

## Weed Control in Reduced Tillage Soybean

Weed control in no-till soybeans. Horky, Kevin T. and Alex R. Martin. A field study was conducted to evaluate the efficacy of no-till weed control programs in soybeans. A randomized complete block design with three replications per treatment was utilized. The study was conducted on a Sharpsburg silty clay loam with 3.1% organic matter and a pH of 6.6. Individual plots consisted of six 30-inch rows and eleven 15-inch rows, all 30 feet long. 'Asgrow 2703' soybeans were planted June 2 at a population of 134,500 seeds per acre. Treatments were applied with a tractor-mounted sprayer traveling 3.0 mph. PP treatments were applied 13 days before planting, MPOST treatments were applied 27 days after planting, and LPOST treatments were applied 41 days after planting. Application, crop, weed, and environmental data are presented below.

| Date<br>Treatment             | May 21<br>PP | June 2<br>PRE | June 29<br>MPOST | July 13<br>LPOST |
|-------------------------------|--------------|---------------|------------------|------------------|
| Sprayer                       |              |               |                  |                  |
| gpa                           | 15           | 15            | 15               | 15               |
| psi                           | 30           | 30            | 30               | 30               |
| Temperature (°C)              |              |               |                  |                  |
| air                           | 29           | 18            | 25               | 28               |
| soil (4 inch)                 | 14           | 18            | 18               | 21               |
| Soil Moisture                 | adequate     | adequate      | adequate         | adequate         |
| Wind (mph)                    | 10           | 5             | 2                | 1                |
| Sky (% cloudy)                | 50           | 15            | 5                | 30               |
| Relative                      |              |               |                  |                  |
| humidity (%)                  | 56           | 57            | 48               | 70               |
| Precip. After appl. (inches)  |              |               |                  |                  |
| week 1                        | 1.48         | 0.18          | 2.92             | 0.26             |
| week 2                        | 0.51         | 1.01          | 0.66             | 1.33             |
| Soybean                       |              |               |                  |                  |
| No. trifoliolate leaves       | --           | --            | 4                | 6                |
| height (cm)                   | --           | --            | 10               | 32               |
| Common lambsquarters          |              |               |                  |                  |
| height (cm)                   | 18           | 22            | 30               | 38               |
| infestation (m <sup>2</sup> ) | 3            | 3             | 3                | 2                |
| Green foxtail                 |              |               |                  |                  |
| height (cm)                   | --           | 4             | 15               | 20               |
| infestation (m <sup>2</sup> ) | --           | 2             | 2                | 3                |
| Velvetleaf                    |              |               |                  |                  |
| height (cm)                   | 3            | 6             | 10               | 30               |
| infestation (m <sup>2</sup> ) | 5            | 5             | 4                | 2                |
| Common sunflower              |              |               |                  |                  |
| height (cm)                   | 5            | 10            | 25               | 38               |
| infestation (m <sup>2</sup> ) | 3            | 3             | 3                | 3                |

Summary comments: POST treatments greatly improved control of velvetleaf, green foxtail and common sunflower. Crop injury was not observed with any treatments. Results of the study are summarized in the following table. (Dept. of Agronomy and Horticulture, University of Nebraska-Lincoln)

