

UNIVERSITY OF KENTUCKY

DEPARTMENT OF AGRONOMY

1970

RESULTS OF HERBICIDE EVALUATION TRIALS

NOT FOR PUBLICATION

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LIST OF HERBICIDES USED IN WEED CONTROL STUDIES - 1970

Alachlor (Lasso)--2-chloro-2',6'-diethyl-N-(methoxymethyl) acetamide	Monsanto
Ametryne (Evik)--2-(ethylamino)-4-(isopropylamino)-6-(methylthio)-s-triazine	Geigy
Amiben--3-amino-2,5-dichlorobenzoic acid	Amchem
Amilan (Amiben + Lorox)	Amchem
Atrazine (AAtrex)--2-chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine	Geigy
BAS 2903 H (Basamaize)--2-chloro-N-(1-methyl-2-propyl) acetamide	BASF
BAS 3510	Unknown
BAS 3870	Unknown
BAY 94337--4-amino-6- <i>t</i> -butyl-3-(methylthio)- <i>s</i> -triazin-5(4H)-one	Chemagro
Benefin (Balan)-- <i>N</i> -butyl- <i>N</i> -ethyl- <i>a,a,a</i> -trifluoro-2,6-dinitro- <i>p</i> -toluidine	Eli Lilly
Butylate (Sutan)-- <i>S</i> -ethyl diisobutylthiocarbamate	Stauffer
Chloropropham (CIPC) isopropyl <i>N</i> -(3-chlorophenyl) carbamate	Pittsburgh Plate Glass
Crop Oil	Gulf
Dalapon (Dowpon)--2,2-dichloropropionic acid	Dow
Diphenamide (Enide & Dymid)	Upjohn and Eli Lilly
Dinoseb (Dow General)--2- <i>sec</i> butyl-4,6-dinitrophenol	Dow
EL 179--4-isopropyl-2,6-dinitro- <i>N,N</i> -(dipropyl) aniline	Eli Lilly
EPTC (Eptam) <i>S</i> -ethyl dipropylthiocarbamate	Stauffer
ER-5461	Confidential
ER-9061	Confidential
ER-9063	Confidential
GA-2-219	Phytotoxic oil
GS-13529--(terbulethylazine)2-chloro-4-ethylamino-6- <i>tert</i> -butylamino- <i>s</i> -triazine	Geigy
HDD	non-ionic surfactant
Linuron (Lorox)--3-(3,4-dichlorophenyl)-1-methoxy-1-methylurea	Chevron
Maloran--3-(4-Bromo-3-chlorophenyl)-1-methoxy-1-methylurea	Dupont
M-3447 (DOWCO 221) alpha-(2,2,2-trichloroethyl) styrene	CIBA
Naphthalam + Chloropropham (Solo)-- <i>N</i> -1-naphthylphthalamic acid + isopropyl <i>N</i> -(3-chlorophenyl) carbamate	Dow
Naphthalic Anhydride	Uni-Royal
NIA 20439 3-(2-methylphenoxy) pyridazine	Gulf
Nitralin (Planavin) 4-(methylsulfonyl)-2,6-dinitro- <i>N,N</i> -dipropylaniline	Niagara
Outfox (S 6115)--2-chloro-4-cyclopropylamino-6-isopropylamino- <i>s</i> -triazine	Shell
Paraquat Paraquat dichloride (1,1:dimethyl 4,4'-bipyridinium dichloride)	Gulf
Pebulate (Tillam)-- <i>S</i> -propyl butylethylthiocarbamate	Chevron
Preforan-P-Nitrophenyl 2-nitro-4-(trifluoromethyl) phenyl ether	Stauffer
Ryzelan (El 119) 3,5-dinitro- <i>N,N</i> -dipropyl-sulfanilamide	CIBA
R-7465 2-(alpha-naphthoxy)- <i>N,N</i> -diethylpropionamide	Eli Lilly
SD-25275	Confidential
SD-30187	Confidential
Simazine (Princep)--2-chloro-4,6-bis (ethylamino)- <i>s</i> -triazine	Stauffer
Trifluralin (Treflan)-- <i>a,a,a</i> -trifluoro-2,6-dinitro- <i>N,N</i> -dipropyl- <i>p</i> -toluidine	Shell
2,4-D 2,4-dichlorophenoxyacetic acid	Shell
2,4-D 2,4-dichlorophenoxyacetic acid butoxyethanol ester	Geigy
Vernolate (Vernam)-- <i>s</i> -propyl dipropylthiocarbamate	Eli Lilly
	Amchem
	Amchem
	Stauffer

1970 WEATHER DATA
 Campus Farm
 Lexington, Ky.

Day	May		June			July			August		
	Precip.	Temp. Max. Min.	Precip.	Temp. Max. Min.		Precip.	Temp. Max. Min.		Precip.	Temp. Max. Min.	
1		80 64		83 69			91 75			92 69	
2	.55	64 47		80 68			96 76			91 70	
3	.24	57 42	.36	75 66			90 76			88 71	
4		71 41	2.15	79 63	1.23		79 64	.59		85 64	
5		75 54	.32	75 57			70 63			82 66	
6		60 42	1.28	73 52			79 56			85 66	
7		73 40		80 55			83 60			84 65	
8		81 56		84 61			84 65			83 66	
9		82 64		87 65	0.46		78 66	.99		74 69	
10		74 60		86 67			79 63	.34		77 68	
11	.16	79 60		85 66			82 67			82 66	
12	.19	84 62		86 65			85 66			79 67	
13	.04	82 63		77 69			91 67	.06		85 64	
14	1.49	82 63	.47	87 64			90 70			88 66	
15		83 65		78 69			88 70			88 68	
16		71 55		78 69	0.50		82 67			89 70	
17	.04	69 47	.04	87 71			84 64			90 73	
18		75 47		86 72			87 63			86 72	
19		81 52		77 65			88 66	.08		89 70	
20		84 58		77 58	0.92		73 61	.05		85 70	
21		87 64	.32	73 61	0.02		69 56	.03		88 67	
22		87 65		76 58			73 62			89 68	
23		86 65		81 56	0.13		82 66	.29		80 68	
24		87 65		83 58			88 71			79 60	
25		87 67	.01	85 69			88 71			84 63	
26	.46	76 58	.02	87 68			87 74			86 64	
27		76 55	.13	74 61	0.02		90 70			87 64	
28		84 57		78 58			90 73			87 64	
29		83 67		85 59			91 75			90 67	
30		76 66		90 69			91 73			89 71	
31		82 67					90 72	.47		84 71	
Sums	3.17		5.48			3.28		2.90			
Normal	3.85		4.72			3.98		3.21			
Departure	-.68		+.76			-.70		-.31			

