

BASF Herbicide Programs for Glyphosate-Tolerant Corn

Trial ID: CN BASF 03 Study Director:
Location: Ashland Otto East 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: White 6700 Rate, Unit: 23000 S/A
Depth, Unit: 1.5 in
Row Spacing, Unit: 30 in
Seed Bed: Good Soil Temperature, Unit: 62 F
Soil Moisture: Moist Emergence Date: 19/May/2003

Pest Description

Pest 1 Type: W Code: ABUTH Abutilon theophrasti
Common Name: Velvetleaf
Description: planted row

Pest 2 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Amaranth, Palmer
Description: broadcast over-seeded

Pest 3 Type: W Code: DIGSA Digitaria sanguinalis
Common Name: Crabgrass, large
Description: broadcast over-seeded

Pest 4 Type: W Code: HELAN Helianthus annuus
Common Name: Common sunflower
Description: planted row, oil-seed sunflower

Pest 5 Type: W Code: IPOHE Ipomoea hederacea
Common Name: Morningglory, ivyleaf
Description: planted row

Pest 6 Type: W Code: SORBI Sorghum bicolor
Common Name: Rox orange forage sorghum
Description: planted row, shattercane mimic

Site and Design

Plot Width, Unit: 6.67 FT Site Type: cropland
Plot Length, Unit: 25 FT Tillage Type: conventional
Replications: 3 Study Design: Randomized Complete Block

Trial Initiation Comments:

	Previous Crops	Previous Pesticides	Year
1.	grain sorghum		2002

Field Prep./Maintenance:

-all chisel; spring disk; spring field cultivate

Soil Description

% Sand: 14 % OM: 2.3 Texture: silt loam
% Silt: 62 pH: 6.3 Soil Name: Reading
% Clay: 24 CEC: 18 Fert. Level: good

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Application Description

	A	B	C
Application Date:	12/May/2003	11/Jun/2003	19/Jun/2003
Time of Day:	5:30 PM	10:00 AM	12:30 PM
Application Method:	BRDCST	BRDCST	BRDCST
Application Timing:	PRE	MP	LP
Application Placement:	SOIL	FOLIAR	FOLIAR
Applied By:	D. REGEHR	C. MINIHAN	C. MINIHAN
Air Temperature, Unit:	78 F	82 F	81 F
% Relative Humidity:	30	54	61
Wind Velocity, Unit:	9 S	4 E	1.5 E
Dew Presence (Y/N):	N	N	N
Water Hardness:	City H20	City H20	City H20
Soil Temperature, Unit:	65 F	68 F	78 F
Soil Moisture:	MOIST	ADEQUATE	ADEQUATE
% Cloud Cover:	5	50	95

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:		4LF 4 CL 100	5LF 4 CL 100
Height, Unit:		15 IN	20 IN

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Disc., Scale:	ABUTH W	ABUTH W	ABUTH W
Stage Majority, Percent:		5 lf	8 lf
Height, Unit:		8 IN	18 IN
Pest 2 Code, Disc., Scale:	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent:		2-6 IN	6-16"
Height, Unit:		6 IN	16 IN
Pest 3 Code, Disc., Scale:	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent:		4 lf	tiller
Height, Unit:		2 IN	4 IN
Pest 4 Code, Disc., Scale:	HELAN W	HELAN W	HELAN W
Stage Majority, Percent:		8 LF	12 lf
Height, Unit:		16 IN	26 IN
Pest 5 Code, Disc., Scale:	IPOHE W	IPOHE W	IPOHE W
Stage Majority, Percent:		5 IN	VINING
Height, Unit:		5 IN	7 IN
Pest 6 Code, Disc., Scale:	SORBI W	SORBI W	SORBI W
Stage Majority, Percent:		4 lf	8 lf
Height, Unit:		6 IN	14 IN

Application Equipment

	A	B	C
Appl. Equipment:	TRACTOR	TRACTOR	TRACTOR
Operating Pressure:	20	20	20
Pressure Unit:	PSI	PSI	PSI
Nozzle Type:	TURBO TEE	TURBO TEE	TURBO TEE
Nozzle Size:	11003	11003	11003
Nozzle Spacing, Unit:	20 IN	20 IN	20 IN
Boom Length, Unit:	6.67 FT	6.67 FT	6.67 FT
Boom Height, Unit:	17 IN	31 IN	44 IN
Ground Speed, Unit:	4.1 MPH	4.1 MPH	4.1 MPH
Carrier:	Water	Water	Water
Spray Volume:	15	15	15
Volume Unit:	GAL/AC	GAL/AC	GAL/AC
Propellant:	Comp. Air	Comp. Air	Comp. Air

Trial Comments

This experiment examined BASF herbicides, and competitive products, for weed control in glyphosate-tolerant field corn.

