Annual weed control with soil applied herbicides in soybeans at Lamberton, MN in 2008.

Getting, Jodie K.

The objective of this study was to evaluate soil applied herbicides for annual grass and annual broadleaf weed control in glyphosate-resistant soybeans. This study was conducted on a Normania loam soil containing 3.8% organic matter, pH 6.1 and soil test P and K levels of 64 and 296 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 30 ft was used. The site was planted to oats in 2007 and was fall chiseled. On May 20, 2008 the preplant incorporated treatment was applied and tilled twice with a field cultivator set to till 3 to 4 inches deep and operated at 5 to 6 mph. The same day, Asgrow 'AG 2002' glyphosate-resistant tolerant soybeans were planted in 30-inch rows at a seeding rate of 160,000 seeds/A. On July 29, all plots were treated with Warrior for soybean aphid control. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at a pressure of 40 psi. The sprayer was equipped with 8002 flat-fan nozzles spaced 15 inches apart on the boom. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

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Temperature (F)air5739777584soil (4 inch)6252827886Relative humidity (%)3365323955Wind (mph)NW 10calmcalmcalmN 6Skyclearclearp. cloudyp. cloudyclearSoil moisturedrydrydrydrydrySoybeanV2V3R2height (inch)5622Yellow foxtail3 to 43 to 52 to 4height (inch)3 to 43 to 52 to 4height (inch)3 to 56 to 8-no./ft²7049<1	Date	May 20	May 21								
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soil (4 inch)6252827886Relative humidity (%)3365323955Wind (mph)NW 10calmcalmcalmN 6Skyclearclearp. cloudyp. cloudyclearSoil moisturedrydrydrydrydrySoybeanV2V3R2height (inch)5622Yellow foxtail3 to 43 to 52 to 4height (inch)3 to 45 to 63 to 5no./ft²7049<1	Temperature (F)										
Relative humidity (%)3365323955Wind (mph)NW 10calmcalmcalmcalmN 6Skyclearclearp. cloudyp. cloudycleardrySoil moisturedrydrydrydrydrydrySoybeanV2V3R2height (inch)5622Yellow foxtail3 to 43 to 52 to 4height (inch)3 to 45 to 63 to 5no./ft²7049<1	air	57	39	77	75	84					
Wind (mph)NW 10calmcalmcalmcalmN 6Skycleardryclearp. cloudyp. cloudyclearSoil moisturedrydrydrydrydrySoybeanV2V3R2leaf noV2V3R2height (inch)3 to 43 to 52 to 4leaf no3 to 43 to 52 to 4height (inch)3 to 45 to 63 to 5no./ft²7049<1	soil (4 inch)	62	52	82	78	86					
Skyclearclearp. cloudyp. cloudyclearclearSoil moisturedrydrydrydrydrydrydrySoybeanleaf noV2V3R2height (inch)5622Yellow foxtail3 to 43 to 52 to 4height (inch)3 to 43 to 52 to 4height (inch)3 to 45 to 63 to 5no./ft²7049<1	Relative humidity (%)	33	65	32	39	55					
Soil moisturedrydrydrydrydrydrySoybeanleaf noV2V3R2height (inch)5622Yellow foxtailleaf no3 to 43 to 52 to 4height (inch)3 to 45 to 63 to 5no./ft²7049<1	Wind (mph)	NW 10	calm	calm	calm	N 6					
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leaf noV2V3R2height (inch)5622Yellow foxtail3 to 43 to 52 to 4height (inch)3 to 45 to 63 to 5no./ft²7049<1	Soil moisture	dry	dry	dry	dry	dry					
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Soybean										
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leaf no3 to 43 to 52 to 4height (inch)3 to 45 to 63 to 5no./ft²7049<1	height (inch)	-	-	5	6	22					
height (inch)3 to 45 to 63 to 5no./ft27049<1	Yellow foxtail										
no./ft²7049<1Common lambsquartersleaf no3 to 56 to 8-height (inch)2 to 43 to 6-no./ft²34-Tall waterhempleaf no2 to 44 to 63 to 5height (inch)2 to 43 to 53 to 5no./ft²1112<1	leaf no.	-	-	3 to 4	3 to 5	2 to 4					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		-	-	3 to 4	5 to 6	3 to 5					
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	no./ft ²	-	-	70	49	<1					
height (inch)2 to 43 to 6-no./ft234-Tall waterhempleaf no2 to 44 to 63 to 5height (inch)2 to 43 to 53 to 5no./ft21112<1	Common lambsquarters										
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	leaf no.	-	-	3 to 5	6 to 8	-					
Tall waterhemp leaf no. - - 2 to 4 4 to 6 3 to 5 height (inch) - - 2 to 4 3 to 5 3 to 5 no./ft ² - - 11 12 <1		-	-	2 to 4	3 to 6	-					
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	no./ft ²	-	-	3	4	-					
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Tall waterhemp										
no./ft²1112<1Rainfall after application (inch)1 week0.120.180.000.611.142 week0.930.870.610.001.97	leaf no.	-	-	2 to 4	4 to 6	3 to 5					
Rainfall after application (inch)1 week0.120.180.000.611.142 week0.930.870.610.001.97		-	-	2 to 4	3 to 5	3 to 5					
1 week0.120.180.000.611.142 week0.930.870.610.001.97	no./ft ²	-	-	11	12	<1					
2 week 0.93 0.87 0.61 0.00 1.97	Rainfall after application (inch)										
	1 week	0.12	0.18	0.00	0.61	1.14					
3 week 1.54 1.57 0.00 0.02 0.22	2 week	0.93	0.87	0.61	0.00	1.97					
	3 week	1.54	1.57	0.00	0.02	0.22					

(Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Treatment ^a			Yellow foxtail			Common lambsquarters			Tall waterhemp			_		
	Rate	Jun 20	Jul 2	Jul 16	Sep 25	Jun 20	Jul 2	Jul 16	Sep 25	Jun 2	20 Jul 2	Jul 1	6 Sep 25	5 Yield
	(oz/A, pt/A, qt/A or %)						-(% cont	rol)						(bu/A)
Preplant Incorporate/POST II (4 to 6-	inch weeds)													
Prowl H2O / Touchdown Total + AMS	2.5 pt / 24 oz + 2%	84 a	100 a	96 a	93 ab	89 b	100 a	100 a	100 a	80 b	100 a	a 100 a	a 100 a	50.0 al
Preemergence/POST II (4 to 6-inch w	veeds)													
Prefix / Touchdown Total + AMS	1.5 pt / 24 oz + 2%	84 a	100 a	94 a	92 a-c	87 b	100 a	100 a	100 a	95 a	100 a	a 100 a	a 100 a	47.3 b
Prefix / Touchdown Total + AMS	2 pt / 24 oz + 2%	89 a	100 a	95 a	94 a	84 b	100 a	100 a	100 a	96 a	100 a	a 100 a	a 100 a	47.5 b
Boundary / Touchdown Total + AMS	1.5 pt / 24 oz + 2%	87 a	100 ab	95 a	90 a-d	85 b	100 a	100 a	100 a	97 a	100 a	a 100 a	a 100 a	48.8 at
Valor / Touchdown Total + AMS	2 oz / 24 oz + 2%	84 a	100 a	91 bc	89 с-е	98 a	100 a	100 a	100 a	98 a	100 a	a 100 a	a 96 b	50.7 at
Enlite / Touchdown Total + AMS	2.8 oz / 24 oz + 2%	86 a	100 a	90 c	88 de	98 a	100 a	100 a	100 a	98 a	100 a	a 100 a	a 100 a	46.5 b
Authority First / Touchdown Total + AMS	3.2 oz / 24 oz + 2%	56 b	98 b	94 a	90 b-e	96 a	100 a	100 a	100 a	96 a	100 a	a 100 a	a 100 a	52.7 a
Authority MTZ / Touchdown Total + AMS	10 oz / 24 oz + 2%	45 c	100 ab	95 a	91 a-d	88 b	100 a	100 a	100 a	97 a	100 a	a 100 a	a 100 a	49.8 at
Authority Assist / Touchdown Total + AMS	5 oz / 24 oz + 2%	53 bc	99 ab	95 a	93 a-c	97 a	100 a	100 a	100 a	96 a	100 a	a 100 a	a 100 a	49.8 at
POST I (3 to 4-inch weeds)														
Touchdown Total + AMS	24 oz + 3 qt	0 d	100 ab	94 a	86 e	0 c	100 a	100 a	100 a	0 c	100 k	o 100 a	a 89 c	47.7 at
POST I (4-inch weeds)/POST III (soyb	ean canopy)													
Touchdown Total + AMS / Touchdown Total + A	MS 24 oz + 3 qt / 24 oz + 3 c	lt 0 d	99 ab	95 a	91 a-d	0 c	100 b	100 a	100 a	0 c	100 k	97 b	95 b	50.3 at
<u>Check</u>														
Weedy Check	-	0 d	0 c	0 d	0 f	0 c	0 c	0 b	0 b	0 c	0 c	0 c	0 d	10.9 c
	LSD (0.10)	8.3	1.4	2.3	4.0	7.2	0.3	ns	ns	3.8	0.5	0.8	3.1	4.98

Table. Annual weed control with soil applied herbicides in soybeans at Lamberton, MN in 2008 (Getting).

^a AMS = liquid spray grade ammonium sulfate. ^b Yield adjusted to 13% moisture.