Techniques Used in Herbicide Trials

Lexington:

Design: Except for the primary screening in soybeans, trials were designed as randomized complete blocks with four replications of plots 2 rows wide by 40 to 50 feet long with border rows except in no-till corn and soybeans. The primary screening trial in soybeans was designed as a split-plot with herbicides being the main plots and method of application (Preplant vs. preemergence) being the subplots.

Application: Treatments were applied to conventional corn and soybeans and tobacco with a tractor mounted sprayer. Granular herbicides were applied with a Gandy Granular Applicator. Herbicides were incorporated with a power driven rototiller. No-till corn and soybeans and primary screening in soybeans were treated with a portable CO₂ sprayer.

Rating: Weed control was rated on a 0 to 10 scale where 0 equals no control and 10 equals perfect control and 7 is considered commercially acceptable. Crop injury was rated on a 0 to 10 scale also. A rating of 3 and above was considered not to be commercially acceptable.

Cultivation: Plots were not cultivated

Hartford and Henderson:

Design: Experiments were designed as randomized complete blocks with four replications of plots 4 rows wide by 40 to 50 feet long.

Application: The herbicides were applied with a tractor using compressed air to develop pressure. Herbicides were incorporated with a disc.

Rating: Plots were rated as described for the trials in Lexington.

Cultivation: Plots at Henderson were cultivated twice. Plots at Hartford were not cultivated.

University of Kentucky - Agronomy Department - Lexington
Corn Pre-Emergence

Herbicide	Form.	Application Method	Lb./A Active	Visual Evaluation 6/15			Visual Evaluation 7/29			Corn Plants 100/A at Harvest	Yield Bu/A
				Weed Control			Weed Control				
				Grass	Broadleaf	C-Injury	Grass	Broadleaf	C-Inj.		
Atrazine	80W*	Pre-Emergence	2.0	95 abcd ^{1/}	99 ab	0 a	85 bc	98 ab	0 a	22.8 a	147 ab
Atrazine	4L	do	2.0	99 ab	100 a	0 a	90 bc	100 a	0 a	20.6 ab	128 ab
Simazine	80W	do	2.0	94 abcde	99 ab	0 a	90 bc	95 abc	0 a	22.2 a	144 ab
Atrazine + Simazine	80W	do	.67 + 1.33	95 abcd	96 abc	0 a	88 bc	95 abc	0 a	20.9 ab	148 ab
do	do	do	1.33 + .67	90 bcde	100 a	0 a	85 bc	100 a	0 a	21.4 a	148 ab
Lasso	4E	do	2.0	99 ab	91 abcd	1 a	88 bc	85 bcde	0 a	19.6 ab	121 bc
Lasso	do	do	4.0	99 ab	91 abcd	0 a	88 bc	93 abcd	0 a	19.9 ab	133 ab
Lasso + Atrazine	4E + 80W	do	1.0 + 1.0	100 a	99 ab	0 a	90 bc	98 ab	0 a	21.0 ab	150 ab
do	do	do	2.5 + 1.0	99 ab	100 a	0 a	88 bc	98 ab	0 a	21.3 a	125 b
Maloran	50W	do	2.0	93 abcde	98 ab	0 a	88 bc	98 ab	0 a	21.2 a	138 ab
Lasso 4E + Maloran	50W	do	1.5 + 1.0	95 abcde	88 cd	5 b	85 bc	80 de	0 a	21.1 ab	129 ab
Bladex	80W	do	2.0	86 cde	93 bcd	0 a	65 defg	80 de	0 a	22.4 a	136 ab
do	do	do	4.0	93 abcde	89 cd	0 a	85 bc	90 bcde	0 a	21.7 a	155 ab
Lasso 4E + Bladex	80W	do	1.0 + 1.0	96 abc	94 abcd	0 a	78 cdef	85 cde	0 a	20.6 ab	123 b
do	do	do	2.5 + 1.0	96 abc	89 cd	2 a	83 cd	83 cde	0 a	19.4 ab	128 ab
2,4-D Ester	4E	do	2.0	84 de	85 d	0 a	50 g	70 e	0 a	19.4 ab	121 bc
BAS 2903	4E	do	4.0	84 e	85 cd	0 a	60 fg	68 e	0 a	20.8 ab	144 ab
BAS 2903	4E	do	5.0	91 abcde	84 cd	2 a	63 efg	70 e	0 a	19.4 ab	119 bc
do + Atrazine	80W	do	3.0 + 1.0	93 abcde	99 ab	0 a	83 cd	98 ab	0 a	19.6 ab	135 ab
GS 13529	80W	do	2.0	90 bcde	100 a	0 a	80 cde	93 abcd	0 a	21.4 a	149 ab
do	do	do	4.0	95 abcde	100 a	2 a	90 bc	98 ab	0 a	21.0 ab	136 ab
do + Lasso	4E	do	1.0 + 1.0	93 abcde	95 abcd	0 a	78 cdef	90 abcd	0 a	22.9 a	162 a
Preforan	3E	do	4.5	91 abcde	93 abcd	10 b	73 cdef	88 bcde	0 a	21.2 ab	129 ab
NIA 20439	50W	do	4.0	100 a	94 abcd	34 c	88 bc	73 e	8 b	17.2 b	90 cd
do	do	do	6.0	100 a	99 ab	53 d	95 ab	93 abc	63 c	13.5 c	71 d
Check	--	--	---	100 a	100 a	0 a	100 a	100 a	0 a	22.0 a	148 ab
C.V.				10%	11%	126%	12%	13%	188%	11%	16%

^{1/} Mean values within a column are not significantly different at 5% level probability if followed by one or more of same letters.

