly cupgrass

Comments: The objective of this study was to determine the effect of soil residual herbicides (Prowl H20, Zidua, or Prowl H2) + Zidua) applied with a Post herbicide on weed management and wheat yield. Weed control was not influenced by the inclusion of any soil residual herbicide. Yield was similar with all herbicide treatments.

South Dakota State University Extension

2025
POST RESIDUALS IN WHEAT
Volga Research Farm

Treatment	Rate/A	7/24/25
		Wioa Plant/Ft²
Check	—	47
Post		
Huskie Complete	13.7 oz	28
Huskie Complete + Prowl H2O	13.7 oz + 3 pt	21
Huskie Complete + Zidua SC	13.7 oz + 4 oz	24
Huskie Complete + Prowl H2O + Zidua SC	13.7 oz + 3 pt + 4 oz	17
LSD (0.05)		12

RCB: 4 reps
Variety: Brawn
Planting Date: 4/21/25
Post: 6/4/25 Sp Wht 4 lf tiller, 12-15 in; Wioa 12-16 in.

Soil: Clay Loam; 5.1% OM; 5.6 pH

Wioa=Wild oat

Comments: The objective of this study was to determine the effect of soil residual herbicides (Prowl H20, Zidua, or Prowl H2) + Zidua) applied with a Post herbicide on wild oat management. Weed control was not influenced by the inclusion of any soil residual herbicide. Weed control was relatively poor (~50%); therefore, other herbicides may need to be utilized to effectively manage wild oat.

South Dakota State University Extension

2025
VIOS FX + TANK MIX PARTNERS FOR GRASS
Northeast Research Farm

Treatment	Rate/A	6/9/25				6/13/25	6/23/25			7/11/25		
		VCRR	Wocg	Bygr	Grft	VCRR	Wocg	Bygr	Grft	Wocg	Grft	Bygr
Check	—	0	0	0	0	0	0	0	0	0	0	0
Post												
Vios FX	13.69 oz	0	22	84	59	0	55	88	81	63	82	92
Vios FX + Huskie	13.69 oz + 12.8 oz	0	22	53	28	1	55	82	77	64	83	91
Vios FX + Bison	13.69 oz + 16 oz	4	18	67	37	2	43	84	80	53	91	93
Vios FX + 2,4-D ester	13.69 oz + 0.5 pt	0	20	69	37	8	48	92	80	58	74	92
Vios FX + Quelex + NIS	13.69 oz + 0.75 oz + 0.25%	0	20	68	30	3	53	87	79	59	87	90
Vios FX + Affinity Br-Spec + MCPA ester	13.69 oz + 0.4 oz + 8 oz	0	20	73	47	0	55	91	84	66	84	92
OnDeck + MSO	11 oz + 1%	0	65	82	68	0	58	72	67	76	76	86
Everest 3.0	1 oz	0	17	17	13	0	48	67	63	65	74	89
Varro	6.84 oz	0	20	72	27	0	66	81	79	58	90	92
LSD (0.05)		2	11	12	23	2	11	6	6	18	18	7

RCB: 3 reps
Variety: Driver
Planting Date: 4/16/25
Post: 5/31/25 Sp Wht 3-4 lf tiller, 8-11 in; Wocu 2 lf, 1-2 in; Bygr 2 lf, 1-2 in; Grft 2 lf, 1-2 in.

Soil: Clay Loam; 3.0% OM; 6.1 pH

VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)
Wocu=Woolly cupgrass
Bygr=Barnyardgrass
Grft=Green foxtail

Comments: The objective of this study was to determine the effectiveness of Vios FX to manage grass weeds when mixed with broadleaf weed herbicides and compared with other commonly applied herbicides. The addition of broadleaf weed herbicides with Vios FX did reduce grass weed control at the end of the season. Grass weed control of Vios FX was similar to other herbicides commonly applied in wheat. These results suggest that Vios FX can be mixed with broadleaf herbicides to effectively manage weeds in wheat.

South Dakota State University Extension

2025
HUSKIE FX FOR BROADLEAVES
Northeast Research Farm

Treatment	Rate/A	6/9/25				6/13/25	6/23/25			7/11/25			8/27/25
		VCRR	Corw	Colq	Wibw	VCRR	Corw	Colq	Wibw	Corw	Colq	Wibw	Yield Lb/A
Check	—	0	0	0	0	0	0	0	0	0	0	0	27
Post													
Huskie FX	15.5 oz	0	89	69	85	0	99	99	99	99	99	99	53
Huskie FX	18 oz	0	90	78	88	0	99	99	99	99	99	99	51
Talinor + CoAct+	13.7 oz + 2.75 oz	0	90	66	81	0	99	99	99	99	99	95	54
Bison	16 oz	0	87	72	63	2	97	99	78	99	99	92	49
WideARmatch + MCPA ester	14 oz + 8 oz	0	50	50	50	0	99	99	98	99	99	99	51
OnDeck + MSO	11 oz + 1%	0	85	78	46	0	99	99	69	99	99	83	43
Huskie + Vios FX	12.8 oz + 13.69 oz	0	90	74	74	0	99	99	99	99	99	99	50
OnDeck + MSO	14.7 oz + 1%	0	90	73	44	0	98	99	76	99	99	87	41
Huskie	12.8 oz	0	89	73	62	0	99	99	94	99	99	95	46
LSD (0.05)		–	4	8	12	1	2	–	8	–	–	6	8

RCB: 4 reps
Variety: Driver
Planting Date: 4/16/25
Post: 5/31/25 Sp Wht 3-4 lf tiller, 8-10 in; Corw 2-5 in; Colq 1-6 in; Wibw 2-6 in.