**Table. Weed control in no-till soybeans (Horky and Martin).**

| Treatment                 | Row width | Application |        | -----CHEAL-----          |      |     | -----SETVI----- |      | -----ABUTH----- |      |     | -----HELAN----- |      |     |
|---------------------------|-----------|-------------|--------|--------------------------|------|-----|-----------------|------|-----------------|------|-----|-----------------|------|-----|
|                           |           | Rate        | Timing | 6/4                      | 6/16 | 8/3 | 6/4             | 6/16 | 6/4             | 6/16 | 8/3 | 6/4             | 6/16 | 8/3 |
|                           | (in)      | (lb/a)      |        | -----% Weed Control----- |      |     |                 |      |                 |      |     |                 |      |     |
| Glyphosate <sup>1</sup> + | 30        | 0.75        | PRE/   | 0                        | 95   | 99  | 0               | 98   | 0               | 94   | 99  | 0               | 98   | 99  |
| NIS <sup>2</sup> +        |           | 0.25% v/v   |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| AMS <sup>3</sup> /        |           | 1.275       |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| glyphosate <sup>1</sup> + |           | 0.75        | MPOST  |                          |      |     |                 |      |                 |      |     |                 |      |     |
| NIS+                      |           | 0.25% v/v   |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| AMS                       |           | 1.275       |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Glyphosate <sup>1</sup> + | 15        | 0.75        | PRE/   | 0                        | 93   | 99  | 0               | 96   | 0               | 90   | 99  | 0               | 98   | 99  |
| NIS+                      |           | 0.25% v/v   |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| AMS/                      |           | 1.275       |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| glyphosate <sup>1</sup> + |           | 0.75        | MPOST  |                          |      |     |                 |      |                 |      |     |                 |      |     |
| NIS+                      |           | 0.25% v/v   |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| AMS                       |           | 1.275       |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Imazethapyr&              | 30        | 0.064       | PP/    | 88                       | 93   | 99  | 92              | 96   | 85              | 88   | 99  | 92              | 96   | 99  |
| glyphosate+               |           | 0.75        |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| NIS+                      |           | 0.25% v/v   |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| AMS/                      |           | 1.275       |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| glyphosate <sup>1</sup> + |           | 0.75        | LPOST  |                          |      |     |                 |      |                 |      |     |                 |      |     |
| NIS+                      |           | 0.25% v/v   |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| AMS                       |           | 1.25        |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Imazethapyr&              | 15        | 0.064       | PP/    | 95                       | 99   | 99  | 96              | 99   | 95              | 99   | 99  | 93              | 98   | 99  |
| glyphosate+               |           | 0.75        |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| NIS+                      |           | 0.25% v/v   |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| AMS/                      |           | 1.275       |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| glyphosate <sup>1</sup> + |           | 0.75        | LPOST  |                          |      |     |                 |      |                 |      |     |                 |      |     |
| NIS+                      |           | 0.25% v/v   |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| AMS                       |           | 1.275       |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| S-metolachlor&            | 30        | 1.48        | PP/    | 95                       | 98   | 99  | 96              | 98   | 82              | 82   | 99  | 91              | 98   | 99  |
| metribuzin+               |           | 0.35        |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| 2,4-D <sup>4</sup> +      |           | 0.25        |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| COC <sup>5</sup> /        |           | 1 qt/a      |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| glyphosate <sup>6</sup> + |           | 0.77        | MPOST  |                          |      |     |                 |      |                 |      |     |                 |      |     |
| AMS                       |           | 2.55        |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| S-metolachlor&            | 15        | 1.48        | PP/    | 95                       | 98   | 99  | 94              | 94   | 93              | 94   | 99  | 95              | 98   | 99  |
| metribuzin+               |           | 0.35        |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| 2,4-D+                    |           | 0.25        |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| COC/                      |           | 1 qt/a      |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| glyphosate <sup>6</sup> + |           | 0.77        | MPOST  |                          |      |     |                 |      |                 |      |     |                 |      |     |
| AMS                       |           | 2.55        |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Flufenacet&               | 30        | 0.15        | PRE/   | 0                        | 90   | 99  | 0               | 77   | 0               | 83   | 99  | 0               | 87   | 99  |
| metribuzin+               |           | 0.23        |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| 2,4-D+                    |           | 0.5         |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| COC/                      |           | 1 qt/a      |        |                          |      |     |                 |      |                 |      |     |                 |      |     |
| glyphosate <sup>6</sup> + |           | 0.77        | MPOST  |                          |      |     |                 |      |                 |      |     |                 |      |     |
| AMS                       |           | 2.55        |        |                          |      |     |                 |      |                 |      |     |                 |      |     |

(continued)

Table. Weed control in no-till soybeans (Horky and Martin), continued.