* All treatments are pre-emergence

Location: Campus farm, Lexington, Ky.

Planted & Treated May 11.

Soil type - melvin Linside & Maury silt loam from south to north.

Fertilization - 300 lb/A 12-12-12 + 350 lb/A ammonia nitrate

Variety - P.G. SX-29.

Comments:

Weed Species: Red root pigweed and giant foxtail were the most uniformly distributed species and were the predominant species in most plots. Other broadleaf weeds present included: tumble pigweed, hop hornbean copperleaf, common ragweed, common lambsquarters, and velvet leaf. Other grasses present were large crabgrass, fall panicum, and goosegrass.

Weed Control: Early, all treatments gave acceptable weed control. Late in the season both broadleaf weeds and grasses escaped the 2,4-D ester and the BAS 2903 treatments. Combinations of triazines plus Lasso and atrazine plus simazine gave the best results. Bladex appeared to be weaker than other triazines at comparable rate. It performed better preemergence than when incorporated (See Corn Preplant Incorporated)

Injury: NIA 20439 caused moderated to severe injury.

University of Kentucky
 Department of Agronomy
 Corn-pre-emergence

Herbicide Formulation	lb/A Active	Visual Evaluation 7/1		Crop Injury	Yield Bu/A
		Grass	Broadleaf		
Atrazine 4L *	2	73 a ^{1/}	90 a	0 a	87 a
Bladex 80W	2	73 a	83 a	7 a	83 a
Simazine 80W	2	97 a	97 a	3 a	73 a
Lasso 4E	2.5	85 a	70 a	0 a	55 a
Lasso 3E +Atrazine 2E(Formul.)	1.5+1	90 a	93 a	0 a	68 a
Lasso 4E + Atrazine 80W (Tank mix)	1.5+1	93 a	93 a	3 a	85 a
Lasso 4E + Bladex 80W	1.5+1	80 a	90 a	0 a	83 a
Lasso 4E + Maloran 50W	1.5+1	80 a	80 a	13 a	69 a
Lasso 4E + Simazine 80W	1.5+1	93 a	93 a	0 a	85 a
Maloran 50W	2	27 a	80 a	17 a	80 a
Maloran 50W	1	47 a	90 a	0 a	59 a
Check	0	0 a	0 a	0 a	65 a
	C.V.	43%	42%	214%	29%

^{1/} Mean values within a column are not significantly different at 5% probability if followed by one or more of same letters.

* All treatments pre-emergence.

Location: Campbell Farm - Hartford

Planted 5/25

Treated 5/25

Variety - Pioneer 3369 A

University of Kentucky - Agronomy Department-Lexington
 Corn- pre-plant Incorporated

Herbicide Formulation	Lb/A Active	Visual Evaluation 6/15			Visual Evaluation 7/29			Corn Plants	
		Weed Control		Crop	Weed Control		Crop	1000/A	Yield
		Grass	Broadleaf	Injury	Grass	Broadleaf	Injury	At Harvest	Bu/A
Lasso 4E *	2	100 a ^{1/}	91 bc	8 abc	80 de	55 g	a	17.6 bcdef	102 a
Do	4	100 a	100 a	25 cd	88 bcd	73 efg	a	16.5 def	91 a
Atrazine 80W	2	98 ab	100 a	1 ab	88 cde	100 a	a	19.7 abcd	113 a
Bladex 80W	2	94 b	88 c	3 ab	75 e	70 efg	a	21.4 ab	117 a
Do	4	98 ab	90 bc	4 ab	78 de	78 def	a	21.1 abc	108 a
GS 13529 80W + Sutan 7E	1 + 3	100 a	100 a	4 ab	90 bcd	95 ab	a	21.2 ab	109 a
Sutan 7E	4	100 a	91 bc	8 abc	93 bc	73 efg	a	21.9 a	108 a
EPTC 6E	6	100 a	99 ab	40 d	85 cde	65 fg	20 b	14.7 f	74 a
EPTC + Naphthalic Anhydride	6 +.5%	100 a	100 a	21 bcd	95 b	80 def	10 a	15.2 ef	109 a
Sutan + Atrazine	3 + 1	98 ab	96 abc	4 ab	88 cde	90 bcd	a	20.9 abc	97 a
Lasso + Atrazine	1 + 1	100 a	100 a	11 abc	83 cde	93 bc	a	16.9 cdef	109 a
Sutan + Bladex	3 + 1	96 ab	98 ab	0 a	85 cde	85 cde	a	20.5 abcd	118 a
Do	3 + 2	99 a	99 ab	8 abc	88 cde	78 def	a	19.1 abcd	107 a
Check Cultivated	0	100 a	100 a	1 ab	100 a	100 a	a	19.7 abcde	117 a
		C.V. 6%	9%	110%	9%	11%	432%	13%	17%

^{1/} Mean values within a column are not significantly different at 5% probability level if followed by one or more of the same letters.

* All treatments pre-plant Incorporated 2-3" deep
 Location: campus Farm, Lexington, Ky.
 Planted & treated - May 12.
 Soil Types - Melvin, Linside & Maury silt loam from south to north.
 Fertilization - 300 lb/A 12-12-12 + 350 lb/A ammonia nitrate
 Variety - P.A.G. SX-29

Comments:

Weed Species: Red root pigweed and giant foxtail were the most uniformly distributed species and were the predominant species in most plots. Other broadleaf weeds present included: tumble pigweed, hop hornbean copperleaf, common ragweed, common lambsquarters, and velvet leaf. Other grasses present were large crabgrass, fall panicum, and goosegrass.

Weed Control: All the treatments gave acceptable control of grasses and broadleaf weeds. However, late in the season Bladex was weak on broadleaf and grassy weeds and Lasso, Sutan, and EPTC were weak on broadleaf weeds. Other observations include: 1) Bladex was less effective when incorporated (See Corn-Preemergence), particularly in controlling red root pigweed and common lambsquarters. 2) GS 13529 gave weed control very similar to atrazine. 3) Sutan was weak on red root pigweed and common lambsquarters. 4) Lasso was weak on common lambsquarters, and velvet leaf.

