

# IMPACT OF FALL AND SPRING-APPLIED FINESSE GRASS & BROADLEAF ON NO-TILL SOYBEANS (UKREC 2006-2007)

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## **Introduction:**

Finesse Grass & Broadleaf is used as a postemergence herbicide for controlling Italian ryegrass in wheat. It is a premixture of the active ingredients chlorsulfuron and flucarbazone. Chlorsulfuron is a sulfonylurea herbicide that can persist in soil and injure certain susceptible crops more than one year after application. Persistence of this herbicide is greater when soil pH is high. The label of Finesse Grass & Broadleaf allows planting of STS (Sulfonylurea Tolerant Soybean) nine months after application.

Crop safety is an important factor to consider when using herbicides in wheat and double cropped soybean rotation. Therefore, this study was conducted to determine the risk of injuring soybeans following fall and spring applications of Finesse Grass & Broadleaf herbicide.

## **Methods:**

The test site was fallow until the time of soybean planting. A CO<sub>2</sub> back pack plot sprayer was used to apply Finesse Grass & Broadleaf at the high labeled rate of 0.9 oz/A. Treatments were applied November 14, 2006 or March 7, 2007.

Based on soil samples collected from the main blocks on November 12, it was determined soil water pH was uniform in the test area and ranged from 6.7 to 6.9.

Soybeans were planted June 25, 2007 using no-tillage practices to simulate a double crop situation. Weeds were controlled with glyphosate applied as a burndown spray prior to planting and as an in-crop spray. The Roundup Ready (RR) variety was Asgrow AG3906, whereas the Roundup Ready stacked with STS (RR/STS) variety was Asgrow 4404.

Soybean stands were determined on July 10 at two random sites per plot. Portions of some plots were excluded due to severe stand reduction from vole feeding. Plots were monitored periodically for symptoms of crop injury. Plant heights were measured at three random sites per plot prior to harvest on November 5.

## **Results:**

The length of time between application and planting no-till soybeans was 223 days for fall treatment and 110 days for the spring treatment. The total accumulation of rain between application and soybean planting was 25.14 inches for fall and 9.44 inches for spring. There was a moisture deficit of more than 7.5 inches that occurred during the spring. This deficit continued up through mid October and limited soybean growth and yield. Temperature between application and soybean planting was approximately 3<sup>0</sup> F above normal for both fall and spring treatments.

In order to determine effects of Finesse Grass & Broadleaf, it is important to compare differences within varieties and not across varieties.

No symptoms of soybean injury in the form of stunting or discoloration of foliage were observed in the early part of the season. Stands were not reduced by Finesse Grass & Broadleaf and ranged from 11.1 to 11.2 for RR soybeans and 11.0 to 11.8 for RR/STS soybeans (Table 1). The extremely dry conditions that occurred during the summer limited soybean plant growth and yield; however, there were no differences in heights or yields for either variety due to Finesse Grass & Broadleaf.

**Summary:**

In spite of the dry conditions during the spring of 2006, Finesse Grass & Broadleaf did not persist long enough following fall or spring applications to cause injury to late planted soybeans for either Roundup Ready or Roundup Ready/Sulfonyl Tolerant Soybeans. Soil pH was not high enough to enhance persistence.

Although the Non-STS variety was not affected, it is prudent to use a STS variety to limit risk of soybeans following Finesse Grass & Broadleaf.

<b>Table 1. Impact of Fall- and Spring- Applied Finesse Grass &amp; Broadleaf Herbicide on Stand, Height, and Yield of Roundup Ready and Roundup Ready/STS Soybeans. (UKREC 2006-2007) <sup>1 2 3</sup></b>								
Treatment		Stand <sup>4</sup> (Plants/Ft of Row)		Height <sup>5</sup> (Inches)		Yield (Bu/A)		
Herbicide	Application Timing	RR	RR + STS	RR	RR + STS	RR	RR + STS	
Finesse Grass & Broadleaf 0.9 oz/A	11-14-06	11.2	11.0	23.7	26.9	28.2	26.3	
Finesse Grass & Broadleaf 0.9 oz/A	03-07-07	11.1	11.8	24.1	27.5	26.9	26.0	
Non-treated Check		11.2	11.4	22.6	26.1	27.4	28.2	
<b>LSD <sub>0.05</sub></b>		NS	NS	NS	NS	NS	NS	

1 Field History: No-till soybean in 2005 and fallow in summer of 2006. Two tons of lime/A were applied Oct 2006.  
Soybeans were planted no-till in 30" rows on 6-25-07  
Soil pH for each main block ranged from 6.7 to 6.9.  
Finesse Grass & Broadleaf 0.9 oz/A (chlorsulfuron 0.225 oz/ai/A and flucarbazone 0.42 oz ai/A).

2 RR= Asgrow AG 3906  
RR/STS: Asgrow 4404

3 Fall (11-14-06): 223 days between application & planting. Total rain for the period 25.14" (-8.66" below normal). Temp 3<sup>0</sup> F above normal.  
Spring: (03-07-07): 110 days between application & planting. Total rain for the period 9.44" (-7.51" below normal). Temp 3<sup>0</sup> F above normal.

4 Stand counts made at 2 random sites /plot on 07-10-07.

5 Plant heights were measured at 3 random sites /plot on 11-05-07.