

Spring Expert Treatments for No-Till Corn

Trial ID: NTCornExpert03 **Study Director:**
Location: Parker South #2 **Investigator:** David L Regehr

Crop Description	
Crop 1: ZEAMX	Zea mays Corn
Variety:	Asgrow RX718RR
BBCH Scale:	BCOR Planting Date: 12/May/2003
Planting Method:	JD 7200 Max-Emerge
Depth, Unit:	2 in
Row Spacing, Unit:	30 in
Seed Bed:	Good Soil Temperature, Unit: 65 F
Soil Moisture:	Moist Emergence Date: 19/May/2003

Pest Description	
Pest 1 Type: W	Code: LAMAM Lamium amplexicaule Common Name: Henbit Description: winter annual
Pest 2 Type: W	Code: BROTE Bromus tectorum Common Name: Downy brome Description: winter annual
Pest 3 Type: W	Code: THLAR Thlaspi arvense Common Name: Field pennycress Description: winter annual
Pest 4 Type: W	Code: CONCA Conyza canadensis Common Name: Horseweed (marestail) Description: winter annual
Pest 5 Type: W	Code: SETFA Setaria faberi Common Name: Giant foxtail
Pest 6 Type: W	Code: AMAPA Amaranthus palmeri Common Name: Amaranth, Palmer
Pest 7 Type: W	Code: ABUTH Abutilon theophrasti Common Name: Velvetleaf

Site and Design	
Plot Width, Unit: 6.67	FT Site Type: CROPLAND
Plot Length, Unit: 25	FT Tillage Type: NO-TILL
Replications: 4	Study Design: Randomized Complete Block

Trial Initiation Comments:
 .ong-term no-till

	Previous Crops	Previous Pesticides	Year
1.	soybean	various	2002

Field Prep./Maintenance:
 .ong-term no-till

Soil Description	
% Sand: 21	% OM: 3.0 Texture: silt loam
% Silt: 58	pH: 6.4 Soil Name: Kahola
% Clay: 21	CEC: 18 Fert. Level: good

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Application Description

	A	B	C
Application Date:	23/Apr/2003	13/May/2003	30/May/2003
Time of Day:	11:30 AM	7 PM	8:20 AM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	15 DEPP	PRE	EP
Application Placement:	FOLIAR	FOLIAR	FOLIAR
Applied By:	Regehr, D.	Regehr, D.	J. MILLER
Air Temperature, Unit:	63 F	72 F	75 F
% Relative Humidity:	56	65	68
Wind Velocity, Unit:	6 SE	4 SW	1 CALM
Dew Presence (Y/N):	N	N	N
Water Hardness:	city H2O	city	city H2O
Soil Temperature, Unit:	54 F	63 F	73 F
Soil Moisture:	ADEQUATE	ADEQUATE	ADEQUATE
% Cloud Cover:	99	100	50

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:	BBCH	BBCH	BBCH
Stage Majority, Percent:		2-3 LF 100	
Height, Unit:		4 IN	

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Disc., Scale:	LAMAM W	LAMAM W	LAMAM W
Stage Majority, Percent:	bloom 80		
Stage Minimum, Percent:	bloom		
Stage Maximum, Percent:	dying		
Height, Unit:	5 IN		
Height Minimum, Maximum:	3 6		
Density, Unit:	40 YD2		
Coverage, Unit:	75 %		
Pest 2 Code, Disc., Scale:	BROTE W	BROTE W	BROTE W
Stage Majority, Percent:	tiller		
Height, Unit:	6 IN		
Height Minimum, Maximum:	4 6		
Coverage, Unit:	spotty		
Pest 3 Code, Disc., Scale:	THLAR W	THLAR W	THLAR W
Height, Unit:	4 IN		
Height Minimum, Maximum:	3 5		
Density, Unit:	1 plt/yd2		
Pest 4 Code, Disc., Scale:	CONCA W	CONCA W	CONCA W
Stage Majority, Percent:	rosett 100		
Diameter, Unit:	5 IN		
Height Minimum, Maximum:	2 5		
Density, Unit:	1 plt/yd2		
Pest 5 Code, Disc., Scale:	SETFA W	SETFA W	SETFA W
Stage Majority, Percent:	PRE		
Height, Unit:		1 IN	
Pest 6 Code, Disc., Scale:	AMAPA W	AMAPA W	AMAPA W
Height, Unit:		1 IN	4 IN
		few	few
Pest 7 Code, Disc., Scale:	ABUTH W	ABUTH W	ABUTH W
			few

Application Equipment

	A	B	C
Appl. Equipment:	CO2 bkpk	CO2 bkpk	CO2 bkpk
Operating Pressure:	26	26	25
Pressure Unit:	PSI	PSI	PSI
Nozzle Type:	turbo tee	Turbo tee	turbo tee
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	19 IN	19 IN	19 IN
Boom Length, Unit:	76 IN	76 IN	76 IN
Boom Height, Unit:	14 IN	20 IN	20 IN
Carrier:	water	water	water
Spray Volume:	15	15	15
Volume Unit:	GAL/AC	GAL/AC	GAL/AC
Propellant:	CO2	CO2	CO2

Trial Comments

Herbicide treatments and timings were designed to burn down winter annual weeds and control summer annuals into the corn growing season. Some treatments contained only non-residual burndown herbicides.