Injury: Initially, Sutan injured the corn slightly. At 4.0 lb/A Lasso caused slight to moderate injury. The corn rapidly recovered from this injury. EPTC caused moderate to severe injury of the corn. The seed treatment of Naphthalic Anhydride reduced the injury about 50%. EPTC alone definitely caused a reduction in yield. (Statistically not significant because of erratic stands due to packing rain after planting).

University of Kentucky
Department of Agronomy
Corn-Pre-plant Incorporated

Herbicide Formulation	lb/A Active	Visual Evaluation 7/1 Weed Control		Crop Injury	Yield Bu/A
		Grass	Broadleaf		
Lasso 4E *	2.5	53 ab ^{1/}	53 bc	23 a	62 a
Lasso 4E + Atrazine 4L	1.5 + 1	73 ab	83 ab	40 a	75 a
Atrazine 4L	2	43 b	90 a	20 a	57 a
Atrazine 4L + Sutan 7E	1 + 3	77 ab	83 ab	23 a	74 a
Simazine 80W	2	90 a	90 a	37 a	79 a
Sutan 7E	4	87 a	77 ab	16 a	71 a
Sutan 7E + Simazine 80W	3 + 1	90 a	87 a	0 a	87 a
Check		0 c	0 c	0 a	47 a
	C.V.	29%	18%	103%	20%

^{1/} Mean values within a column are not significantly different at 5% probability if followed by one or more of same letters.

* All treatments Pre-plant Incorporated.
Location: Campbell Farm, Hartford
Planted 5/25
Treated 5/25
Variety - Pioneer 3369A

University of Kentucky - Agronomy Department
Lexington
Corn Post-emergence

Herbicide Formulation	Active	Visual Evaluation Weed Control		Visual Evaluation Weed Control		Corn Pl. 1000/A At Harvest	Yield Bu/A		
		Grass	Broadleaf	Grass	Broadleaf				
Atrazine 80W + Oil *	2 + 1 gal	88	cde ^{1/}	100	a	88 bc	95 a	19.5 ab	130 a
BAS 3510 4E + Surf.*	3 + 1%surf	48	f	73	c	43 e	70 b	19.0 ab	105 a
Outfox 1E*	2	95	abc	100	a	88 bc	100 a	18.5 ab	123 a
Atrazine 80W + Dowpon + Oil*	2 +.5+1gal	93	bcd	100	a	85 bc	100 a	17.4 abc	126 a
Ametryne 80W + Oil**	2 + 1 gal	88	cde	100	a	80 bc	98 a	17.3 abc	114 a
BAY 94337 70W + Surf.**	.5+1%surf	85	de	98	ab	75 cd	98 a	18.5 ab	107 a
Do Do**	1+1% "	93	bcd	93	ab	83 bc	93 a	14.5 a	83 a
Lorox 50W + Surf.**	1+1% "	88	cde	98	ab	83 bc	95 a	16.9 bc	117 a
Do + Oil**	1+1 gal	88	cde	95	ab	85 bc	95 a	17.5 abc	110 a
2,4-D amine 4E + Surf.**	.5+1%	80	e	90	b	73 cd	95 a	20.6 a	110 a
Maloran 50W + do**	1+1%	78	e	98	ab	65 d	95 a	16.8 bc	128 a
Do + Oil **	1 + 1 gal	88	cde	100	a	78 cd	98 a	16.2 bc	112 a
Ametryne 80W **	3	98	ab	100	a	93 b	100 a	16.3 bc	117 a
Check Cultivated		100	a	100	a	100 a	100 a	17.5 abc	110 a
	C.V.	10%		10%		10%	13%	12%	16%

^{1/} Mean values within a column are not significantly different at 5% probability level if followed by one or more of the same letters.

* Early post

** Post directed (1.5 lb/A of 2,4-D amine applied preemergence to give heighth differential between weeds and corn)

Location - Campus Farm , Lexington, Ky.

Planted - May 13

Treated early post June 9

Treated - Post Directed June 25.

Soil Types - Melvin, Linside & Maury silt loam from south to north

Fertilization - 300 lb/A 12-12-12 + 350 lb/A ammonia nitrate

Variety P.A.G. SX-29.

Comments:

Weed Species: Same as for Corn Preplant Incorporated

Weed Control: All the treatments gave satisfactory control of broadleaf weeds but 2,4-D amine, BAS 3510 and Maloran plus surfactant gave less than satisfactory control of grasses.

Atrazine and Outfox were very effective as a topical early application and Lorox and Ametryne were very effective as directed sprays.

Injury: Topical applications cause slight very early chlorosis which was not evident at first rating. Directed application "burned" the corn foliage contacted. Since this was expected it was not considered in the injury rating.

University of Kentucky-Department of Agronomy
Zero Tillage Corn
Killed Blue Grass Sod

Herbicide Formulation	Active	Visual Evaluation		Visual Evaluation		Corn Plants 1000/A At Harvest	Yield Bu/A
		Weed Control 6/16	Sod Kill	Weed Control 8/18	Sod Kill		
Atrazine80W+Paraquat 2E + Surf.*	2+.25+.5%	100	100	90	20.7 ab	^{1/}	87 a
Simazine 80W+Paraquat 2E + Surf	2+.25+.5%	98	100	93	21.7 ab		81 a
Bladex80W+Paraquat 2E + Surf	2+.25+.5%	100	100	40	20.6 ab		77 a
GS 13529 + Paraquat 2E + Surf	2+.25+.5%	100	100	70	18.3 ab		87 a
Atrazine + G.A. 2-219	2 + 2 gal	100	100	93	22.7 a		78 a
Do	2 + 4 gal	100	100	90	21.1 ab		80 a
G.A. 2-219	4 gal	0	0	0	0 c		0 c
Lasso 4E +Paraquat 2E + Surf	3+.25+.5%	20	53	25	20.6 ab		45 b
Outfox 1E + Paraquat 2E + Surf	2+.25+.5%	100	100	98	21.7 ab		89 a
Maloran 50W + Paraquat + Surf	2 + .25+.5%	43	90	23	17.9 b		43 b
C.V.						15%	21%

^{1/} Mean values within a column are not significantly different at 5% probability if followed by one or more of same letters

* All treatments pre-emergence
Location: Maine Chance Farm, Lexington, Ky.
Treated 5/5 Planted 5/6
Soil Type - Maury silt loam
Fertilization : 200 # N
Variety: P.A.G. SX-29

Comments:

Weed Species: Tumble pigweed and red root pigweed were the predominant species present. Yellow foxtail was present, particularly in the area disturbed by the Coulter at planting. It was effectively controlled by all the herbicides). Dallisgrass was present in certain plots.

