

Herbicide performance in soybeans at Waseca, MN common cocklebur site in 2005. Hoverstad, Thomas R and Jeffrey L. Gunsolus. The objective of this trial was to evaluate soybean weed management systems available to producers in southern Minnesota on several annual weed species. This site had a particularly high infestation of giant ragweed. The research site was a Clarion clay loam soil containing 5% organic matter with a pH of 6.4 and soil test P and K levels of 40 and 173 ppm, respectively. The previous crop was soybean that had been chisel plowed in the fall of 2004. The entire area was field cultivated once in the spring prior to herbicide application. Following preplant incorporated treatments the entire area was field cultivated twice to a depth of 3 to 4 inches to incorporate herbicides and prepare a seedbed. Garst '1827 RR/STS' soybeans were planted on May 24, 2005 in 30-inch rows. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at 40 psi using 8002 flat-fan nozzle tips. Visual estimates of weed control were taken on September 3, 2005. Application dates, environmental conditions, crop and weed stages are listed below.

| Date                              | May 24 | May 24 | June 15      | June 22      | June 22    | July 1      |
|-----------------------------------|--------|--------|--------------|--------------|------------|-------------|
| Treatment                         |        |        | Post I       | Post II      | Post III   | Post IV     |
| Application Stage                 | PPI    | Pre    | 4-inch weeds | 6-inch weeds | V2 soybean | Crop canopy |
| air temp °F                       | 81     | 81     | 65           | 79           | 79         | 72          |
| soil temp (4-inch)                | 60     | 62     | 61           | 65           | 65         | 70          |
| Relative humidity (%)             | 26     | 25     | 72           | 64           | 64         | 45          |
| Wind                              | SE 4   | SE 3   | N 8          | SE 3         | SE 3       | W 9         |
| Soil moisture                     | Moist  | Moist  | Moist        | Wet          | Wet        | Moist       |
| Soybeans                          |        |        |              |              |            |             |
| Stage                             | -      | -      | V1           | V2           | V2         | V4          |
| height (inch)                     | -      | -      | 3            | 6            | 6          | 10          |
| Giant foxtail                     |        |        |              |              |            |             |
| leaf no.                          | -      | -      | 2            | 4            | 4          | 2           |
| height (inch)                     | -      | -      | 3            | 6            | 6          | 2           |
| Common cocklebur                  |        |        |              |              |            |             |
| leaf no.                          | -      | -      | 2            | 4            | 4          | 3           |
| height (inch)                     | -      | -      | 3            | 6            | 6          | 2           |
| Common ragweed                    |        |        |              |              |            |             |
| leaf no.                          | -      | -      | 3            | 4-6          | 4-6        | 3           |
| height (inch)                     | -      | -      | 2            | 5            | 5          | 2           |
| Common lambsquarters              |        |        |              |              |            |             |
| leaf no.                          | -      | -      | 4            | 8            | 8          | 4           |
| height (inch)                     | -      | -      | 2            | 4            | 4          | 2           |
| Redroot pigweed                   |        |        |              |              |            |             |
| leaf no.                          | -      | -      | 2            | 3-4          | 3-4        | 3           |
| height (inch)                     | -      | -      | 1            | 3            | 3          | 2           |
| Rainfall after application (inch) |        |        |              |              |            |             |
| week 1                            | 0.74   | 0.74   | 1.00         | 2.55         | 2.55       | 0.35        |
| week 2                            | 0.37   | 0.37   | 1.67         | 0.35         | 0.35       | 0.00        |
| week 3                            | 1.76   | 1.76   | 1.23         | 0.00         | 0.00       | 2.27        |

Cool wet conditions persisted after planting resulting in poor soybean stands on this site and consequently weed control was more difficult to obtain than in most cases where a good soybean canopy will aid in weed control. The best common cocklebur control was observed with two-pass Roundup or preemergence Valor followed by FirstRate plus Select plus Phoenix. Tank mixing either FirstRate, Harmony GT or Harmony GT plus Classic with one-pass Roundup applications resulted in better broadleaf weed control than where Roundup was applied alone, especially control of common lambsquarters and redroot pigweed. (University of Minnesota, Southern Research and Outreach Center, Waseca, MN and Dept of Agronomy and Plant Genetics, University of Minnesota, St Paul).

Table. Herbicide performance in soybeans at Waseca, MN common cocklebur site in 2005 (Hoverstad and Gunsolus).