| Treatment  | Row width | Application |                       | -----CHEAL-----          |      |     | -----SETVI----- |      | -----ABUTH----- |      |     | -----HELAN----- |      |     |
|--|-----------|-------------|-----------------------|--------------------------|------|-----|-----------------|------|-----------------|------|-----|-----------------|------|-----|
|  |           | Rate        | Timing                | 6/4                      | 6/16 | 8/3 | 6/4             | 6/16 | 6/4             | 6/16 | 8/3 | 6/4             | 6/16 | 8/3 |
|  |           | (in)        | (lb/a)                | -----% Weed Control----- |      |     |                 |      |                 |      |     |                 |      |     |
| Flufenacet&<br>metribuzin+<br>2,4-D+<br>COC/<br>glyphosate <sup>6</sup> +<br>AMS             | 15        | 0.15        | PRE/<br><br><br>MPOST | 0                        | 90   | 99  | 0               | 72   | 0               | 75   | 99  | 0               | 83   | 99  |
|  |           | 0.23        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.5         |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 1 qt/a      |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.77        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 2.55        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Imazethapyr&<br>pendimethalin+<br>2,4-D+<br>COC+<br>AMS/<br>glyphosate <sup>6</sup> +<br>AMS | 30        | 0.063       | PP/<br><br><br>MPOST  | 93                       | 95   | 99  | 87              | 92   | 87              | 92   | 99  | 88              | 92   | 99  |
|  |           | 0.84        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.15        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 1% v/v      |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 2.55        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.77        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
| 2.55   |           |             |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Imazethapyr&<br>pendimethalin+<br>2,4-D+<br>COC+<br>AMS/<br>glyphosate <sup>6</sup> +<br>AMS | 15        | 0.063       | PP/<br><br><br>MPOST  | 93                       | 95   | 99  | 92              | 98   | 90              | 96   | 99  | 88              | 93   | 99  |
|  |           | 0.84        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.15        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 1% v/v      |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 2.55        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.77        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
| 2.55   |           |             |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Glyphosate <sup>6</sup> +<br>AMS/<br>glyphosate <sup>6</sup> +<br>AMS                        | 30        | 0.77        | PP/<br><br>MPOST      | 85                       | 87   | 99  | 85              | 88   | 78              | 82   | 99  | 82              | 85   | 99  |
|  |           | 2.55        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.77        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 2.55        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Glyphosate <sup>6</sup> +<br>AMS/<br>glyphosate <sup>6</sup> +<br>AMS                        | 15        | 0.77        | PP/<br><br>MPOST      | 87                       | 90   | 99  | 88              | 92   | 80              | 85   | 99  | 90              | 93   | 99  |
|  |           | 2.55        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.77        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 2.55        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Glyphosate <sup>6</sup> +<br>AMS/<br>imazethapyr&<br>glyphosate+<br>AMS                      | 30        | 0.77        | PP/<br><br>MPOST      | 90                       | 91   | 99  | 88              | 93   | 80              | 83   | 99  | 82              | 85   | 99  |
|  |           | 2.55        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.064       |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.75        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Glyphosate <sup>6</sup> +<br>AMS/<br>imazethapyr&<br>glyphosate+<br>AMS                      | 15        | 0.77        | PP/<br><br>MPOST      | 82                       | 82   | 99  | 83              | 86   | 80              | 83   | 99  | 80              | 82   | 99  |
|  |           | 2.55        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.064       |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.75        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Flumioxazin+<br>2,4-D/<br>glyphosate <sup>6</sup> +<br>AMS                                   | 30        | 0.064       | PP/<br><br>MPOST      | 93                       | 98   | 99  | 95              | 98   | 95              | 98   | 99  | 93              | 98   | 99  |
|  |           | 0.5         |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.77        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 2.55        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
| Flumioxazin+<br>2,4-D/<br>glyphosate <sup>6</sup> +<br>AMS                                   | 15        | 0.064       | PP/<br><br>MPOST      | 95                       | 99   | 99  | 90              | 86   | 90              | 88   | 99  | 96              | 99   | 99  |
|  |           | 0.5         |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 0.77        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
|  |           | 2.55        |                       |                          |      |     |                 |      |                 |      |     |                 |      |     |
| LSD (P=.05)  |           |             |                       | 7                        | 10   | 1   | 9               | 13   | 9               | 12   | 1   | 8               | 12   | 1   |

<sup>1</sup>Glyphosate = 'Roundup Original' by Monsanto<sup>2</sup>NIS = 'Preference' by Agrilience<sup>3</sup>AMS = 'N-PAK' by Agrilience<sup>4</sup>2,4-D = 2,4-D Ester<sup>5</sup>COC = 'Prime Oil' by Agrilience<sup>6</sup>Glyphosate = 'Roundup Weathermax' by Monsanto