Weed (and Sod) Control: Combinations including a triazine gave excellent sod control. Lasso, maloran, GA-2-219 were ineffective in controlling the sod. Combinations with atrazine, simazine, and outfox gave excellent control of the pigweeds. Pigweed-control with GS-13529 was acceptable. Bladex did not effectively control the pigweeds. Combinations including Lasso, and Maloran (and GA-2-219 alone) were not effective in controlling the pigweeds. None of the treatments controlled dallisgrass.

Injury and Yield: No herbicidal injury to the corn was evident. Reduced yields from combinations including Lasso and Maloran reflect the lack of sod and weed control. Corn in plots treated with the phytotoxic oil (?) GA-2-219 could not compete with the uncontrolled sod.

University of Kentucky
 Department of Agronomy
 Zero Tillage Corn
 Killed Rye Cover Crop

Herbicide	Formulation	Lb/A Active	<u>Weed Control 6/16</u>	<u>Weed Control 8/18</u>	<u>Corn Plants</u>	Yield Bu/A.
			Rye Kill	Weed Control	1000/A At Harvest	
Atrazine + Paraquat + Surf.*		2.+0.025+.5%	100	75	22.3	65
Do		2.+0.025+.5%	100	78	25.3	74
Do		4.+0.025+.5%	100	93	24.7	72
Do		4.+0.025+.5%	100	95	24.6	72
Atrazine + Simazine + Paraquat + Surf.		2.+1.+0.025+.5%	100	75	24.9	72
Do		1.+2.+0.025+.5%	100	85	24.9	73
Bladex + Paraquat + Surf.		2 +.025+.5%	100	20	19.5	57
Do		3 +.025+.5%	100	68	23.8	69
Simazine + Paraquat + Surf.		2 +.025+.5%	100	78	22.7	66
Do		3 +.025+.5%	100	83	23.0	67
Outfox + Paraquat+ Surf.		2 +.025+.5%	100	95	25.6	74
Outfox + Paraquat + Surf.		3 +.025+.5%	100	95	25.7	75

* All treatments Pre-emergence.
 Location - Maine Chance Farm, Lexington, Ky.
 Treated 5/5.
 Planted 5/6
 Soil Type Maury silt loam.
 Fertilization 200# N
 Variety PAG SX-29

Comments:

Weed Species: The predominant species were tumble pigweed, and red root pigweed. Yellow foxtail was present in most of the plots. Dallisgrass was present in some plots.

Weed (and Rye) Control: The triazine, Paraquat, surfactant combinations, which were applied when the rye was approximately 3 feet tall, gave excellent control of the rye. High rates (4 lb/A) of atrazine, simazine (alone at 3 lb/A or at 2 lb/A in combination with 1 lb/A of atrazine) and outfox in combination with paraquat and surfactant gave very good control of all weeds except dallisgrass. Bladex was less effective on the pigweeds and the grasses. than the other triazines.

Injury: No crop injury was noted.

Soybeans Pre=Emergence Exp. I

17

Herbicide Formulation	lb/A Active	Visual Evaluation 6/16 Weed Control			Visual Evaluation 7/30 Weed Control		Yield Bu/A
		Grass	Broadleaf	C-Injury	Grass	Broadleaf	
Lasso 4E *	2	99 ab ^{1/}	91 abcd	0 a	83 bcdefg	78 cdefg	48 a
Do	4	100 a	93 abcd	4 abc	90 bcdef	83 bcde	44 a
Lorox 50W	1	86 bcdef	99 ab	0 a	78 defgh	88 abcd	47 a
Do	1.5	96 abc	100 a	0 a	93 abc	95 ab	41 a
Lasso + Lorox 4E + 50W	1 + .5	98 abc	95 abcd	5 bcd	85 bcdefg	80 bcdef	44 a
Do Do	2 + 1	100 a	99 ab	8 bcd	88 bcdef	93 abc	52 a
Do Do	3 + 1.5	100 a	100 a	8 bcd	95 ab	93 abc	45 a
Amiben 2S	3	50 gh	70 efg	0 a	43 j	63 efghi	36 a
Amiben 20G	3	89 abcde	86 cdef	0 a	70 fghi	53 fghij	38 a
Amiben 10G	3	85 bcdef	89 abcd	3 ab	73 fghi	70 defghi	41 a
Amiben 2S + CIPC 4E	2 + 3	83 cdef	99 ab	3 ab	65 ghij	63 efghi	41 a
BAS 2903 4E	4	96 abcd	89 abcd	14 e	75 efgh	45 ij	36 a
Do	8	100 a	100 a	39 f	85 bcdefg	50 ghij	42 a
BAS 2903 + Lorox 50W	3 + .75	100 a	100 a	11 de	80 cdefg	90 abcd	46 a
Solo 2 + 2	2 + 2	63 fgh	55 g	3 ab	50 ij	48 hij	39 a
Solo	3 + 3	78 efg	64 fg	0 a	65 ghij	30 j	37 a
BAY 94337 70W	.5	85 abcde	95 abcd	0 a	73 fghi	80 bcdef	46 a
Do	1	99 ab	99 ab	11 de	85 bcdefg	85 bcde	44 a
Do	1.5	98 ab	100 a	40 f	90 bcde	93 abc	47 a
Maloran 50W + Lasso 4E	1 + 1.5	91 abcde	98 abc	3 ab	88 bcdef	93 abc	45 a
Maloran 50W	2.0	83 abcde	94 abcd	0 a	80 cdefg	93 abc	46 a
Preforan 3E	3	74 def	86 bcde	3 ab	65 ghij	70 cdefghi	37 a
Do	4.5	93 abcd	98 abc	9 de	90 bcdef	83 bcde	45 a
Treflan 4E	.75	41 h	58 g	0 a	55 hij	45 hij	35 a
Do	1.5	81 bcdef	68 fg	0 a	65 ghij	48 hij	41 a
Ryzelan 75 WP	1	70 efg	50 g	0 a	80 cdefg	65 efghi	44 a
Do	1.5	50 fgh	65 def	0 a	78 cdefg	80 bcdef	41 a
Do	2	80 bcdef	85 cdef	0 a	93 abc	88 bcde	42 a
Do	3	90 abcde	94 abcd	4 abc	93 abcd	73 cdefgh	45 a
Check Cultivated		100 a	100 a	0 a	100 a	100 a	49 a
	C.V.	15%	13%	71%	14%	17%	20%

