

## Weed Management Trials—Northern Research Farm

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### Introduction

Weed management is a critical component of efficient crop production. Weed management studies are conducted to evaluate the effectiveness of different herbicides and determine the most efficient means of utilizing these compounds.

### Materials and Methods

Several experiments were conducted in both corn and soybeans. The experimental area was fall chisel plowed and field cultivated in the spring immediately prior to planting. Corn (Golden Harvest 8194RR) and soybeans (Asgrow 2105) were planted on May 17. Preemergence herbicides were applied on May 19. Soybean postemergence herbicides were applied on June 16 when soybeans were at the V2 stage and the tallest giant foxtail reached a height of 8 inches. Broadleaf weeds (velvetleaf, lambsquarter, common ragweed) averaged 3–4 inches tall. Postemergence treatments in corn were applied on June 4, 9, and 20 when the corn was at the V2, V3, and V6 stages, respectively. Giant foxtail averaged 1, 2, and 12 inches in height at the three applications. All herbicides were applied with a backpack sprayer delivering 20 gallons of water/acre. Spraying Systems Turbo Tee-Jet 11002 nozzles were utilized for all applications. This report will present a portion of the results.

### Results and Discussion

Inconsistent control of certain broadleaf weeds with postemergence herbicides has increased the interest in the use of preemergence products in soybeans. None of the treatments evaluated provided acceptable control of common ragweed, velvetleaf, waterhemp or common lambsquarter (Table 1). The lack of activity probably was due to the lack of rain following application. Preemergence herbicides typically require 0.5 inches of rain to move them into the soil profile where weed seeds germinate. Sufficient rain was not received until three weeks after planting by which time most weeds had emerged. Authority, Guantlet (which includes the active ingredient in Authority), and Sencor provided better control of waterhemp than Valor, but the control was less than 60%.

Performance of preemergence treatments in corn also were affected by the lack of rainfall (Table 2). However, it was observed that in certain situations products with alternative modes of action than atrazine (i.e., Epic, Balance Pro, Lumax, and Hornet) had greater activity than premixes with only atrazine (Bicep, Degree Xtra, etc.). For example, Epic and Balance Pre, both products containing isoxaflutole, provided 85% control of common lambsquarter, whereas treatments only containing atrazine provided 57% or less control. Isoxaflutole has a greater ability than atrazine to kill emerged weeds in situations where lack of rain delays activation. It is important to note that none of the herbicides provided acceptable control of all weed species under the rain limiting conditions.

**Table 1. Evaluation of preemergence herbicides for broadleaf control in soybeans.**

Treatment	Rate	Com. Ragweed	Velvetleaf	Waterhemp	Lambsquarter
----- % control (June 17) -----					
Valor	2.5 oz	20	2	20	11
Valor	3.0 oz	26	2	21	10
Authority	6.8 oz	17	7	48	4
Authority	7.9 oz	20	4	47	1
Gangster	3.2 oz	12	2	26	3
Gauntlet	7.4 oz	9	2	57	2
Sencor	0.5 oz	10	2	59	4
Control	-	0	0	0	0
LSD <sub>0.05</sub>		NS	NS	21	NS

**Table 2. Evaluation of preemergence herbicides for weed control in corn.**

Treatment	Rate	Gi. Fox.	Com. Lambsq.	Velvetleaf	Waterhemp
Epic	11 oz	55	85	92	100
Balance Pro + Surpass + atrazine	2.2 oz + 3 pt + 0.7 oz	97	85	73	100
Lumax	3 qt	82	83	63	100
Bicep Lite II Mag	1.5 qt	57	3	23	67
Degree Xtra	3.2 qt	72	40	0	93
FulTime	3 qt	58	57	7	100
Guardman Max	4 pt	93	55	37	100
Keystone	2.8 qt	93	63	43	100
Keystone + Hornet WDG	2.8 qt + 5 oz	95	93	73	100
Control	-	0	0	0	0
LSD <sub>0.05</sub>		NS	30	34	NS