

Potential of Bladex and Classic in Stale Seedbed Soybeans

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Introduction

Several reasons have been proposed for producing a crop using reduced tillage; the most important is the potential lessening of soil erosion. Other reasons included lowered production costs (6) and increased crop yields (2). There have been reports of poor weed control in reduced and no-tillage systems (3,4,) while other researchers have reported that plant residues left on the soil surface control weeds (1,7).

Although cyanazine (Bladex) is not currently labeled for use in soybeans, research has shown its effectiveness in controlling weeds in soybeans with little injury to the crop (5) depending upon herbicide placement.

The purpose of this experiment was to determine the effectiveness of Bladex and chlorimuron (Classic) alone or in combination as preplant foliar herbicides in a reduced tillage system.

Materials and Methods

A field experiment was conducted on Sharkey clay (very fine, montmorillonitic, thermic Vertic Haplaquept) in 1988, at Stoneville, MS. Treatments included Bladex at 0, 0.25, 0.375, and 0.5 lb ai/A and Classic at 0, 0.0078, and 0.0625 lb ai/A alone and in combination for preplant burndown control of pitted morningglory (*Ipomoea lacunosa* L.) in the 0-4 leaf stage, prickly sida (*Sida spinosa* L.) in the 0-6 leaf stage, common cocklebur (*Xanthium strumarium* L.) in the 2-6 leaf stage, johnsongrass [*Sorghum halepense* (L.) Pers.] in the 3-6 leaf stage, redvine [*Brunnichia ovata* (Walt.) Shinn.] 24 inches in diameter, curly dock (*Rumex crispus* L.) 8 inches in diameter, and Pennsylvania smartweed (*Polygonum pensylvanicum* L.) 8 inches in diameter. The 0.0078 lb/A rate of chlorimuron is a labeled rate when applied postemergence as Classic in soybeans. When applied preplant incorporated or preemergence, the 0.0625 lb/A rate of chlorimuron is a labeled rate when applied as a component of Canopy.

The field was previously cropped in soybeans and was chisel plowed and disked twice in February of 1988. All herbicide treatments were mixed with Agridex I.25% (v/v), a petroleum based crop-oil concentrate, and applied on May 5, 1988, with a tractor-mounted compressed air sprayer calibrated to deliver 20 gallons of spray solution per acre. Soybeans 'Epps' were planted on May 25, 1988. Experimental design was a randomized complete block with 3 replications. Plots were 4, 40-inch rows, 50 feet long. A visual rating of weed control was recorded for each weed species 2 weeks after treatment. Soybean yield was obtained by mechanically harvesting the center two rows of each plot. Data were subjected to analysis of variance using a 4 x 3 factorial arrangement of treatments and means were com-

pared using a Least Significant Difference Test at the P=0.05 level of significance.

Results

Pitted Morningglory

Bladex alone provided only 73 to 82% control (Table 1), while both rates of Classic significantly increased control over all rates of Bladex. These data suggest that Classic could be used alone to achieve excellent preplant burndown of pitted morningglory, and would be more effective than Bladex alone.

Table 1. Preplant burndown control of pitted morningglory by Bladex and Classic.

Bladex (lb ai/acre)	Classic (lb ai/acre)		
	0	0.0078	0.0625
	-----%		
0	0	91	97
0.25	73	92	93
0.375	14	94	97
0.5	82	89	97

LSD (0.05) = 10 for comparison of any two means

Prickly Sida

Neither Bladex nor Classic were effective in controlling prickly sida (Table 2). Even though some of the tank-mixtures provided significant increases in control, no combination provided greater than 80% control.

Table 2. Preplant burndown control of prickly sida by Bladex and Classic.

Bladex (lb ai/acre)	Classic (lb ai/acre)		
	0	0.0078	0.0625
	-----%		
0	0	3	7
0.25	32	53	28
0.375	43	33	37
0.5	22	20	38

LSD (0.05) = 35 for comparison of any two means

Common Cocklebur

Bladex alone was not effective in controlling common cocklebur (Table 3), but control was significantly increased

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Table 3. Preplant burndown control of common cocklebur by Bladex and Classic.