1/ Mean values within a column are not significantly different at 5% probability if followed by one or more of same letters.

* All treatments Pre-emergence
 Location - Campus Farm - Lexington, Ky. Fertilization: 300 lb/A 12-12-12
 Planted & Treated May 19
 Soil Type: Melvin, Linside & Maury silt loam
 Variety - Cutler

Comments:

Weed Species: The predominant species were redroot pigweed, and giant foxtail. Other species present in variable densities and distributions included: common lambsquarters, hop hornbean copperleaf, velvetleaf, purple "awned giant foxtail", smartweed, fall panicum barnyardgrass.

Weed Control: Lasso was weak on common lambsquarters, hop hornbean copperleaf, and velvet leaf, but gave good control of annual grasses. Relative to lasso, lorox was weak on the grasses, but very strong on the broadleaf weeds including velvetleaf. Combinations of the two at 2 + 1 lb/A gave excellent control of all species present. Maloran was not as effective as Lorox. Preforan at 4.5 lb/A was very effective. Ryzelan at 2 and 3 lb/A was effective on grasses and broadleaf weeds. Treflan (on the surface) was relatively ineffective. Control with BAS-2903 was weak late in the season. Amiben 2S was also weak. Granular formulations were much more effective. BAY 94337 was very effective on all species at 1 and 1.5 lb/A. At 0.5 lb/A it was less effective but still showed acceptable activity on both broadleaf weeds and grasses. Except at 3 + 3 lb/A early in the season, Solo did not effectively control broadleaf weeds and grasses.

Injury: Early injury (1 to 4 weeks after planting) was moderate with BAS 2903 at 8 lb/A and Bay 94337 at 1.5. However the beans appeared to fully recover. Combinations including Lorox, BAS 2903 at 4 lb/A/ BAY 94337 at 1 lb/A, and Preforan at 4.5 lb/A injured soybeans slightly.

Yields: Weed infestations in plots treated with Treflan (0.75 lb/A), Preforan (3 lb/A), Solo, BAS 2903 (4 lb/A, Amiben 2S and 20G depressed yields below 40 bu/A but the yields were not significantly different from the weed free check.

University of Kentucky
Department of Agronomy
Soybeans Pre-Plant Incorporated

Herbicide Formulation	lb/A Active	Visual Evaluation Weed Control 6/16			Visual Evaluation Weed Control 7/30			Yield Bu/A
		Grass	Broadleaf	C-Injury	Grass	Broadleaf	C-Injury	
Treflan 4E*	.75	91 bc ^{1/}	83 efg	0 a	83 bc	73 bcdef	0 a	37 abc
Do	1.50	98 ab	86 defg	9 bcde	88 bc	75 bcdef	0 a	42 ab
Vernam 6E	2.00	100 a	90 cdef	19 ef	78 bc	55 def	0 a	35 bc
Do	2.50	100 a	95 abc	25 fg	83 bc	63 cdef	0 a	32 bc
Lasso 4E	2.0	100 a	95 abc	8 bcd	88 bc	80 bcde	0 c	43 ab
Do	4.0	100 a	95 abc	13 de	93 b	85 bc	0 a	42 ab
BAY 94337 70W	.5	95 abc	98 ab	10 cde	78 bc	73 bcdef	0 a	40 ab
Do	1.0	100 a	100 a	41 g	90 bc	90 b	18 bc	40 ab
Do	-1.5	100 a	100 a	64 h	93 b	58 cdef	35 c	34 bc
Amiben 2S	3.0	90 cd	93 bcde	1 ab	75 c	80 bcde	0 a	39 abc
BAS 3870 4 lbs	1.0	84 d	83 efg	0 a	73 c	53 def	0 a	35 bc
Do	1.5	95 abc	86 defg	1 ab	78 bc	70 bcdef	0 a	39 abc
Planavin 4 lbs	1.0	83 d	75 g	3 abc	78 bc	58 cdef	0 a	31 bc
Do	1.5	84 d	78 fg	1 ab	73 c	50 ef	0 a	34 bc
ER-5461 4 lbs	.75	96 abc	80 fg	1 ab	83 bc	45 f	0 a	26 c
Do	1.50	96 abc	89 cdefg	4 abcd	88 bc	78 bcde	0 a	37 abc
Vernam + Lasso	2+2	100 a	98 ab	26 fg	90 bc	78 bcd	0 a	41 ab
Check Cultivated		100 a	100 a	0 a	100 a	100 a	0 a	49 a
	C.V.	8%	9%	48%	13%	19%	22%	21%

^{1/} Mean values within a column are not significantly different at 5% probability if followed by one or more of the same letters.

