# Preplant Residual Herbicide Study in Roundup Ready Soybeans

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## Objectives

To evaluate potential yield benefits of using a preplant residual herbicide in with an initial burndown treatment in no-till Roundup Ready soybeans that will receive a planned post-emergence treatment with glyphosate. The speculation is that a residual herbicide treatment will reduce early weed competition, thus improving yields.

## Background

| | |
|---|---|
| Cooperator: | Marsh Foundation/ Farm Focus |
| County: | Van Wert |
| Nearest Town: | Van Wert |
| Soil Type: | Hoytville silty clay loam |
| Drainage: | Tile — nonsystematic |
| Previous Crop: | Corn |
| Tillage: | No-till |
| Soil Test (2002): | pH 6.1, P 83 ppm, K 155 ppm |
| Fertilizer: | none applied |

| | |
|---|---|
| Herbicides: | |
| | PREPLANT: see methods (April 24) |
| | POST: 40 oz/A Roundup UltraMax+ 3.4 lb./A AMS (June 25) |
| Insecticide: | None applied |
| Variety: | Wellman 3826RR |
| Row Width: | 7.5 inch |
| Planting Rate: | 230,000 seeds/A |
| Planting Date: | May 31, 2002 |
| Harvest Date: | September 25, 2002 |

## Methods

This study was set up with four treatments replicated four times in a complete randomized block design. These treatments are:

1. 1.25 pt/A Boundary + 1.5 pt/A Touchdown + 1 pt/A 2,4-D LVE + 3.4 lb/A AMS
2. 10 oz/A Domain + 20 oz/A Roundup Ultra Max + 1 pt/A 2,4-D LVE + 3.4 lb/A AMS
3. 0.8 oz/A Python + 1.5 pt/A Glyphomax Plus + 1 pt/A 2,4-D LVE + 3.4 lb/A AMS
4. 20 oz/A Roundup UltraMax + 1 pt/A 2,4-D LVE + 3.4 lb/A AMS (Control burndown)

The study was planted using a Great Plains 2010 no-till drill. Plot size was 45 feet wide by 1,030 feet long. A whole-field post-emergence herbicide application was made using 40 oz/A Roundup UltraMax + 3.4 lb/A AMS. Yields were collected from one combine round (28 feet width) from the center of each plot. Individual plot weight and moisture was determined using a calibrated AgLeader PF3000 yield monitor in a John Deere 6620 combine. Yields reported in this study have been adjusted to 13% moisture standard.

Harvest populations (September 19) were estimated by counting the number of plants in a row on each side of a 10-foot section at three different locations in each individual plot. The average of the number of plants counted per 10 feet was converted to plants per acre.

## Results

**Table 1. Harvest Population, Moisture, and Yield.[a]**

| Treatment | Harvest Population (plants/A) | Harvest Moisture (%) | Yield (bu/A) |
|---|---|---|---|
| 1 | 195,100 a | 11.9 | 53.2 |
| 2 | 191,100 a | 11.8 | 54.4 |
| 3 | 193,400 a | 11.9 | 54.1 |
| 4 | 181,200 b | 11.9 | 53.2 |
| LSD (0.05) | 9,600 | NS | NS |
| F-test | 4.3 | <1 | 1.3 |

[a] Means followed by the same letter in the same column are not significantly different. NS = not significant

## Summary

Residual herbicides may reduce early weed competition thus improving yields; conversely, glyphosate-tolerant soybean varieties may offer producers an opportunity to develop a soybean weed-management program that has the potential to provide economically viable weed control without a residual herbicide. Results from this one-year study indicate there were no statistically different yields among the four treatments.

In this study, 37 days elapsed from burndown to planting due to unfavorable weather. Original study design anticipated soybean planting to occur within seven to 14 days following burndown application. As such, results from this study are atypical, and no conclusive statement can be made regarding potential yield benefits of using a preplant residual herbicide in with an initial burndown treatment in no-till Roundup Ready soybeans.

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