Bladex (lb ai/acre)	Classic (lb ai/acre)		
	0	0.0078	0.0625
	-----%		
0	0	99	99
0.25	27	99	99
0.375	30	99	99
0.5	43	99	99

LSD (0.05) = 5 for comparison of any two means

with the addition of Classic. Classic alone provided excellent control and was effective at the lowest rate. Bladex was not needed for control.

Johnsongrass

Johnsongrass was not controlled with Bladex or Classic applied alone at any rate (Table 4). Only Bladex (0.5 lb/A) + Classic (0.0078 lb/A) provided increased control over Bladex alone, however the control (35%) was unacceptable.

Table 4. Preplant burndown control of johnsongrass by Bladex and Classic.

Bladex (lb ai/acre)	Classic (lb ai/acre)		
	0	0.0078	0.0625
	-----%		
0	0	23	47
0.25	7	17	12
0.375	10	23	25
0.5	10	35	27

LSD (0.05) = 19 for comparison of any two means

Redvine

Although there was no rate response associated with either Bladex or Classic (Table 5), there were some significant responses to tank-mixing. As seen with prickly sida and johnsongrass, effective control was not achieved even by tank-mixing.

Curly Dock

Bladex alone was not effective in controlling curly dock (Table 6). However, Classic used alone at the high rate resulted in significantly better control than did any rate of Bladex. Tank mixing with Bladex did not increase control above the high rate of Classic.

Table 5. Preplant burndown control of redvine by Bladex and Classic.

Bladex (lb ai/acre)	Classic (lb ai/acre)		
	0	0.0078	0.0625
	-----%		
0	0	18	8
0.25	22	29	32
0.375	28	40	18
0.5	22	48	20

LSD (0.05) = 10 for comparison of any two means.

Table 6. Preplant burndown control of curly dock by Bladex and Classic.

Bladex (lb ai/acre)	Classic (lb ai/acre)		
	0	0.0078	0.0625
	-----%		
0	0	37	85
0.25	22	38	78
0.375	28	43	83
0.5	30	52	90

LSD (0.05) = 7 for comparison of any two means

Pennsylvania Smartweed

Pennsylvania smartweed control increased with increased rates of Classic (Table 7). Tank-mixtures did not increase control over Classic alone at either rate. However, the tank-mixtures of Bladex and the high rate of Classic significantly increased control over each rate of Bladex.

Table 7. Preplant burndown control of Pennsylvania smartweed by Bladex and Classic.

Bladex (lb ai/acre)	Classic (lb ai/acre)		
	0	0.0078	0.0625
	-----%		
0	0	53	82
0.25	35	53	73
0.375	68	57	83
0.5	28	53	81

LSD (0.05) = 16 for comparison of any two means

Soybean Yield

Bladex applications did not result in increased yields over the untreated control (Table 8), but yield was significantly increased as rate of Classic increased. The tank-mixtures of

Table 8. Soybean yield as affected by preplant burndown applications of Bladex and Classic.

Bladex (lb ai/acre)	Classic (lb ai/acre)		
	0	0.0078	0.0625
	-----bu/acre-----		
0	15	20	26
0.25	18	18	24
0.375	16	20	28
0.5	16	18	29

LSD (0.05) = 5 for comparison of any two means.

Bladex and the high rate of Classic increased yields significantly over each rate of Bladex alone, but not over Classic alone at the high rate.

Summary

The effectiveness of preplant burndown applications of Bladex and Classic for control of pitted morningglory, prickly sida, common cocklebur, johnsongrass, redvine, curly dock, and Pennsylvania smartweed, was found to be dependent upon weed species.

Neither herbicide alone or in combination provided acceptable control of prickly sida, johnsongrass, or redvine. Bladex at 0.5 lb/A resulted in 82% control of pitted morningglory while Classic alone or any tank-mixture provided

>89%. Classic at any rate or tank-mixture resulted in 99% control of common cocklebur, while effective control of curly dock or Pennsylvania smartweed was only achieved with the high rate of Classic or the high rate of Classic tank-mixed with the two highest rates of Bladex.

Soybean yields were significantly increased over the untreated control and all Bladex treatments, when the high rate of Classic was used. The results of this experiment show that where acceptable control of treated weeds was achieved, Classic had the most significant effect in offering that control.

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