

Dicamba combinations in glyphosate-resistant corn. Wanatah, IN, 2003. Dewell, Reece A., William G. Johnson, Jeff W. Barnes, J. Earl Creech, Vince Davis, and Eric Ott. A field study was conducted to evaluate weed control in glyphosate-resistant corn with various combinations of glyphosate and BASF products. The study was conducted at the Pinney Purdue Agricultural Center near Wanatah, IN, on a Tracey sand soil with 2.1% organic matter. Treatments were arranged in a randomized complete block with four replications. Individual plot dimensions were 10 by 45 feet. Dekalb 60-17 glyphosate-resistant corn was planted 1.5 inches deep into a conventional-till seedbed on May 7 in 30-inch rows, at a population of 30,800 seeds/acre. Preemergence, early postemergence (EPOST), and mid postemergence (MPOST) herbicide treatments were applied with a CO<sub>2</sub> backback sprayer delivering 20 gpa and equipped with XR8003 flat fan nozzles. Application dates, weed growth stage, and weather data are listed below:

| Date<br>Treatment     | May 13<br>Preemergence | May 30<br>EPOST | June 27<br>MPOST |
|-----------------------|------------------------|-----------------|------------------|
| Temperature           |                        |                 |                  |
| Air (F)               | 81                     | 72              | 77               |
| Soil (C)              | 19                     | 16              | 25               |
| Soil moisture         | wet                    | moist           | dry              |
| Wind (mph)            | 6 to 7                 | 1 to 2          | 7 to 9           |
| Sky cover (%)         | 0                      | 100             | 0                |
| Relative humidity (%) | 31                     | 54              | 18               |
| Precipitation         |                        |                 |                  |
| Prior week (inch)     | 3.14                   | 0.42            | 0                |
| Week 1 (inch)         | 0.6                    | 0.89            | 0.89             |
| Week 2 (inch)         | 0.02                   | 0.35            | 4.1              |
| Corn (inch)           | na                     | 3 to 4          | 16 to 20         |
| Giant ragweed         | 0.5 to 1 inch          | 2               | 6 to 14          |
| Velvetleaf            | na                     | 0.75            | 4 to 5           |
| Common lambsquarters  | na                     | 0.5             | 1 to 4           |
| Giant foxtail         | na                     | 0.5             | 6 to 8           |

Minimal amounts of crop injury were observed with the dimethenamid-P / dicamba&San 1269H + glyphosate(ORIG) [0.5625 / 0.0625&0.025 + 0.375] on July 3, but no other injury was observed during this study. The predominant weed at this location was giant ragweed. Pendimethalin + glyphosate(ORIG) did not provide adequate season long control with either the epost or mpost application timing. These treatments were similar to the glyphosate(WMAX) alone treatment at both the 7/24 and 8/28 rating dates. Other glyphosate combinations still provided >85% giant ragweed control at the final rating date. All combination treatments provided good to excellent control of velvetleaf, and were still providing >80% control on 7/24. Dimethenamid-P followed by glyphosate(WMAX) and pendimethalin + glyphosate(ORIG) were less efficacious on common lambsquarters than the other combination treatments. Season long giant foxtail control was observed with both pendimethalin treatments and most of the mpost treatments. Late season giant foxtail control decreased to <60% with the epost treatments of dicamba + glyphosate, dicamba&San 1269H + glyphosate, and glyphosate(WMAX) alone. (Dept. Botany and Plant Pathology, Purdue University, West Lafayette, IN).

Table. Dicamba combinations in glyphosate-resistant corn. Wanatah, IN, 2003. (Dewell, Johnson, Barnes, Creech, Davis, and Ott).<sup>a</sup>

