

Effect of Soil Residual on Weed Spectrum at Postemergence Timing - Study 2.

Project Code: 03-50W-N80 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
 Trial Status: Final Updated: 10-28-03

Objective:

Determine any difference in weed spectrum from several soil residual herbicides at a postemergence application of glyphosate. Furthermore, determine if the performance of glyphosate is different as a response to the soil applied herbicides.

| Weed Code | Common Name | Scientific Name |
|-----------|---------------------------------|------------------------------|
| 1. | GGGGG grasses | Gramineae |
| 2. | CYPES nutsedge, yellow | Cyperus esculentus L. |
| 3. | AMATA waterhemp, common | Amaranthus rudis Sauer |
| 4. | POLPY smartweed, Pennsylvania | Polygonum pennsylvanicum L. |
| 5. | IPOHE morningglory, ivyleaf | Ipomoea hederacea (L.) Jacq. |
| 6. | SIDSP sida, prickly | Sida spinosa L. |
| 7. | CHEAL lambsquarters, common | Chenopodium album L. |
| 8. | ABUTH velvetleaf | Abutilon theophrasti Medicus |
| 9. | AMBEL ragweed, common | Ambrosia artemisiifolia L. |
| 10. | AMBTR ragweed, giant | Ambrosia trifida L. |
| 11. | SOLPT nightshade, eastern black | Solanum ptycanthum Dunal |
| 12. | XANST cocklebur, common | Xanthium strumarium L. |
| 13. | TTTTT weeds, generally | |

Crop 1: GLXMA soybean Variety: Asgrow 4603 RR
 Planting Method: Seeded Planting Date: 6-20-03
 Rate: 75 lb/A Depth: 1.0 IN
 Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 27 FT Reps: 3
 Tillage Type: Reduced-Till Study Design: Randomized complete block
 Previous Crop, Year: ZEAMX, 2002

Field Prep./Maintenance: N 0 LB/A, P205 50 LB/A, K20 200 LB/A

Soil Name: Weir % OM: 1.4 pH: 6.5 CEC: 12
 Texture: Silt loam Fert. Level: P1: 77 LB/A, K: 198 LB/A

APPLICATION DESCRIPTION

| | A | B | C | D | E |
|----------------------|---------|---------|----------|----------|----------|
| Application Date: | 6-9-03 | 7-14-03 | 7-17-03 | 7-17-03 | 7-29-03 |
| Time of Day: | 13:00 | 18:00 | 15:00 | 15:00 | 9:00 |
| Application Method: | Spray | Spray | Spray | Spray | Spray |
| Application Timing: | PRE | 4-8"W | 10-12"W1 | 10-12"W2 | 2-4"REGR |
| Applic. Placement: | BROSOI | BROFOL | BROFOL | BROFOL | BROFOL |
| Air Temp., Unit: | 80 F | 90 F | 92 F | 92 F | 68 F |
| % Relative Humidity: | 34 | 42 | 42 | 42 | 90 |
| Wind Velocity, Unit: | 0-5 MPH | 0 MPH | 0 MPH | 0 MPH | 0 MPH |
| Soil Moisture: | NORMAL | NORMAL | BELNOR | BELNOR | NORMAL |

CROP STAGE AT EACH APPLICATION

| | A | B | C | D | E |
|---------------------|----------|----------|----------|----------|----------|
| Crop 1 Code, Stage: | GLXMA NA | GLXMA V3 | GLXMA V6 | GLXMA V6 | GLXMA R1 |
| Height, Unit: | NA NA | 6 IN | 8 IN | 8 IN | 14 IN |

WEED STAGE AT EACH APPLICATION

| | A | B | C | D | E |
|-----------------|---|--------|-------|-------|---|
| Weed 1 Code: | | GGGGG | GGGGG | GGGGG | |
| Stage(leaves): | | 3-8 | 6-10 | 6-10 | |
| Height(inches): | | 6-8 | 6-12 | 6-12 | |
| Density: | | Medium | Low | Low | |

| | | | | |
|------------------------|-------|-------|--------|-------|
| Weed 3 Code: | AMATA | AMATA | AMATA | AMATA |
| Stage(leaves): | 5-25 | 10-25 | 10-25 | 3-5 |
| Height(inches): | 2-12 | 8-16 | 8-16 | 2-4 |
| Density: | High | High | Medium | Low |

APPLICATION EQUIPMENT

| | A | B | C | D | E |
|----------------------------|-------------|-------------|-------------|-------------|-------------|
| Appl. Equipment: | CO2 sprayer | CO2 sprayer | CO2 sprayer | CO2 sprayer | CO2 sprayer |
| Operating Pressure: | 40 PSI | 40 PSI | 40 PSI | 40 PSI | 40 PSI |
| Nozzle Type: | Flat fan | Flat fan | Flat fan | Flat fan | Flat fan |
| Nozzle Size: | 8003 | 8002 | 8002 | 8002 | 8002 |
| Boom Length, Unit: | 7.5 FT | 7.5 FT | 7.5 FT | 7.5 FT | 7.5 FT |
| Spray Volume, Unit: | 20 GPA | 20 GPA | 20 GPA | 20 GPA | 20 GPA |

NOTES:

Harvested Oct-24-03, (2) 30 inch rows by 24 ft.