Precipitation: (inches)
Pre: 1st week 0.24; 2nd week 0.62

Soil: Clay Loam; 4.1% OM; 5.8 pH

VCRR=Visual Crop Reponse Rating (0=no injury; 100=complete kill)
Corw=Common ragweed
Colq=Common lambsquarters
Wibw=Wild buckwheat

Comments: The objective of this study was to determine the effectiveness of Huskie FX compared with other commonly applied wheat herbicides to manage broadleaf weeds. All herbicides provided similar broadleaf weed control and wheat yield. These results suggest that Huskie FX has effectiveness as other standard herbicides applied in wheat.

South Dakota State University Extension

2025
ZIDUA APPLICATION TIMING IN SUNFLOWER
Volga Research Farm

Treatment	Rate/A	7/22/25			10/9/25	10/9/25
		Colq	Cowh	Gift	VCRR Lodging	Yield Lb/A
Check	—	0	0	0	6	1950
Pre						
Broadaxe XC	30 oz	99	91	70	29	1811
Pre & Epost-V1						
Broadaxe XC & Zidua SC	30 oz & 3.25 oz	99	98	92	56	1505
Pre & Epost-V2						
Broadaxe XC & Zidua SC	30 oz & 3.25 oz	99	96	75	61	1428
Pre & Epost-V4						
Broadaxe XC & Zidua SC	30 oz & 3.25 oz	99	90	73	53	1548
Broadaxe XC & Express 50SG + Select Max + COC	30 oz & 1 oz + 16 oz + 1%	99	95	98	33	1733
Pre & Epost-V6						
Broadaxe XC & Zidua SC	30 oz & 3.25 oz	99	97	71	51	1580
Pre & Epost-V8						
Broadaxe XC & Zidua SC	30 oz & 3.25 oz	99	90	71	48	1573
LSD (0.05)		0.5	6	9	27	376

RCB: 4 reps
Variety: N4H205E
Planting Date: 6/3/25
Pre: 6/4/25
Epost-V1: 6/23/25 Sunf V2-4
Epost-V2: 6/27/25 Sunf V4-6, 4-7 in.
Epost-V4: 7/1/25 Sunf V7-8, 8-10 in.
Epost-V6: 7/6/25 Sunf V10, 15-18 in.
Epost-V8: 7/9/25 Sunf V12-13, 22-26 in.

Soil: Clay Loam; 5.1% OM; 5.6 pH

Precipitation: (inches)
Pre: 1st week 0.21; 2nd week 0.36

Cowh=Common waterhemp
Colq=Common lambsquarters
Gift=Giant foxtail
VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)

Comments: The objective of this study was to determine the most effective timing to apply Zidua Post in sunflower for residual weed control. Broadleaf weed control was similar with all tested herbicide treatments. Giant foxtail control was improved with Zidua was applied at the V1 timing. Lodging occurred significantly with all herbicide treatments. Similar yield was provided with all treatments. The results of this study suggest that Post-applied Zidua may not improve residual weed control or sunflower yield if a strong Pre herbicide is applied at planting or a Pre & Post herbicide program is utilized.

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2025
MELATONIN SAFENER IN SUNFLOWER
Volga Research Farm

Treatment	Rate/A	7/9/25					7/17/25					7/22/25					10/9/25
		VCRR	Height (in.)	Colq	Cowh	Gift	VCRR	Height (in.)	Colq	Cowh	Gift	VCRR	Height (in.)	Colq	Cowh	Gift	Yield Lb/A
Check	—	0	23	0	0	0	0	36	0	0	0	0	44	0	0	0	2213
Pre & Post																	
Dual Magnum & Melatonin + NIS	1 pt & 40 g + 0.25%	0	22	0	0	0	0	37	0	0	0	0	46	0	0	0	2073
Dual Magnum & Ultra Blazer + NIS	1 pt & 1 pt + 0.25%	53	14	54	81	13	49	21	69	83	23	38	27	50	89	8	1705
Dual Magnum & Ultra Blazer + Melatonin + NIS	1 pt & 1 pt + 40 g + 0.25%	38	14	34	78	9	37	23	62	87	30	31	32	45	89	20	1944
Dual Magnum & Starane Ultra + NIS	1 pt & 0.4 pt + 0.25%	66	9	8	8	0	73	9	0	0	0	73	12	13	5	0	39
Dual Magnum & Starane Ultra + Melatonin +NIS	1 pt & 0.4 pt + 40 g +0.25%	66	9	10	4	0	72	10	0	0	0	70	11	15	18	0	119
LSD (0.05)		7	2	10	9	6	7	2	8	4	7	6	5	18	12	7	207

RCB: 4 reps
Variety: N4H205
Planting Date: 6/3/25
Pre: 6/4/25
Post: 7/2/24 Sunf V8 10 in; Cowh 0.5-5 in Colq 0.5-5 in; Gift 3-7 in.

Precipitation: (inches)
Pre: 1st week 0.21; 2nd week 0.36

Soil: Clay Loam; 5.1% OM; 5.6 pH

Cowh=Common waterhemp
Colq=Common lambsquarters
Gift=Giant foxtail
VCRR=Visual Crop Response Rating (0=no injury; 100=complete kill)

Comments: The objective of this study was to determine if melatonin could be used a safener to potentially reduce injury and yield loss from herbicides that are effective on kochia (Ultra Blazer and Starane Ultra). Melatonin alone did not cause any injury or yield loss. Weed control with and without melatonin was not different with each herbicide. Injury and height reductions were observed with both herbicides with and without melatonin. While the Ultra Blazer treatments did not reduce yield, this treatment is still not labeled for application in sunflower.