Mid-postemergence applications of 8 fl oz/A Clarity produced considerable corn damage (PHYGEN = general phytotoxicity), including brace root fusion and stunting, that lessened with time. Late-postemergence applications of Clarity or Distinct caused little corn response.

Rainfall after planting was adequate for herbicide activation, and all preemergence treatments gave total control of large crabgrass (DIGSA), despite the presence of sorghum stubs on the soil surface. Crabgrass control was not as good with either mid-post or late-postemergence, one-shot applications of glyphosate where there was no soil residual herbicide. There was some indication that Distinct might help glyphosate on crabgrass. Inadequate foliar coverage of smaller plants within the crabgrass canopy appears to be the cause of less control when there is only a single application of glyphosate.

Palmer amaranth (AMAPA) control was excellent for all preemergence treatments. Control was also excellent for one-shot postemergence treatments. Amaranth populations were light enough that there was good foliar coverage of all plants. This is a key to control with one-shot postemergence treatments.

Ivyleaf morningglory (IPOHE) control was unusually good for the preemergence treatments of Guardsman Max and Bicep II Magnum, even without postemergence follow-up. All treatments involving postemergence dicamba (Clarity or Distinct) gave excellent control. WeatherMax at 22 fl oz/A did not give satisfactory morningglory control, but the addition of dicamba to glyphosate greatly enhanced control.

The glyphosate rates in many of the treatments were on the low side, and velvetleaf (ABUTH) control also suffered when no dicamba was added.

Rox orange forage sorghum (SORBI) was controlled by all glyphosate treatments. Distinct had considerable postemergence effect on sorghum, weakening and stunting the plants.

Sunflower (HELAN) was not controlled by preemergence treatments. All rates of glyphosate or glyphosate plus dicamba gave excellent sunflower control. Postemergence Callisto without atrazine gave poorer control. Late-season dry weather finished the sunflowers not controlled by herbicides.

Corn yields ranged from 38 to 79 bu/acre, with the untreated check yielding 43 bu/acre. Yield differences reflected soil and moisture variability more than weed control from the treatments. Therefore, the data column for yield is omitted.

BASF Herbicide Programs for Glyphosate-Tolerant Corn

Trial ID: CN BASF 03

Study Director:

Location: Ashland Otto East

Investigator: David L Regehr

Pest Type				ZEAMX	ZEAMX	ZEAMX	ZEAMX	
Pest Code				BCOR	BCOR	BCOR	BCOR	
Crop Code				9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003	
BBCH Scale				PHYGEN	PHYGEN	PHYGEN	PHYGEN	
Rating Date								
Rating Data Type								
Rating Unit								
Days After Last Applic.				28	14	29	67	
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	1	8	15	22
1	Prowl H2O	33.8	fl oz/a	MidPost		0 d	1 c	0 a
	RU Original	24	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
2	Outlook	12	fl oz/a	Preemerg	0 b	12 a	7 a	1 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
3	Outlook	12	fl oz/a	MidPost		9 b	6 ab	2 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
4	Clarity	8	fl oz/a	MidPost		4 c	5 b	1 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
5	Distinct	4	oz/a	MidPost		2 cd	1 c	0 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
6	RU WeatherMax	22	fl oz/a	MidPost		0 d	0 c	0 a
	Ammonium Sulfate	2.5	lb/a	MidPost				
7	Outlook	12	fl oz/a	Preemerg	0 b	3 cd	1 c	0 a
	Clarity	8	fl oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
8	Outlook	12	fl oz/a	Preemerg	0 b	1 cd	2 c	0 a
	Distinct	2	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
9	Outlook	12	fl oz/a	Preemerg	0 b	0 d	1 c	0 a
	Distinct	4	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
10	Outlook	12	fl oz/a	Preemerg	0 b	1 cd	0 c	0 a
	RU WeatherMax	22	fl oz/a	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
11	Prowl H2O	33.8	fl oz/a	LatePost		0 d	1 c	0 a
	RU Original	24	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
12	Guardsman Max	2	qt/a	Preemerg	1 b	0 d	0 c	0 a
13	Guardsman Max	2	qt/a	Preemerg	0 b	1 cd	1 c	1 a
	Distinct	4	oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	10	lb ai/100 gal	LatePost				
14	Bicep II Magnum	1.6	qt/a	Preemerg	0 b	0 d	0 c	0 a
15	Bicep II Magnum	1.6	qt/a	Preemerg	0 b	1 cd	1 c	0 a
	Callisto	3	oz/a	LatePost				
	Crop Oil Conc	1	qt/a	LatePost				
	Ammonium Sulfate	8.5	lb ai/100 gal	LatePost				