Effect of Soil Residual on Weed Spectrum at Postemergence Timing - Study 2.

Project Code: 03-50W-N80 Location: Belleville Research Center

| | | | | | | | | | | | | | | | | | |
|-------------------|--|--|--|--|--|--|--|--|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Weed Code | | | | | | | | | GGGGG | GGGGG | GGGGG | CYPES | CYPES | CYPES | AMATA | AMATA | AMATA |
| Crop Code | | | | | | | | | GLXMA | GLXMA | GLXMA | | | | | | |
| Rating Data Type | | | | | | | | | Yield | Injury | Injury | Control | Control | Control | Control | Control | Control |
| Rating Unit | | | | | | | | | bu/A | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| Rating Date | | | | | | | | | 10-24-03 | 7-17-03 | 7-31-03 | 7-17-03 | 7-31-03 | 8-14-03 | 7-17-03 | 7-31-03 | 8-14-03 |
| Trt-Eval Interval | | | | | | | | | 0 DA-D | 14 DA-D | 0 DA-D | 14 DA-D | 28 DA-D | 0 DA-D | 14 DA-D | 28 DA-D | 0 DA-D |

| Trt No. | Treatment Name | Form Conc | Form Type | Rate | Rate Unit | Prod Rate | Prod Unit | Grow Stg | Appl Code | Yield | Injury | Injury | Control | Control | Control | Control | Control | Control | | | |
|---------|-------------------|-----------|-----------|--------|-----------|-----------|------------|----------|-----------|-------|--------|--------|---------|---------|---------|---------|---------|---------|----|----|----|
| 1 | NONTREATED | | | | | | | | | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| 2 | PROWL | 3.3 | EC | 0.743 | LB A/A | 1.8 | PT/A | PRE | A | 49 | 0 | 0 | 37 | 99 | 99 | 0 | 83 | 87 | 33 | 93 | 95 |
| 2 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W2 | D | | | | | | | | | | | | |
| 2 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W2 | D | | | | | | | | | | | | |
| 3 | DUAL II MAGNUM | 7.64 | EC | 1.27 | LB A/A | 1.33 | PT/A | PRE | A | 45 | 0 | 0 | 89 | 99 | 99 | 85 | 99 | 93 | 95 | 99 | 99 |
| 3 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W2 | D | | | | | | | | | | | | |
| 3 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W2 | D | | | | | | | | | | | | |
| 4 | AXIOM | 68 | WG | 0.2975 | LB A/A | 7 | OZ/A | PRE | A | 46 | 0 | 0 | 87 | 99 | 99 | 63 | 93 | 90 | 73 | 96 | 98 |
| 4 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W2 | D | | | | | | | | | | | | |
| 4 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W2 | D | | | | | | | | | | | | |
| 5 | BOUNDARY | 7.8 | EC | 1.22 | LB A/A | 1.25 | PT/A | PRE | A | 49 | 0 | 0 | 97 | 99 | 99 | 92 | 99 | 99 | 98 | 99 | 99 |
| 5 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W2 | D | | | | | | | | | | | | |
| 5 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W2 | D | | | | | | | | | | | | |
| 6 | DOMAIN | 60 | WG | 0.3375 | LB A/A | 9 | OZ/A | PRE | A | 48 | 0 | 0 | 85 | 99 | 99 | 62 | 96 | 86 | 85 | 98 | 98 |
| 6 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W2 | D | | | | | | | | | | | | |
| 6 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W2 | D | | | | | | | | | | | | |
| 7 | SENCOR | 75 | WG | 0.5 | LB A/A | 0.67 | LB/A | PRE | A | 48 | 0 | 0 | 65 | 99 | 99 | 23 | 92 | 83 | 93 | 99 | 99 |
| 7 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W2 | D | | | | | | | | | | | | |
| 7 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W2 | D | | | | | | | | | | | | |
| 8 | PYTHON | 80 | WG | 0.057 | LB A/A | 1.14 | OZ/A | PRE | A | 48 | 0 | 0 | 0 | 99 | 99 | 0 | 82 | 85 | 0 | 95 | 93 |
| 8 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W2 | D | | | | | | | | | | | | |
| 8 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W2 | D | | | | | | | | | | | | |
| 9 | AUTHORITY | 75 | WG | 0.1406 | LB A/A | 3 | OZ/A | PRE | A | 45 | 0 | 0 | 17 | 99 | 99 | 40 | 95 | 93 | 92 | 99 | 99 |
| 9 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W2 | D | | | | | | | | | | | | |
| 9 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W2 | D | | | | | | | | | | | | |
| 10 | CANOPY XL | 56.3 | WG | | | 4.5 | OZ/A | PRE | A | 47 | 0 | 0 | 67 | 99 | 99 | 80 | 98 | 88 | 89 | 99 | 99 |
| 10 | ->CLASSIC | 25 | WG | 0.0264 | LB A/A | | | PRE | A | | | | | | | | | | | | |
| 10 | ->AUTHORITY | 75 | WG | 0.132 | LB A/A | | | PRE | A | | | | | | | | | | | | |
| 10 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W2 | D | | | | | | | | | | | | |
| 10 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W2 | D | | | | | | | | | | | | |
| 11 | VALOR | 51 | WG | 0.0781 | LB A/A | 2.45 | OZ/A | PRE | A | 50 | 0 | 0 | 0 | 99 | 99 | 0 | 89 | 90 | 85 | 99 | 99 |
| 11 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W2 | D | | | | | | | | | | | | |
| 11 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W2 | D | | | | | | | | | | | | |