| Treatment  | Rate<br>(product/A)                            | Giant<br>foxtail | Common<br>cocklebur | Common<br>ragweed<br>-----(% control)----- | Common<br>lambsquarters | Redroot<br>pigweed | Yield<br>Bu/A <sup>a</sup> |
|--|--|------------------|---------------------|--|-------------------------|--------------------|----------------------------|
| <u>Preplant incorporate 2X/POST I (4-inch weeds)</u>       |  |                  |                     |  |                         |                    |                            |
| Prowl H2O /  | 43 oz /  |                  |                     |  |                         |                    |                            |
| Raptor + First Rate + NIS + AMS                            | 4 oz + 0.3 oz + 0.25% + 3 qt                   | 98               | 77                  | 83   | 93                      | 94                 | 42.9                       |
| Pursuit Plus /   |  |                  |                     |  |                         |                    |                            |
| First Rate + NIS + AMS                                     | 2.5 / 0.3 + 0.25% + 3 qt                       | 72               | 80                  | 88   | 94                      | 99                 | 37.5                       |
| Prowl H2O / Extreme + NIS + AMS                            | 43 oz / 3 pt + 0.125% + 3 qt                   | 98               | 62                  | 78   | 99                      | 99                 | 39.9                       |
| <u>Preemergence/ POST I (4-inch weeds)</u>                 |  |                  |                     |  |                         |                    |                            |
| Gangster / First Rate + Phoenix +<br>SelectMax + NIS + AMS | 3 oz / 0.3 oz + 8 oz +<br>12 oz + 0.25% + 3 qt | 56               | 82                  | 97   | 61                      | 99                 | 22.0                       |
| Gangster / First Rate + Phoenix +<br>V10139 + NIS + AMS    | 3 oz / 0.3 oz + 8 oz +<br>8 oz + 0.25% + 3 qt  | 57               | 78                  | 95   | 34                      | 99                 | 24.1                       |
| Python / First Rate + Select +<br>Cobra + COC + AMS        | 1 oz / 0.3 oz + 6 oz +<br>6 oz + 1% + 3 qt     | 54               | 91                  | 92   | 58                      | 99                 | 15.6                       |
| Boundary / Flexstar + Fusion +<br>First Rate + MSO + 28%   | 1.5 / 16 oz + 8 oz +<br>0.3 oz + 1% + 2.5%     | 65               | 78                  | 99   | 63                      | 99                 | 26.6                       |
| <u>Preemergence/ POST II (6-inch weeds)</u>                |  |                  |                     |  |                         |                    |                            |
| IntRRo /   | 4 /  |                  |                     |  |                         |                    |                            |
| RoundupWeatherMax + AMS                                    | 22 oz + 3 qt                                   | 94               | 53                  | 70   | 91                      | 81                 | 33.0                       |
| Prowl H2O + Outlook /                                      | 1 + 12.6 oz /                                  |                  |                     |  |                         |                    |                            |
| Roundup WeatherMax   | 22 oz + 3 qt                                   | 96               | 58                  | 60   | 96                      | 97                 | 37.9                       |
| Gangster/  | 1.8 oz /                                       |                  |                     |  |                         |                    |                            |
| Roundup OriginalMax + AMS                                  | 22 oz + 4 qt                                   | 76               | 69                  | 89   | 99                      | 85                 | 35.6                       |
| Boundary /   | 1.25 /   |                  |                     |  |                         |                    |                            |
| Touchdown Total + AMS                                      | 24 oz + 2 qt                                   | 96               | 51                  | 67   | 99                      | 87                 | 34.6                       |
| Valor SX /   | 2 oz /   |                  |                     |  |                         |                    |                            |
| Roundup OriginalMax + AMS                                  | 22 oz + 4 qt                                   | 88               | 51                  | 79   | 88                      | 99                 | 29.8                       |
| Valor SX + Python /  | 1.5 oz + 0.5 oz /                              |                  |                     |  |                         |                    |                            |
| Roundup OriginalMax + AMS                                  | 22 oz + 3 qt                                   | 80               | 68                  | 90   | 99                      | 99                 | 33.9                       |
| Valor SX + Sencor /  | 1.5 oz + 3 oz /                                |                  |                     |  |                         |                    |                            |
| Roundup OriginalMax + AMS                                  | 22 oz + 3 qt                                   | 82               | 60                  | 80   | 99                      | 93                 | 35.3                       |
| <u>POST III (V2 soybean)</u>                               |  |                  |                     |  |                         |                    |                            |
| Sequence + AMS   | 2.5 pt + 2 qt                                  | 93               | 73                  | 72   | 69                      | 51                 | 33.7                       |
| <u>POST I (4-inch weeds)/POST IV(Canopy)</u>               |  |                  |                     |  |                         |                    |                            |
| Roundup WeatherMax + AMS /                                 | 22 oz + 3 qt /                                 |                  |                     |  |                         |                    |                            |
| Roundup WeatherMax + AMS                                   | 22 oz + 3 qt                                   | 97               | 96                  | 99   | 99                      | 99                 | 41.4                       |
| <u>POST II (6-inch weeds)</u>                              |  |                  |                     |  |                         |                    |                            |
| Glyphomax XRT + First Rate + AMS                           | 24 oz + 0.3 oz + 3 qt                          | 76               | 70                  | 82   | 86                      | 69                 | 34.8                       |
| Harmony GT +   | 0.33 oz +                                      |                  |                     |  |                         |                    |                            |
| Roundup OriginalMax + AMS                                  | 22 oz + 4.7                                    | 70               | 73                  | 66   | 91                      | 80                 | 28.9                       |
| Harmony GT + Classic +                                     | 0.33 oz + 0.33 oz +                            |                  |                     |  |                         |                    |                            |
| Roundup OriginalMax + AMS                                  | 22 oz + 4.7                                    | 80               | 83                  | 88   | 92                      | 97                 | 40.5                       |
| Clearout 41 Plus + AMS                                     | 32 oz + 3 qt                                   | 73               | 71                  | 70   | 72                      | 26                 | 26.1                       |
| Glyphomax XRT + AMS  | 24 oz + 3 qt                                   | 80               | 70                  | 72   | 79                      | 43                 | 33.5                       |
| Roundup WeatherMax+AMS                                     | 22 oz + 3 qt                                   | 70               | 63                  | 78   | 82                      | 52                 | 35.0                       |
| <u>Checks</u>  |  |                  |                     |  |                         |                    |                            |
| Weedy  | -  | 0                | 0                   | 0  | 0                       | 0                  | 0.6                        |
| Hand-Weeded  | -  | 100              | 100                 | 100  | 100                     | 100                | 41.3                       |
|  | LSD (0.10)                                     | 12               | 19                  | 12   | 18                      | 18                 | 7.6                        |

<sup>a</sup> Yield adjusted to 13% moisture.