Henbit (LAMAM) control was only fair for glyphosate alone, whether using Touchdown or WeatherMax. Adding a pint of 2,4-D LV4 or 2 fl oz Clarity enhanced henbit control, but the largest boost in control was in treatments containing atrazine (Expert and Fieldmaster).

Very good to excellent downy brome (BROTE) control was seen for all treatments containing glyphosate.

Field pennycress (THLAR) and horseweed (CONCA) control was generally excellent.

Treatments sprayed 15 days preplant on April 23 were in excellent condition for planting on May 12. In contrast, plots with no early preplant burndown were overgrown with henbit and scattered clumps of downy brome. There, corn seed placement was not as good, and some plots had poor corn emergence.

Control of giant foxtail (SETFA), Palmer amaranth, (AMAPA) and velvetleaf (ABUTH) followed similar patterns. Almost no residual benefit was seen from adding low rates of 2,4-D or dicamba to the glyphosate mixture. The 2-week earlier application for the 15 DEPP treatments severely compromised later herbicide activity on summer annual weeds. Palmer amaranth was the dominant weed, over-topping corn in height.

Fields to be no-till planted to corn should have fall or early-spring herbicide applications to control winter annuals. This will permit earlier corn planting, under much improved conditions. Where winter annuals have been previously controlled, early postemerge treatments with herbicides such as Expert or Fieldmaster (containing glyphosate, atrazine and acid amide herbicides) should provide very good control of summer annual weeds well into the growing season.

Corn yields in this test reflect two things: 1) whether winter annuals were controlled before planting, so that corn emerged better and more evenly, and 2) herbicides that controlled Palmer amaranth in the growing corn. Two-shot treatments were far superior to single treatments. A very good weed management program for no-till corn in Kansas would be to control winter annuals with a fall application, plant early, and then apply postemerge herbicides before weeds begin to stress the corn.

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Pest Type				W Weed LAMAM	W Weed BROTE	W Weed THLAR	W Weed CONCA	
Pest Code								
Crop Code								
BBCH Scale								
Description								
Rating Date				13/May/2003	13/May/2003	13/May/2003	13/May/2003	
Rating Data Type				CONTRO	CONTRO	CONTRO	CONTRO	
Rating Unit								
Number of Decimals								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	1	2	3	4
1	Touchdown Ammonium Sulfate	0.75	lb ae/a	15 DEPP	74 b	84 a	80 b	
		10	lb/100 gal	15 DEPP				
2	Expert Ammonium Sulfate	3	qt/a	15 DEPP	95 a	94 a	97 a	93 a
		10	lb/100 gal	15 DEPP				
3	Expert Ammonium Sulfate	3	qt/a	PREPRE				
		10	lb/100 gal	PREPRE				
4	Expert Ammonium Sulfate	3.75	qt/a	15 DEPP	97 a	96 a	97 a	99 a
		10	lb/100 gal	15 DEPP				
5	Expert Ammonium Sulfate	3.75	qt/a	PREPRE				
		10	lb/100 gal	PREPRE				
6	Fieldmaster Ammonium Sulfate	4	qt/a	15 DEPP	94 a	86 a	90 a	88 a
		10	lb/100 gal	15 DEPP				
7	Fieldmaster Ammonium Sulfate	4	qt/a	PREPRE				
		10	lb/100 gal	PREPRE				
8	WeatherMax Ammonium Sulfate	0.67	qt/a	15 DEPP	75 b	88 a	93 a	96 a
		10	lb/100 gal	15 DEPP				
9	WeatherMax Ammonium Sulfate	0.67	qt/a	PREPRE				
		10	lb/100 gal	PREPRE				
10	Touchdown 2,4-D Ester	0.56	lb ae/a	15 DEPP	85 ab	89 a	96 a	99 a
		0.5	qt/a	15 DEPP				
	Clarity Ammonium Sulfate	2	fl oz/a	15 DEPP				
		10	lb/100 gal	15 DEPP				
11	Touchdown 2,4-D Ester	0.56	lb ae/a	15 DEPP	84 ab	90 a	97 a	97 a
		0.5	qt/a	15 DEPP				
	Clarity Ammonium Sulfate	2	fl oz/a	15 DEPP				
		10	lb/100 gal	15 DEPP				
	Expert Ammonium Sulfate	2.5	qt/a	EAPOWE				
		10	lb/100 gal	EAPOWE				
12	Touchdown 2,4-D Ester	0.56	lb ae/a	15 DEPP	84 ab	93 a	96 a	99 a
		0.5	qt/a	15 DEPP				
	Clarity Ammonium Sulfate	2	fl oz/a	15 DEPP				
		10	lb/100 gal	15 DEPP				
13	Touchdown 2,4-D Ester	0.56	lb ae/a	15 DEPP	85 ab	88 a	95 a	99 a
		0.5	qt/a	15 DEPP				
	Clarity Ammonium Sulfate	2	fl oz/a	15 DEPP				
		10	lb/100 gal	15 DEPP				
	Expert Ammonium Sulfate	3	qt/a	EAPOWE				
		10	lb/100 gal	EAPOWE				
14	Touchdown 2,4-D Ester	0.56	lb ae/a	15 DEPP	83 ab	93 a	95 a	99 a
		0.5	qt/a	15 DEPP				
	Clarity Ammonium Sulfate	2	fl oz/a	15 DEPP				
		10	lb/100 gal	15 DEPP				
15	Touchdown 2,4-D Ester	0.56	lb ae/a	15 DEPP	86 ab	91 a	94 a	99 a
		0.5	qt/a	15 DEPP				
	Clarity Ammonium Sulfate	2	fl oz/a	15 DEPP				
		10	lb/100 gal	15 DEPP				
	Fieldmaster Ammonium Sulfate	4	qt/a	EAPOWE				
		10	lb/100 gal	EAPOWE				
16	Touchdown 2,4-D Ester	0.56	lb ae/a	15 DEPP	86 ab	87 a	95 a	99 a
		0.5	qt/a	15 DEPP				
	Clarity Ammonium Sulfate	2	fl oz/a	15 DEPP				
		10	lb/100 gal	15 DEPP				