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Pest Type					
Pest Code					
Crop Code					
BBCH Scale					
Rating Date					
Rating Data Type					
Rating Unit					
Days After Last Applic.					
ARM Action Codes					
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	
16	Untreated check				
17	G-Max Lite	1 qt/a		Preemerg	
	Celebrity Plus	4.7 oz/a		LatePost	
	Nonionic Surfactant	0.25 % v/v		LatePost	
	Ammonium Sulfate	10 lb ai/100 gal		LatePost	
LSD (P=.05)					
CV					

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.

BASF Herbicide Programs for Glyphosate-Tolerant Corn

Trial ID: CN BASF 03

Study Director:

Location: Ashland Otto East

Investigator: David L Regehr

Pest Type				W Weed	W Weed	W Weed	W Weed	
Pest Code				DIGSA	DIGSA	DIGSA	DIGSA	
Crop Code								
BBCH Scale								
Rating Date				9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003	
Rating Data Type				CONTRO	CONTRO	CONTRO	CONTRO	
Rating Unit								
Days After Last Applic.				28	14	29	67	
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	2	9	16	23
1	Prowl H2O	33.8	fl oz/a	MidPost		96 ab	91 bc	90 b
	RU Original	24	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
2	Outlook	12	fl oz/a	Preemerg	99 a	99 a	96 ab	99 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
3	Outlook	12	fl oz/a	MidPost		94 b	89 cd	85 b
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
4	Clarity	8	fl oz/a	MidPost		90 c	85 d	78 c
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
5	Distinct	4	oz/a	MidPost		94 b	89 cd	87 b
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
6	RU WeatherMax	22	fl oz/a	MidPost		91 c	87 cd	80 c
	Ammonium Sulfate	2.5	lb/a	MidPost				
7	Outlook	12	fl oz/a	Preemerg	99 a	99 a	99 a	99 a
	Clarity	8	fl oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
8	Outlook	12	fl oz/a	Preemerg	99 a	99 a	99 a	99 a
	Distinct	2	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
9	Outlook	12	fl oz/a	Preemerg	99 a	99 a	99 a	99 a
	Distinct	4	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
10	Outlook	12	fl oz/a	Preemerg	99 a	99 a	96 ab	99 a
	RU WeatherMax	22	fl oz/a	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
11	Prowl H2O	33.8	fl oz/a	LatePost		86 d	90 cd	87 b
	RU Original	24	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
12	Guardsman Max	2	qt/a	Preemerg	99 a	99 a	99 a	99 a
13	Guardsman Max	2	qt/a	Preemerg	99 a	99 a	99 a	99 a
	Distinct	4	oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	10	lb ai/100 gal	LatePost				
14	Bicep II Magnum	1.6	qt/a	Preemerg	99 a	98 a	97 ab	96 a
15	Bicep II Magnum	1.6	qt/a	Preemerg	99 a	99 a	99 a	99 a
	Callisto	3	oz/a	LatePost				
	Crop Oil Conc	1	qt/a	LatePost				
	Ammonium Sulfate	8.5	lb ai/100 gal	LatePost				

10/Oct/2003 (CN BASF 03)

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					W Weed	W Weed	W Weed	W Weed
					DIGSA	DIGSA	DIGSA	DIGSA
Pest Type								
Pest Code								
Crop Code								
BBCH Scale								
Rating Date					9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003
Rating Data Type					CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit								
Days After Last Applic.					28	14	29	67
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage				
16	Untreated check				2	9	16	23
					0 b	0 e	0 e	0 d
17	G-Max Lite	1 qt/a		Preemerg	99 a	99 a	98 a	99 a
	Celebrity Plus	4.7 oz/a		LatePost				
	Nonionic Surfactant	0.25 % v/v		LatePost				
	Ammonium Sulfate	10 lb ai/100 gal		LatePost				
LSD (P=.05)					0.0	2.5	4.1	4.2
CV					0.0	1.64	2.76	2.85

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.