| Weed Code | GGGGG GGGGG GGGGG CYPES CYPES CYPES AMATA AMATA AMATA | | | | | | | | | | | | | | | | | | | | |
|-------------------|---|-----------|-----------|---------|---------|-----------|------------|----------|-----------|---------|---------|---------|---------|--------|--------|--------|--------|--------|---------|---------|---------|
| Crop Code | GLXMA | GLXMA | GLXMA | | | | | | | | | | | | | | | | | | |
| Rating Data Type | Yield | Injury | Injury | Control | Control | Control | Control | Control | Control | Control | Control | Control | | | | | | | | | |
| Rating Unit | bu/A | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | | | | | | | | | |
| Rating Date | 10-24-03 | 7-17-03 | 7-31-03 | 7-17-03 | 7-31-03 | 8-14-03 | 7-17-03 | 7-31-03 | 8-14-03 | 7-17-03 | 7-31-03 | 8-14-03 | | | | | | | | | |
| Trt-Eval Interval | 0 DA-D | | | 14 DA-D | | | 0 DA-D | | | 14 DA-D | | | 28 DA-D | | | | | | | | |
| Trt No. | Treatment Name | Form Conc | Form Type | Rate | Unit | Prod Rate | Prod Unit | Grow Stg | Appl Code | | | | | | | | | | | | |
| 12 | FIRSTRATE | 84 | WG | 0.0315 | LB A/A | 0.6 | OZ/A | PRE | A | 45 | 0 | 0 | 10 | 99 | 99 | 43 | 99 | 96 | 0 | 88 | 92 |
| 12 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W2 | D | | | | | | | | | | | | |
| 12 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W2 | D | | | | | | | | | | | | |
| 13 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 10-12"W1 | C | 51 | | 0 | 0 | 99 | 99 | 0 | 91 | 90 | 0 | 92 | 92 |
| 13 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 10-12"W1 | C | | | | | | | | | | | | |
| 14 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 4-8"W | B | 49 | | 0 | 85 | 99 | 99 | 47 | 99 | 96 | 72 | 98 | 99 |
| 14 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 4-8"W | B | | | | | | | | | | | | |
| 14 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 1.6 | PT/A | 2-4"REGR | E | | | | | | | | | | | | |
| 14 | AMS | 100 | DRY | 2.0 | % W/W | 17 | LB/100 GAL | 2-4"REGR | E | | | | | | | | | | | | |
| 15 | HANDWEED | | | | | | | | | 49 | | 0 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| LSD (P=.05) | | | | | | | | | | 7.1 | 0.0 | 0.0 | 19.8 | 0.0 | 0.0 | 21.6 | 11.0 | 10.0 | 10.4 | 4.0 | 3.2 |
| Replicate F | | | | | | | | | | 0.457 | 0.000 | 0.000 | 0.138 | 0.000 | 0.000 | 1.695 | 1.189 | 2.862 | 1.074 | 2.154 | 3.010 |
| Replicate Prob(F) | | | | | | | | | | 0.6378 | 1.0000 | 1.0000 | 0.8721 | 1.0000 | 1.0000 | 0.2026 | 0.3194 | 0.0740 | 0.3552 | 0.1349 | 0.0654 |
| Treatment F | | | | | | | | | | 6.604 | 0.000 | 0.000 | 35.491 | 0.000 | 0.000 | 24.560 | 42.944 | 48.544 | 132.707 | 331.227 | 509.196 |
| Treatment Prob(F) | | | | | | | | | | 0.0001 | 1.0000 | 1.0000 | 0.0001 | 1.0000 | 1.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |

Effect of Soil Residual on Weed Spectrum at Postemergence Timing - Study 2.

Project Code: 03-50W-N80 Location: Belleville Research Center

Trial Comments

1. Protocol: SIU (BGY).
2. Ratings: CI at 21 DAP and at each postemergence timing;
WC at each postemergence timing and at 14 and 28 DA 10-12"W2 application; Yield.
3. For postemergence applications, determine timing for each treatment. Record application information on a rating sheet by treatment.
4. Take weed counts per 0.5 square meter and biomass at 4-8"W for all plots, and again at each postemergence timing for treatments 2-12.
5. DA-D = days after 10-12"W1 or 10-12"W2 application (applied the same date). At Post = at various postemergence application timings.