

Herbicide performance in soybeans at Waseca, MN tall waterhemp 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 tall waterhemp. The research site was a Webster clay loam soil containing 8% organic matter with a pH of 7.5 and soil test P and K levels of 120 and 284 ppm, respectively. The previous crop was corn that had been moldboard 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)                     | -      | -      | 4            | 6            | 6          | 2           |
| Tall waterhemp                    |        |        |              |              |            |             |
| leaf no.                          | -      | -      | 3            | 4            | 4          | 3           |
| height (inch)                     | -      | -      | 2            | 3            | 3          | 3           |
| Common lambsquarters              |        |        |              |              |            |             |
| leaf no.                          | -      | -      | 4            | 8            | 8          | 4           |
| height (inch)                     | -      | -      | 2            | 4            | 4          | 2           |
| Velvetleaf                        |        |        |              |              |            |             |
| leaf no.                          | -      | -      | 2            | 3            | 3          | 2           |
| height (inch)                     | -      | -      | 1-2          | 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        |

Poor tall waterhemp control was observed with preplant Prowl H2O or Pursuit Plus followed by FirstRate. Preemergence Valor or Gangster followed by either Select Max, V10139 or Select plus FirstRate and Phoenix resulted in poor common lambsquarters control. Preemergence Boundary followed by Flexstar plus Fusion plus FirstRate also resulted in poor common lambsquarters control. One-pass Roundup treatments resulted in poorer control of tall waterhemp than where Roundup was applied following any of several preemergence treatments. (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 tall waterhemp site in 2005 (Hoverstad and Gunsolus).

| Treatment  | Rate<br>(Product/A)                            | Giant<br>foxtail      | Tall<br>waterhemp | Common<br>lambquarters | Velvetleaf | Yield<br>Bu/A <sup>a</sup> |
|--|--|-----------------------|-------------------|------------------------|------------|----------------------------|
|  |  | -----(% control)----- |                   |                        |            |                            |
| <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                   | 99                    | 15                | 93                     | 99         | 15.2                       |
| Pursuit Plus /   |  |                       |                   |                        |            |                            |
| First Rate + NIS + AMS                                     | 2.5 / 0.3 + 0.25% + 3 qt                       | 92                    | 17                | 99                     | 99         | 18.5                       |
| Prowl H2O / Extreme + NIS + AMS                            | 43 oz / 3 pt + 0.125% + 3 qt                   | 99                    | 87                | 96                     | 96         | 40.0                       |
| <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 | 91                    | 99                | 15                     | 99         | 25.6                       |
| Gangster / First Rate + Phoenix +<br>V10139 + NIS + AMS    | 3 oz / 0.3 oz + 8 oz +<br>8 oz + 0.25% + 3 qt  | 96                    | 89                | 35                     | 99         | 31.4                       |
| Python / First Rate + Select +<br>Cobra + COC + AMS        | 1 oz / 0.3 oz + 6 oz +<br>6 oz + 1% + 3 qt     | 94                    | 79                | 54                     | 99         | 26.4                       |
| Boundary / Flexstar + Fusion +<br>First Rate + MSO + 28%   | 1.5 / 16 oz + 8 oz +<br>0.3 oz + 1% + 2.5%     | 92                    | 82                | 52                     | 99         | 34.3                       |
| <u>Preemergence/ POST II (6-inch weeds)</u>                |  |                       |                   |                        |            |                            |
| IntRRo /   | 4 /  |                       |                   |                        |            |                            |
| RoundupWeatherMax + AMS                                    | 22 oz + 3 qt                                   | 96                    | 88                | 57                     | 99         | 39.6                       |
| Prowl H2O + Outlook /                                      |  |                       |                   |                        |            |                            |
| Roundup WeatherMax   | 1 + 12.6 oz /<br>22 oz + 3 qt                  | 99                    | 88                | 69                     | 93         | 45.9                       |
| Gangster/  |  |                       |                   |                        |            |                            |
| Roundup OriginalMax + AMS                                  | 1.8 oz /<br>22 oz + 4 qt                       | 99                    | 85                | 99                     | 99         | 42.3                       |
| Boundary /   |  |                       |                   |                        |            |                            |
| Touchdown Total + AMS                                      | 1.25 /<br>24 oz + 2 qt                         | 99                    | 90                | 70                     | 70         | 37.3                       |
| Valor SX /   |  |                       |                   |                        |            |                            |
| Roundup OriginalMax + AMS                                  | 2 oz /<br>22 oz + 4 qt                         | 95                    | 92                | 89                     | 99         | 46.9                       |
| Valor SX + Python /  |  |                       |                   |                        |            |                            |
| Roundup OriginalMax + AMS                                  | 1.5 oz + 0.5 oz /<br>22 oz + 3 qt              | 96                    | 96                | 99                     | 99         | 47.8                       |
| Valor SX + Sencor /  |  |                       |                   |                        |            |                            |
| Roundup OriginalMax + AMS                                  | 1.5 oz + 3 oz /<br>22 oz + 3 qt                | 96                    | 92                | 87                     | 99         | 50.2                       |
| <u>POST III (V2 soybean)</u>                               |  |                       |                   |                        |            |                            |
| Sequence + AMS   | 2.5 pt + 2 qt                                  | 99                    | 90                | 72                     | 82         | 49.1                       |
| <u>POST I (4-inch weeds)/POST IV(Canopy)</u>               |  |                       |                   |                        |            |                            |
| Roundup WeatherMax + AMS /                                 |  |                       |                   |                        |            |                            |
| Roundup WeatherMax + AMS                                   | 22 oz + 3 qt /<br>22 oz + 3 qt                 | 99                    | 94                | 87                     | 99         | 46.9                       |
| <u>POST II (6-inch weeds)</u>                              |  |                       |                   |                        |            |                            |
| Glyphomax XRT + First Rate + AMS                           | 24 oz + 0.3 oz + 3 qt                          | 95                    | 80                | 99                     | 99         | 42.9                       |
| Harmony GT +   |  |                       |                   |                        |            |                            |
| Roundup OriginalMax + AMS                                  | 0.33 oz +<br>22 oz + 4.7                       | 97                    | 78                | 84                     | 99         | 42.8                       |
| Harmony GT + Classic +                                     |  |                       |                   |                        |            |                            |
| Roundup OriginalMax + AMS                                  | 0.33 oz + 0.33 oz +<br>22 oz + 4.7             | 98                    | 72                | 87                     | 99         | 43.1                       |
| Clearout 41 Plus + AMS                                     | 32 oz + 3 qt                                   | 97                    | 78                | 71                     | 88         | 45.6                       |
| Glyphomax XRT + AMS  | 24 oz + 3 qt                                   | 98                    | 77                | 67                     | 94         | 42.0                       |
| Roundup WeatherMax+AMS                                     | 22 oz + 3 qt                                   | 95                    | 80                | 76                     | 96         | 43.6                       |
| <u>Checks</u>  |  |                       |                   |                        |            |                            |
| Weedy  | -  | 0                     | 0                 | 0                      | 0          | 1.5                        |
| Hand-Weeded  | -  | 100                   | 100               | 100                    | 100        | 46.7                       |
|  | LSD (0.10)                                     | 4                     | 14                | 22                     | 11         | 8.2                        |

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