BASF Herbicide Programs for Glyphosate-Tolerant Corn

Trial ID: CN BASF 03

Study Director:

Location: Ashland Otto East

Investigator: David L Regehr

Pest Type				W Weed	W Weed	W Weed	W Weed	
Pest Code				AMAPA	AMAPA	AMAPA	AMAPA	
Crop Code								
BBCH Scale								
Rating Date				9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003	
Rating Data Type				CONTRO	CONTRO	CONTRO	CONTRO	
Rating Unit								
Days After Last Applic.				28	14	29	67	
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	3	10	17	24
1	Prowl H2O	33.8	fl oz/a	MidPost		99 a	99 a	99 a
	RU Original	24	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
2	Outlook	12	fl oz/a	Preemerg	99 a	99 a	99 a	99 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
3	Outlook	12	fl oz/a	MidPost		99 a	99 a	99 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
4	Clarity	8	fl oz/a	MidPost		99 a	99 a	99 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
5	Distinct	4	oz/a	MidPost		99 a	99 a	99 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
6	RU WeatherMax	22	fl oz/a	MidPost		98 a	96 a	96 a
	Ammonium Sulfate	2.5	lb/a	MidPost				
7	Outlook	12	fl oz/a	Preemerg	99 a	99 a	99 a	99 a
	Clarity	8	fl oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
8	Outlook	12	fl oz/a	Preemerg	99 a	99 a	99 a	98 a
	Distinct	2	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
9	Outlook	12	fl oz/a	Preemerg	99 a	99 a	99 a	99 a
	Distinct	4	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
10	Outlook	12	fl oz/a	Preemerg	99 a	99 a	99 a	99 a
	RU WeatherMax	22	fl oz/a	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
11	Prowl H2O	33.8	fl oz/a	LatePost		87 b	91 b	94 a
	RU Original	24	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
12	Guardsman Max	2	qt/a	Preemerg	99 a	99 a	99 a	99 a
13	Guardsman Max	2	qt/a	Preemerg	99 a	99 a	99 a	99 a
	Distinct	4	oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	10	lb ai/100 gal	LatePost				
14	Bicep II Magnum	1.6	qt/a	Preemerg	99 a	99 a	99 a	99 a
15	Bicep II Magnum	1.6	qt/a	Preemerg	99 a	99 a	99 a	99 a
	Callisto	3	oz/a	LatePost				
	Crop Oil Conc	1	qt/a	LatePost				
	Ammonium Sulfate	8.5	lb ai/100 gal	LatePost				

Kansas State University

Pest Type	W Weed	W Weed	W Weed	W Weed				
Pest Code	AMAPA	AMAPA	AMAPA	AMAPA				
Crop Code								
BBCH Scale								
Rating Date	9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003				
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit								
Days After Last Applic.	28	14	29	67				
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage				
16	Untreated check				3	10	17	24
					0 b	0 c	0 c	0 b
17	G-Max Lite	1 qt/a		Preemerg	99 a	99 a	99 a	99 a
	Celebrity Plus	4.7 oz/a		LatePost				
	Nonionic Surfactant	0.25 % v/v		LatePost				
	Ammonium Sulfate	10 lb ai/100 gal		LatePost				
LSD (P=.05)					0.0	2.5	3.7	4.0
CV					0.0	1.6	2.37	2.62

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.

BASF Herbicide Programs for Glyphosate-Tolerant Corn

Trial ID: CN BASF 03

Study Director:

Location: Ashland Otto East

Investigator: David L Regehr

Pest Type				W Weed	W Weed	W Weed	W Weed	
Pest Code				IPHOE	IPHOE	IPHOE	IPHOE	
Crop Code								
BBCH Scale								
Rating Date				9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003	
Rating Data Type				CONTRO	CONTRO	CONTRO	CONTRO	
Rating Unit								
Days After Last Applic.				28	14	29	67	
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage				
					4	11	18	25
1	Prowl H2O	33.8	fl oz/a	MidPost		78 cd	76 c	83 a
	RU Original	24	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
2	Outlook	12	fl oz/a	Preemerg	0 c	89 abc	95 ab	99 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
3	Outlook	12	fl oz/a	MidPost		88 abc	96 ab	99 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
4	Clarity	8	fl oz/a	MidPost		88 abc	94 ab	99 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
5	Distinct	4	oz/a	MidPost		90 ab	90 ab	98 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
6	RU WeatherMax	22	fl oz/a	MidPost		73 d	76 c	76 a
	Ammonium Sulfate	2.5	lb/a	MidPost				
7	Outlook	12	fl oz/a	Preemerg	3 c	80 bcd	87 b	99 a
	Clarity	8	fl oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
8	Outlook	12	fl oz/a	Preemerg	0 c	77 d	86 b	94 a
	Distinct	2	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
9	Outlook	12	fl oz/a	Preemerg	0 c	80 bcd	90 ab	99 a
	Distinct	4	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
10	Outlook	12	fl oz/a	Preemerg	0 c	58 e	71 cd	40 b
	RU WeatherMax	22	fl oz/a	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
11	Prowl H2O	33.8	fl oz/a	LatePost		57 e	66 d	33 b
	RU Original	24	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
12	Guardsman Max	2	qt/a	Preemerg	99 a	99 a	99 a	99 a
13	Guardsman Max	2	qt/a	Preemerg	98 a	98 a	99 a	99 a
	Distinct	4	oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	10	lb ai/100 gal	LatePost				
14	Bicep II Magnum	1.6	qt/a	Preemerg	97 a	98 a	99 a	99 a
15	Bicep II Magnum	1.6	qt/a	Preemerg	99 a	99 a	99 a	99 a
	Callisto	3	oz/a	LatePost				
	Crop Oil Conc	1	qt/a	LatePost				
	Ammonium Sulfate	8.5	lb ai/100 gal	LatePost				

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Pest Type	W Weed	W Weed	W Weed	W Weed				
Pest Code	IPHOE	IPHOE	IPHOE	IPHOE				
Crop Code								
BBCH Scale								
Rating Date	9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003				
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit								
Days After Last Applic.	28	14	29	67				
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage				
16	Untreated check				4	11	18	25
					0 c	0 f	0 e	0 c
17	G-Max Lite	1 qt/a		Preemerg	88 b	93 a	98 a	99 a
	Celebrity Plus	4.7 oz/a		LatePost				
	Nonionic Surfactant	0.25 % v/v		LatePost				
	Ammonium Sulfate	10 lb ai/100 gal		LatePost				
LSD (P=.05)					5.4	7.5	6.8	14.3
CV					7.14	5.67	4.88	10.34

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.

BASF Herbicide Programs for Glyphosate-Tolerant Corn

Trial ID: CN BASF 03

Study Director:

Location: Ashland Otto East

Investigator: David L Regehr

Pest Type	W Weed	W Weed	W Weed	W Weed				
Pest Code	ABUTH	ABUTH	ABUTH	ABUTH				
Crop Code								
BBCH Scale								
Rating Date	9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003				
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit								
Days After Last Applic.	28	14	29	67				
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	5	12	19	26
1	Prowl H2O	33.8	fl oz/a	MidPost		93 ab	95 a	97 a
	RU Original	24	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
2	Outlook	12	fl oz/a	Preemerg	0 b	92 ab	95 a	96 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
3	Outlook	12	fl oz/a	MidPost		92 ab	96 a	98 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
4	Clarity	8	fl oz/a	MidPost		93 ab	96 a	99 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
5	Distinct	4	oz/a	MidPost		95 ab	97 a	99 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
6	RU WeatherMax	22	fl oz/a	MidPost		95 ab	98 a	99 a
	Ammonium Sulfate	2.5	lb/a	MidPost				
7	Outlook	12	fl oz/a	Preemerg	0 b	80 c	87 bc	91 a
	Clarity	8	fl oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
8	Outlook	12	fl oz/a	Preemerg	0 b	82 c	88 bc	95 a
	Distinct	2	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
9	Outlook	12	fl oz/a	Preemerg	0 b	83 c	92 ab	93 a
	Distinct	4	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
10	Outlook	12	fl oz/a	Preemerg	0 b	80 c	83 c	82 b
	RU WeatherMax	22	fl oz/a	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
11	Prowl H2O	33.8	fl oz/a	LatePost		80 c	87 bc	82 b
	RU Original	24	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
12	Guardman Max	2	qt/a	Preemerg	99 a	99 a	99 a	99 a