* All treatments Pre-plant Incorporated 2-3" deep
Location: Campus Farm, Lexington, Ky.
Planted & Treated May 20
Soil Type: Burgin silt clay loam & Linside silt loam
Fertilization: 300 lb/A 12-12-12
Variety - Cutler

Comments:

Weed Species: Same as listed for preemergence trials on soybeans

Weed Control: All the treatments controlled broadleaf grasses for at least a month. Acceptable weeds and grasses control for a full season was achieved with most of the herbicides. Control of broadleaf weeds was less than satisfactory with Vernam, Bas 3870, Planavin, and ER-5461 at 0.75 lb/A. Other observations include: 1) Treflan gave little control of broadleaf weeds other than pigweeds. 2) Planavin at 2X rate weaker than treflan. 3) Lasso ineffective on common lambsquarters, hop hornbean copperleaf, and velvetleaf. 4) Amiben 2S was much more effective incorporated than when surface-applied. 5) ER 5461 was very ineffective on all broadleaf weeds except red root pigweed.

Injury: Bay 94337 at 1 and 1.5 lb/A gave moderate to severe injury of the beans. The injury persisted through the season. Vernam at 2.5 lb/A and Lasso + Vernam injury to beans moderately early but the beans rapidly grew out of the injury. Other herbicides causing slight early injury include Treflan (1.5 lb/A), Lasso, and BAY 94337 (0.5 lb/A).

Yields: Broadleaf weed growth was heavy in plots treated with Vernam, BAS 3870, Planavin, and ER 5461 (0.75 lb/A) and probably contributed to the reduced yield harvested from these plots. Severe injury by 1.5 lb/A of BAY 94337 limited soybean yields on plots receiving this treatment.

University of Kentucky - Agronomy Department
Soybeans-Preplant Incorporated and Preemergence
Henderson

Herbicide	lb/A Active	Visual Evaluation 6/19			Visual Evaluation 9/9			Yield Bu/A
		Weed Control ^{1/}		Crop Injury	Weed Control		Crop Injury	
		Grass	Broadleaf		Grass	Broadleaf		
Amiben + Lorox (Amilon)	3 + 1	98 ab	93 abc	18 bc	100	98	8	44
Amiben + DNBP	2 + 4	93 bc	78 cd	2 ab	100	95	5	58
Alanap + CIPC (SOLO)	2 + 2	83 d	65 d	0 a	98	68	0	45
Lasso	2.5	95 abc	83 bcd	8 abc	100	88	5	48
Vernam	2.5	93 bc	70 d	23 c	100	65	10	44
Lasso + Lorox	2.5 + .75	100 a	92 abc	20 bc	100	95	8	50
Treflan + Lorox	.75+.75	100 a	95 ab	20 bc	100	95	13	49
BAY 94337	1	100 a	98 a	73 d	100	73	50	38
Treflan + CIPC	.75 + 2	90 cd	83 cd	18 bc	98	93	3	46
Check	0	0 e	0 e	0 a	0	0	0	23
	C.V.	8%	15%	63%				

^{1/} Plots were cultivated twice between early and late rating.

^{2/} Mean values within a column are not significantly different at 5% probability if followed by one or more of the same letters.

Comments: Weed Species: Red root pigweed, common ragweed, Pennsylvania smartweed.

Weed Control: With the cultivation all the herbicides gave acceptable control of both broadleaf and grassy weeds.

Injury: Lasso caused very slight early injury. Amiben + Lorox, Vernam, Lasso + Lorox, Treflan + Lorox, and Treflan + CIPC caused slight to moderate injury. The soybeans recovered rapidly from this injury. BAY 94337 caused severe initial and moderate to severe permanent injury.

University of Kentucky
Department of Agronomy
Primary Screening-Pre-emergence

Herbicide	lb/A Active	Visual Evaluation 6/16			Visual Evaluation 8/17	
		Weed Control Grass	Weed Control Broadleaf	Crop Injury	Weed Control Grass	Crop Injury
SD-25279*	2	50	35	0	10	0
M-3447	8	75	25	0	45	0
SD-30187	2	85	80	0	80	0
ER-9061	.75	65	80	0	30	0
M-3447	4	50	15	0	35	0
ER-5461	1.5	85	75	0	70	0
NIA-20439	4	90	80	0	80	10
Lasso	2.5	90	85	0	90	0
ER-9063	1.5	80	80	0	70	0
SD-25279	4	55	45	0	20	0
ER-9063	.75	55	60	0	40	0
Check	0	0	0	0	0	0
ER-9061	1.5	60	70	0	55	0
NIA-20439	6	95	95	35	85	40
SD-30187	1	85	75	0	75	0
ER-5461	.75	55	65	0	40	0
Amiben	3	65	85	0	35	0

* All Treatments Pre-emergence

Location: Campus Farm, Lexington, Ky.

Treated & planted 5/13.

Soil Type: Newark silt loam

Fertilization: 300 lb/A 12-12-12

Variety - Cutler

University of Kentucky
Department of Agronomy
Primary Screening-Pre-plant Incorporated

Herbicide	lb/A Active	Visual Evaluation 6/16		Crop Injury	Visual Evaluation 8/17	
		Grass	Broadleaf		Grass	Crop Injury
SD-25279*	2	50	35	0	20	0
M-3447	8	85	35	50	35	0
SD-30187	2	90	80	0	40	0
ER-9061	.75	60	85	0	75	0
M-3447	4	70	40	10	25	0
ER-5461	1.5	90	90	15	85	0
NIA-20439	4	90	80	35	75	25
Treflan	.75	90	90	0	75	0
ER-9063	1.5	85	80	0	75	0
SD-25279	4	50	45	0	10	0
ER-9063	.75	75	65	0	65	0
Check	0	0	0	0	0	0
ER-9061	1.5	60	70	0	60	0
NIA-20439	6	90	90	60	80	30
SD-30187	1	85	75	0	80	0
ER-5461	.75	85	85	0	70	0
Vernam	2.5	80	85	5	65	0

* All Treatments Pre-plant Incorporated.
Location: Campus Farm, Lexington, Ky.
Treated & Planted 5/13
Soil Type: Newark silt loam
Fertilization: 300 lb/A 12-12-12
Variety - Cutler

Comments on preplant incorporated and preemergence primary screening in soybeans:

Weed Species: Love grass, giant foxtail, and large crabgrass were the predominant grasses. Broadleaf weeds included black nightshade, tumble pigweed, and hop hornbean copperleaf.