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					W Weed LAMAM	W Weed BROTE	W Weed THLAR	W Weed CONCA
Pest Type								
Pest Code								
Crop Code								
BBCH Scale								
Description								
Rating Date					13/May/2003	13/May/2003	13/May/2003	13/May/2003
Rating Data Type					CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit								
Number of Decimals								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	1	2	3	4
17	Touchdown	0.56	lb ae/a	15 DEPP	83 ab	86 a	90 a	95 a
	2,4-D Ester	0.5	qt/a	15 DEPP				
	Clarity	2	fl oz/a	15 DEPP				
	Ammonium Sulfate	10	lb/100 gal	15 DEPP				
	WeatherMax	0.67	qt/a	EAPOWE				
	Ammonium Sulfate	10	lb/100 gal	EAPOWE				
18	WeatherMax	0.67	qt/a	15 DEPP	86 ab	88 a		99 a
	Ammonium Sulfate	10	lb/100 gal	15 DEPP				
	WeatherMax	0.67	qt/a	EAPOWE				
	Ammonium Sulfate	10	lb/100 gal	EAPOWE				
19	WeatherMax	0.67	qt/a	PREPRE				
	Ammonium Sulfate	10	lb/100 gal	PREPRE				
	WeatherMax	0.67	qt/a	EAPOWE				
	Ammonium Sulfate	10	lb/100 gal	EAPOWE				
LSD (P=.05)					9.5	8.6	7.3	7.8
CV					7.79	6.72	5.16	4.96

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Investigator: David L Regehr