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Pest Type	W Weed	W Weed	W Weed	W Weed				
Pest Code	ABUTH	ABUTH	ABUTH	ABUTH				
Crop Code								
BBCH Scale								
Rating Date	9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003				
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit								
Days After Last Applic.	28	14	29	67				
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	5	12	19	26
13	Guardsman Max Distinct	2 qt/a		Preemerg	99 a	99 a	99 a	99 a
	Nonionic Surfactant	4 oz/a		LatePost				
	Ammonium Sulfate	0.25 % v/v		LatePost				
		10 lb ai/100 gal		LatePost				
14	Bicep II Magnum	1.6 qt/a		Preemerg	96 a	98 ab	96 a	96 a
15	Bicep II Magnum	1.6 qt/a		Preemerg	97 a	98 ab	99 a	99 a
	Callisto	3 oz/a		LatePost				
	Crop Oil Conc	1 qt/a		LatePost				
	Ammonium Sulfate	8.5 lb ai/100 gal		LatePost				
16	Untreated check				0 b	0 d	0 d	0 c
17	G-Max Lite	1 qt/a		Preemerg	96 a	90 b	98 a	99 a
	Celebrity Plus	4.7 oz/a		LatePost				
	Nonionic Surfactant	0.25 % v/v		LatePost				
	Ammonium Sulfate	10 lb ai/100 gal		LatePost				
LSD (P=.05)					2.4	5.2	5.0	7.3
CV					3.21	3.65	3.36	4.86

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.

BASF Herbicide Programs for Glyphosate-Tolerant Corn

Trial ID: CN BASF 03

Study Director:

Location: Ashland Otto East

Investigator: David L Regehr

Pest Type				W Weed	W Weed	W Weed	W Weed	
Pest Code				SORBI	SORBI	SORBI	SORBI	
Crop Code								
BBCH Scale								
Rating Date				9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003	
Rating Data Type				CONTRO	CONTRO	CONTRO	CONTRO	
Rating Unit								
Days After Last Applic.				28	14	29	67	
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	6	13	20	27
1	Prowl H2O	33.8	fl oz/a	MidPost		93 a	93 ab	88 a
	RU Original	24	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
2	Outlook	12	fl oz/a	Preemerg	15 cd	96 a	99 a	93 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
3	Outlook	12	fl oz/a	MidPost		95 a	96 a	93 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
4	Clarity	8	fl oz/a	MidPost		92 a	93 ab	93 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
5	Distinct	4	oz/a	MidPost		94 a	95 a	93 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
6	RU WeatherMax	22	fl oz/a	MidPost		97 a	99 a	99 a
	Ammonium Sulfate	2.5	lb/a	MidPost				
7	Outlook	12	fl oz/a	Preemerg	15 cd	88 a	97 a	99 a
	Clarity	8	fl oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
8	Outlook	12	fl oz/a	Preemerg	17 cd	90 a	97 a	99 a
	Distinct	2	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
9	Outlook	12	fl oz/a	Preemerg	15 cd	90 a	98 a	99 a
	Distinct	4	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
10	Outlook	12	fl oz/a	Preemerg	15 cd	90 a	97 a	99 a
	RU WeatherMax	22	fl oz/a	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
11	Prowl H2O	33.8	fl oz/a	LatePost		90 a	96 a	99 a
	RU Original	24	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
12	Guardsman Max	2	qt/a	Preemerg	58 ab	13 d	30 c	5 d
13	Guardsman Max	2	qt/a	Preemerg	65 a	73 b	83 b	63 b
	Distinct	4	oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	10	lb ai/100 gal	LatePost				
14	Bicep II Magnum	1.6	qt/a	Preemerg	38 bc	10 d	20 d	8 d
15	Bicep II Magnum	1.6	qt/a	Preemerg	32 c	25 c	25 cd	25 c
	Callisto	3	oz/a	LatePost				
	Crop Oil Conc	1	qt/a	LatePost				
	Ammonium Sulfate	8.5	lb ai/100 gal	LatePost				

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				W Weed SORBI	W Weed SORBI	W Weed SORBI	W Weed SORBI
Pest Type							
Pest Code							
Crop Code							
BBCH Scale							
Rating Date				9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003
Rating Data Type				CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit							
Days After Last Applic.				28	14	29	67
ARM Action Codes							
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage			
6	Untreated check				6	13	20
16	Untreated check				0 d	0 e	0 e
17	G-Max Lite	1	qt/a	Preemerg	47 abc	72 b	90 ab
	Celebrity Plus	4.7	oz/a	LatePost			
	Nonionic Surfactant	0.25	% v/v	LatePost			
	Ammonium Sulfate	10	lb ai/100 gal	LatePost			
LSD (P=.05)				19.6	5.2	8.0	15.8
CV				40.05	4.35	6.21	12.83

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.