Weed Control: Those treatments which were relatively ineffective include: SD 25279, ER 9061, and M 3447. Of the Esso candidates ER 5461 was most effective. Incorporation enhanced the activity of the Esso products. Yellow nutsedge was present in the experiment in certain areas. It was not considered in rating the plots. However, it was noted that NIA 20439 gave fantastic control of the sedge.

Injury: Only NIA 20439 injured the beans appreciably. At both rates incorporated and at the high rate on the surface NIA 20439 caused moderate to severe injury.

University of Kentucky
 Department of Agronomy
 Soybeans in Wheat Stubble

Herbicide Formulation	Lb/A Active	Visual Evaluation		Yield Bu/A
		Weed Control 8/26 Grass	Broadleaf	
Lasso 4E + Paraquat 2E + Surf *	2 +.25 +.5%	25 cd ^{1/}	14 ^s e	10 e
" " " "	3 +.25 +.5%	18 d	18 de	11 e
Lorox 50W + " "	1 +.25 +.5%	25 cd	33 cde	20 abcd
" + " "	2 +.25 +.5%	48 abc	63 abc	24 ab
Lasso 4E + Lorox 50W+Paraquat+ Surf	2 +1+.25+.5%	58 ab	65 abc	23 abc
" " " "	2+2+.25+.5%	55 ab	60 abc	24 ab
Lorox 50W + Dow General 3E + Surf	2 + 6 + .5%	40 bcd	73 ab	23 abc
" + GA-2-219	2 + 4 gal	38 bcd	63 abc	22 abcd
" + Surf	2 + .5%	20 d	78 a	17 d
" + Gulf Coop Oil	2 + 1 gal	18 d	55 abcd	19 bcd
Amilon + Surf	3 + 1 + .5%	15 d	35 bcde	18 cd
" + Paraquat + Surf	3 + 1 +.25+.5%	25 cd	50 abcde	22 abcd
Maloran 50W+ " "	2 + .25+.5%	70 a	40 abcde	25 a
C.V.		44%	48%	18%

^{1/} Mean values within a column are not significantly different at 5 % probability if followed by one or more of the same letters.

* All treatments pre-emergence
 Location - Campus Farm - Lexington, Ky.
 Planted & treated July 2
 Soil Type: Burgin silt loam
 Variety: Calland

Comments:

Weed Species: This field had not been in summer row crops in several years; therefore, the spectrum of its weed population was not "typical". The most uniformly distributed species were giant foxtail, large crabgrass and wheat. Other species sporadically located in the field include honeyvine milkweed, hedge bindweed, buckhorn plantain, redroot pigweed, common lambsquarters, hop hornbean copperleaf, and tall morning glory.

Weed Control: Grass control was very sporadic and general less than was anticipated. Because of the spectrum of species, broadleaf weed control was less than adequate.

Injury: No injury to the soybeans was noted.

Yields: The lack of weed control is reflected in the low yields. The fact that the beans were planted late probably also contributed to the low yields.

University of Kentucky
Department of Agronomy
BURLEY TOBACCO

Herbicide Formulations	lb/A Active	Visual Evaluation % 7/16			Visual Evaluation % 8/5		
		Weed Control		Crop Injury	Weed Control		Crop Injury
		Grass	Broadleaf		Grass	Broadleaf	
EL-179 6E *	1.5	83 c ^{1/}	65 hi	0 a	80 bcd	40 g	0 a
Do	3	93 bc	75 efgh	0 a	90 b	58 f	18 a
Balan 1.5	1.12	88 bc	60 i	0 a	90 bc	28 h	0 a
Do	2.25	88 bc	70 ghi	0 a	85 bcd	43 g	0 a
Tillam 6 E	3	85 c	83 cdef	0 a	73 d	73 cde	0 a
Do	4	83 c	88 cd	10 a	78 cd	70 cdef	0 a
Tillam 4E + Dyfonate 1E	4 + 1	93 bc	88 cd	0 a	83 bcd	75 bcd	0 a
R-7465 50W	2	93 bc	88 cd	0 a	90 bc	70 cdef	15 a
Do	4	95 ab	90 c	0 a	90 bc	80 bc	0 a
ER-5461 4 lbs	.75	93 bc	73 fghi	0 a	85 bcd	33 gh	0 a
Do	1.50	90 bc	65 hi	0 a	88 bc	45 g	0 a
Dymid 80 W**	4	80 c	70 ghi	0 a	83 bcd	60 ef	0 a
Do	6	95 ab	90 c	0 a	98 a	73 cde	0 a
Enide 50W	4	90 bc	78 defg	0 a	83 bcd	63 def	0 a
Do	6	95 ab	85 cde	0 a	98 a	70 cdef	0 a
Nia 20439 50W	4	90 bc	90 c	8 a	90 b	80 bc	10 a
Do	6	100 a	95 b	38 b	98 a	85 b	43 b
Lasso	2	93 bc	85 cde	0 a	83 bcd	70 cdef	0 a
Check		100 a	100 a	0 a	100 a	100 a	0 a
	C.V.	10%	7%	277%	10%	9%	309%

^{1/} Mean values within a column are not significantly different at 5% probability if followed by one or more of same letters.

* Pre plant Incorporated

** Post transplanting

Location - Maine Chance Farm, Lexington, Ky.

Treated 6/10 & 11

Planted 6/11

Soil Type: Maury silt loam

Fertilization 200 lb/A N, 200 lb sulphate of potash

Variety - Ky 14.

Comments:

Weed Species: The predominant species were prickly sida (Teaweed), red root pigweed, tumble pigweed, velvetleaf, and green foxtail. Common ragweed, common lambsquarters, yellow foxtail, and large crabgrass were present in a few plots.

Weed Control: All the herbicides gave adequate control of the grasses. Most of the herbicides gave less than adequate control of the broadleaf weeds, particularly prickly sida which was the most populous broadleaf weed present.

Injury: Due to wet weather when transplants reached the optimum size for transplanting large (very large would you believe trees) plants were used. Thus early growth was erratic and slight herbicidal injury may have been masked by this uneven development. The only obvious herbicidal injury was caused by Nia 20439 at 6 lb/A.