Pest Type	W Weed	W Weed	W Weed					
Pest Code	SETFA	AMAPA	ABUTH					
Crop Code				ZEAMX				
BBCH Scale				BCOR				
Description								
Rating Date	19/Jun/2003	19/Jun/2003	19/Jun/2003	29/Sep/2003				
Rating Data Type	CONTRO	CONTRO	CONTRO	YIELD				
Rating Unit				BU/ACRE				
Number of Decimals				0				
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	5	6	7	10
1	Touchdown Ammonium Sulfate	0.75 lb ae/a	10 lb/100 gal	15 DEPP	0 d	0 c	0 c	29 f
2	Expert Ammonium Sulfate	3 qt/a	10 lb/100 gal	15 DEPP	83 abc	70 b	74 b	90 bcd
3	Expert Ammonium Sulfate	3 qt/a	10 lb/100 gal	PREPRE	94 ab	99 a	92 a	107 abc
4	Expert Ammonium Sulfate	3.75 qt/a	10 lb/100 gal	15 DEPP	85 abc	76 b	71 b	103 abc
5	Expert Ammonium Sulfate	3.75 qt/a	10 lb/100 gal	PREPRE	97 ab	99 a	95 a	122 abc
6	Fieldmaster Ammonium Sulfate	4 qt/a	10 lb/100 gal	15 DEPP	80 bc	74 b	84 ab	88 cd
7	Fieldmaster Ammonium Sulfate	4 qt/a	10 lb/100 gal	PREPRE	95 ab	97 a	95 a	112 abc
8	WeatherMax Ammonium Sulfate	0.67 qt/a	10 lb/100 gal	15 DEPP	0 d	0 c	0 c	28 f
9	WeatherMax Ammonium Sulfate	0.67 qt/a	10 lb/100 gal	PREPRE	78 c	63 b	78 ab	93 a-d
10	Touchdown 2,4-D Ester	0.56 lb ae/a	0.5 qt/a	15 DEPP	0 d	0 c	0 c	38 ef
	Clarity		2 fl oz/a	15 DEPP				
	Ammonium Sulfate		10 lb/100 gal	15 DEPP				
11	Touchdown 2,4-D Ester	0.56 lb ae/a	0.5 qt/a	15 DEPP	98 a	99 a	96 a	120 abc
	Clarity		2 fl oz/a	15 DEPP				
	Ammonium Sulfate		10 lb/100 gal	15 DEPP				
	Expert Ammonium Sulfate	2.5 qt/a	10 lb/100 gal	EAPOWE				
12	Touchdown 2,4-D Ester	0.56 lb ae/a	0.5 qt/a	15 DEPP	13 d	10 c	13 c	63 de
	Clarity		2 fl oz/a	15 DEPP				
	Ammonium Sulfate		10 lb/100 gal	15 DEPP				
13	Touchdown 2,4-D Ester	0.56 lb ae/a	0.5 qt/a	15 DEPP	99 a	99 a	96 a	125 abc
	Clarity		2 fl oz/a	15 DEPP				
	Ammonium Sulfate		10 lb/100 gal	15 DEPP				
	Expert Ammonium Sulfate	3 qt/a	10 lb/100 gal	EAPOWE				
14	Touchdown 2,4-D Ester	0.56 lb ae/a	0.5 qt/a	15 DEPP	0 d	0 c	0 c	42 ef
	Clarity		2 fl oz/a	15 DEPP				
	Ammonium Sulfate		10 lb/100 gal	15 DEPP				
15	Touchdown 2,4-D Ester	0.56 lb ae/a	0.5 qt/a	15 DEPP	98 a	99 a	98 a	92 a-d
	Clarity		2 fl oz/a	15 DEPP				
	Ammonium Sulfate		10 lb/100 gal	15 DEPP				
	Fieldmaster Ammonium Sulfate	4 qt/a	10 lb/100 gal	EAPOWE				

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Pest Type Pest Code Crop Code BBCH Scale Description Rating Date Rating Data Type Rating Unit Number of Decimals				W Weed SETFA 19/Jun/2003 CONTRO	W Weed AMAPA 19/Jun/2003 CONTRO	W Weed ABUTH 19/Jun/2003 CONTRO	ZEAMX BCOR 29/Sep/2003 YIELD BU/ACRE 0	
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	5	6	7	10
16	Touchdown 2,4-D Ester Clarity Ammonium Sulfate	0.56 0.5 2 10	lb ae/a qt/a fl oz/a lb/100 gal	15 DEPP 15 DEPP 15 DEPP 15 DEPP	0 d	0 c	0 c	19 f
17	Touchdown 2,4-D Ester Clarity Ammonium Sulfate WeatherMax Ammonium Sulfate	0.56 0.5 2 10 0.67 10	lb ae/a qt/a fl oz/a lb/100 gal qt/a lb/100 gal	15 DEPP 15 DEPP 15 DEPP 15 DEPP EAPOWE EAPOWE	94 ab	96 a	95 a	129 ab
18	WeatherMax Ammonium Sulfate WeatherMax Ammonium Sulfate	0.67 10 0.67 10	qt/a lb/100 gal qt/a lb/100 gal	15 DEPP 15 DEPP EAPOWE EAPOWE	95 ab	95 a	95 a	132 a
19	WeatherMax Ammonium Sulfate WeatherMax Ammonium Sulfate	0.67 10 0.67 10	qt/a lb/100 gal qt/a lb/100 gal	PREPRE PREPRE EAPOWE EAPOWE	90 abc	91 a	95 a	119 abc
LSD (P=.05)					10.4	11.4	12.4	24.0
CV					11.72	13.12	14.14	19.53

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

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