| Treatment   | Rate<br>(lb/A)                                   | Appl.<br>Time | AMBTR           |                 |      |      |                   | ABUTH           |                 |      |      | CHEAL           |                 |      |      | SETFA           |      |      |                   | -- IPOHE -- |      |
|---|--|---------------|-----------------|-----------------|------|------|-------------------|-----------------|-----------------|------|------|-----------------|-----------------|------|------|-----------------|------|------|-------------------|-------------|------|
|   |  |               | 6/12            | 6/27            | 7/10 | 7/24 | 8/28 <sup>b</sup> | 6/12            | 6/27            | 7/10 | 7/24 | 6/12            | 6/27            | 7/10 | 7/24 | 6/27            | 7/10 | 7/24 | 8/28 <sup>b</sup> | 7/10        | 7/24 |
|   |  |               | ----- % -----   |                 |      |      |                   |                 |                 |      |      |                 |                 |      |      |                 |      |      |                   |             |      |
| Pendimethalin <sup>c</sup> +glyphosate(ORIG) <sup>d</sup><br>+NIS+AMS               | 1.0+0.5625<br>+0.25%+2.5                         | EPOST         | 70              | 81              | 67   | 50   | 56                | 79              | 97              | 94   | 94   | 73              | 88              | 72   | 84   | 99              | 98   | 95   | 98                | 87          | 88   |
| Dimethenamid-P/<br>+dicamba+glyphosate(ORIG) <sup>d</sup><br>+NIS+AMS               | 0.5625/<br>+0.25+0.375<br>+0.25%+2.5             | PRE/<br>EPOST | 91              | 97              | 92   | 91   | 91                | 98              | 91              | 86   | 85   | 95              | 99              | 99   | 96   | 99              | 97   | 91   | 81                | 64          | 78   |
| Dimethenamid-P<br>+dicamba+glyphosate(ORIG) <sup>d</sup><br>+NIS+AMS                | 0.5625<br>+0.25+0.375<br>+0.25%+2.5              | EPOST         | 90              | 97              | 89   | 85   | 86                | 100             | 99              | 94   | 97   | 89              | 100             | 100  | 100  | 100             | 99   | 99   | 84                | 71          | 79   |
| Dicamba+glyphosate(ORIG) <sup>d</sup><br>+NIS+AMS                                   | 0.25+0.375<br>+0.25%+2.5                         | EPOST         | 89              | 95              | 94   | 93   | 90                | 98              | 98              | 92   | 95   | 90              | 95              | 90   | 88   | 91              | 85   | 67   | 54                | 80          | 85   |
| Dicamba&San 1269H<br>+glyphosate(ORIG) <sup>d</sup><br>+NIS+AMS                     | 0.125+0.05<br>+0.375<br>+0.25%+2.5               | EPOST         | 86              | 97              | 85   | 79   | 92                | 92              | 96              | 90   | 83   | 81              | 98              | 96   | 95   | 97              | 87   | 75   | 60                | 73          | 77   |
| Glyphosate(WMAX) <sup>e</sup> +AMS  | 0.77+2.5   | EPOST         | 79              | 78              | 68   | 45   | 39                | 89              | 84              | 71   | 45   | 86              | 84              | 60   | 41   | 84              | 68   | 51   | 46                | 80          | 57   |
| Dimethenamid-P/<br>+dicamba+glyphosate(ORIG) <sup>d</sup><br>+NIS+AMS               | 0.5625/<br>+0.25+0.375<br>+0.25%+2.5             | PRE/<br>MPOST | 15 <sup>f</sup> | 36 <sup>f</sup> | 80   | 90   | 95                | 10 <sup>f</sup> | 27 <sup>f</sup> | 87   | 90   | 10 <sup>f</sup> | 41 <sup>f</sup> | 69   | 88   | 96 <sup>f</sup> | 97   | 90   | 75                | 90          | 90   |
| Dimethenamid-P/<br>+dicamba&San 1269H<br>+glyphosate(ORIG) <sup>d</sup><br>+NIS+AMS | 0.5625/<br>+0.0625+0.025<br>+0.375<br>+0.25%+2.5 | PRE/<br>MPOST | 16 <sup>f</sup> | 36 <sup>f</sup> | 82   | 94   | 97                | 35 <sup>f</sup> | 27 <sup>f</sup> | 95   | 95   | 34 <sup>f</sup> | 41 <sup>f</sup> | 82   | 92   | 96 <sup>f</sup> | 98   | 96   | 98                | 88          | 92   |
| Dimethenamid-P/<br>+dicamba&San 1269H<br>+glyphosate(ORIG) <sup>d</sup><br>+NIS+AMS | 0.5625/<br>+0.125+0.05<br>+0.375<br>+0.25%+2.5   | PRE/<br>MPOST | 11 <sup>f</sup> | 36 <sup>f</sup> | 86   | 95   | 98                | 18 <sup>f</sup> | 27 <sup>f</sup> | 93   | 97   | 11 <sup>f</sup> | 41 <sup>f</sup> | 84   | 98   | 96 <sup>f</sup> | 96   | 92   | 88                | 90          | 92   |
| Dimethenamid-P/<br>+glyphosate(WMAX) <sup>e</sup> +AMS                              | 0.5625<br>+0.77+2.5                              | PRE/<br>MPOST | 14 <sup>f</sup> | 36 <sup>f</sup> | 72   | 81   | 89                | 19 <sup>f</sup> | 27 <sup>f</sup> | 96   | 95   | 16 <sup>f</sup> | 41 <sup>f</sup> | 63   | 67   | 96 <sup>f</sup> | 99   | 89   | 88                | 84          | 82   |
| Pendimethalin <sup>c</sup> +glyphosate(ORIG) <sup>d</sup><br>+NIS+AMS               | 1.0+0.5625<br>+0.25%+2.5                         | MPOST         | 0 <sup>f</sup>  | 0 <sup>f</sup>  | 41   | 53   | 61                | 0 <sup>f</sup>  | 0 <sup>f</sup>  | 96   | 99   | 0 <sup>f</sup>  | 0 <sup>f</sup>  | 56   | 51   | 0 <sup>f</sup>  | 90   | 91   | 94                | 87          | 88   |
| Untreated Check   |  |               | 0               | 0               | 0    | 0    | 0                 | 0               | 0               | 0    | 0    | 0               | 0               | 0    | 0    | 0               | 0    | 0    | 0                 | 0           | 0    |
| LSD (0.05)  |  |               | 12              | 24              | 16   | 22   | 22                | 27              | 18              | 12   | 12   | 26              | 30              | 28   | 24   | 7               | 12   | 19   | 32                | 18          | 21   |

<sup>a</sup> Rating dates: 6/12 = 13 DAT - epost (days after treatment), 6/27 = 28 DAT - epost, 7/10 = 41 DAT – epost / 13 DAT - mpost, 7/24 = 55 DAT – epost / 27 DAT – mpost, and 8/28 = 90 DAT – epost / 62 DAT – mpost.

<sup>b</sup> At this late rating date, the AMBTR was 10 to 12 feet tall, and had suppressed most of the other weed species. Therefore, ratings for ABUTH, CHEAL, and IPOHE were not collected.

<sup>c</sup> Pendimethalin = ProwlH2O from BASF

<sup>d</sup> Glyphosate(ORIG) = Roundup Original from Monsanto

<sup>e</sup> Glyphosate(WMAX) = Roundup Weathermax from Monsanto

<sup>f</sup> Ratings collected prior to mid postemergence (mpost) applications