BASF Herbicide Programs for Glyphosate-Tolerant Corn

Trial ID: CN BASF 03

Study Director:

Location: Ashland Otto East

Investigator: David L Regehr

Pest Type	W Weed	W Weed	W Weed	W Weed				
Pest Code	HELAN	HELAN	HELAN	HELAN				
Crop Code								
BBCH Scale								
Rating Date	9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003				
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit								
Days After Last Applic.	28	14	29	67				
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	7	14	21	28
1	Prowl H2O	33.8	fl oz/a	MidPost		97 ab	99 a	99 a
	RU Original	24	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
2	Outlook	12	fl oz/a	Preemerg	0 b	96 ab	99 a	99 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
3	Outlook	12	fl oz/a	MidPost		98 ab	99 a	99 a
	Clarity	8	fl oz/a	MidPost				
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
4	Clarity	8	fl oz/a	MidPost		96 ab	98 a	99 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
5	Distinct	4	oz/a	MidPost		97 ab	99 a	99 a
	RU Original	16	fl oz/a	MidPost				
	Nonionic Surfactant	0.25	% v/v	MidPost				
	Ammonium Sulfate	2.5	lb/a	MidPost				
6	RU WeatherMax	22	fl oz/a	MidPost		99 a	99 a	99 a
	Ammonium Sulfate	2.5	lb/a	MidPost				
7	Outlook	12	fl oz/a	Preemerg	3 b	88 ab	97 ab	99 a
	Clarity	8	fl oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
8	Outlook	12	fl oz/a	Preemerg	7 b	90 ab	97 ab	99 a
	Distinct	2	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
9	Outlook	12	fl oz/a	Preemerg	0 b	90 ab	96 ab	99 a
	Distinct	4	oz/a	LatePost				
	RU Original	16	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
10	Outlook	12	fl oz/a	Preemerg	0 b	87 ab	97 ab	99 a
	RU WeatherMax	22	fl oz/a	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
11	Prowl H2O	33.8	fl oz/a	LatePost		87 ab	97 ab	99 a
	RU Original	24	fl oz/a	LatePost				
	Nonionic Surfactant	0.25	% v/v	LatePost				
	Ammonium Sulfate	2.5	lb/a	LatePost				
12	Guardman Max	2	qt/a	Preemerg	42 a	17 d	10 e	10 c

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Pest Type	W Weed	W Weed	W Weed	W Weed				
Pest Code	HELAN	HELAN	HELAN	HELAN				
Crop Code								
BBCH Scale								
Rating Date	9/Jun/2003	25/Jun/2003	9/Jul/2003	25/Aug/2003				
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit								
Days After Last Applic.	28	14	29	67				
ARM Action Codes								
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	7	14	21	28
13	Guardsman Max Distinct	2 qt/a		Preemerg	57 a	86 ab	94 ab	99 a
	Nonionic Surfactant	4 oz/a		LatePost				
	Ammonium Sulfate	0.25 % v/v		LatePost				
		10 lb ai/100 gal		LatePost				
14	Bicep II Magnum	1.6 qt/a		Preemerg	40 ab	23 d	13 d	13 b
15	Bicep II Magnum	1.6 qt/a		Preemerg	37 ab	67 c	83 c	99 a
	Callisto	3 oz/a		LatePost				
	Crop Oil Conc	1 qt/a		LatePost				
	Ammonium Sulfate	8.5 lb ai/100 gal		LatePost				
16	Untreated check				0 b	0 e	0 f	0 d
17	G-Max Lite	1 qt/a		Preemerg	33 ab	80 b	93 b	99 a
	Celebrity Plus	4.7 oz/a		LatePost				
	Nonionic Surfactant	0.25 % v/v		LatePost				
	Ammonium Sulfate	10 lb ai/100 gal		LatePost				
LSD (P=.05)					24.1	10.4	3.2	2.3
CV					71.36	8.19	2.38	1.69

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.