

Glyphosate-resistant waterhemp control in Enlist E3 soybean

Trial ID: SOY15-21 Study Dir.: Sprague, Powell, Stiles
 Conducted: Shiawassee County Investigator: Christy Sprague

Planting Date: 5-20-21 **Row Spacing:** 30 IN
Variety: P24T35E **No. of Reps:** 4
Population: 155000 seeds/A **% OM:** 3.6
Soil Type: CL clay loam **pH:** 6.2
Plot Size: 10 X 25 FT **Study Design:** Randomized Complete Block (RCB)

Tillage/Previous Crops: Spring disked corn stubble
Fertilizer:

Crop and Weed Description

| Weed | Code | Common Name | Scientific Name |
|------|-------|-------------|-------------------------|
| 1 | AMATU | waterhemp | Amaranthus tuberculatus |
| Crop | Code | Common Name | |
| 1 | GLXMA | Soybean | |

Application Description

| | A | B | C |
|---------------------------------------|---------|----------|---------|
| Application Timing: | PRE | EPOS | POST |
| Date Treated: | 5-20-21 | 6-23-21 | 7-7-21 |
| Time Treated: | 3:15 PM | 11:10 AM | 9:10 AM |
| % Cloud Cover: | 50 | 60 | 95 |
| Air Temp., Unit: | 86 F | 65 F | 76 F |
| % Relative Humidity: | 35 | 54 | 79 |
| Wind Speed/Unit/Dir: | 6 MPH S | 5 MPH S | 2 MPH W |
| Soil Temp, Unit: | 66.4 F | 67 F | 79 F |
| Leaf Moist/Dew Presence (Y/N): | N | N | N |
| Soil Moist: | 5 | 4 | 5 |

Crop Stage at Each Application

| | A | B | C |
|---------------------|-------|-----------|--------------|
| Crop 1 Name: | GLXMA | GLXMA | GLXMA |
| Height: | | 6-8 " (7) | 17-18 " (17) |
| Stage: | | V3 | V6 |

Weed Stage at Each Application

| | A | B | C |
|---------------------|-------|--------------|---------------|
| Weed 1 Name: | AMATU | AMATU | AMATU |
| Height: | | 1-6 " (3.5) | 3-9 " (6) |
| Stage: | | 4L-24L (14L) | 12L-20L (16L) |

Weed Density

| | |
|-------------------|-------------|
| Date: | 1 7-7-21 |
| Weed Name: | AMATU |
| Density: | 15 FT2 |

Application Equipment

| Appl | Sprayer Type | Ground Speed | Nozzle Type | Nozzle Size | Nozzle Height | Nozzle Spacing | Boom Width | Spray Volume | Carrier | Operation Pressure |
|------|--------------|--------------|-------------|-------------|---------------|----------------|------------|--------------|---------|--------------------|
| A | CUB | 3.3 mph | AIXR | 11003 | 22.0 " | 20.0 " | 100.0 " | 19 GPA | WATER | 30 PSI |
| B | CUB | 3.3 mph | AIXR | 11003 | 26.0 " | 20.0 " | 100.0 " | 19 GPA | WATER | 30 PSI |
| C | CUB | 3.3 mph | AIXR | 11003 | 28.0 " | 20.0 " | 100.0 " | 19 GPA | WATER | 30 PSI |

Comments: The waterhemp population at this location is Group 2 (ALS) and Group 9 (glyphosate) resistant.

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Trial ID: SOY15-21

Location: Shiawassee County

Trial Year: 2020

Protocol ID: SOY15-21

Investigator (Creator): Christy Sprague

Study Director: Sprague, Powell, Stiles

| Pest Code | AMATU | AMATU | AMATU | AMATU |
|-------------------|----------|----------|----------|----------|
| Crop Type, Code | C, GLXMA | C, GLXMA | C, GLXMA | C, GLXMA |
| Rating Date | 7-7-21 | 7-21-21 | 7-21-21 | 8-11-21 |
| Rating Type | control | injury | control | injury |
| Rating Unit | % | % | % | % |
| Trt-Eval Interval | 48 DA-A | 14 DA-C | 14 DA-C | 35 DA-C |

| Trt No. | Treatment Name | Rate | Rate Unit | Appl Code | 87 | 0 | 95 | 0 | 94 | 98 |
|---------|------------------|---------------|-----------|-----------|-----|---|-----|---|-----|-----|
| 1 | Valor | 2 oz/a | | A | | | | | | |
| 1 | Roundup PowerMax | 32 fl oz/a | | C | | | | | | |
| 1 | AMS | 17 lb/100 gal | | C | | | | | | |
| 2 | Valor | 2 oz/a | | A | 86 | 0 | 99 | 0 | 100 | 100 |
| 2 | Enlist Duo | 4.75 pt/a | | C | | | | | | |
| 2 | AMS | 17 lb/100 gal | | C | | | | | | |
| 3 | Valor | 2 oz/a | | A | 85 | 0 | 100 | 0 | 100 | 100 |
| 3 | Liberty | 32 fl oz/a | | C | | | | | | |
| 3 | AMS | 17 lb/100 gal | | C | | | | | | |
| 4 | Valor | 2 oz/a | | A | 85 | 0 | 100 | 0 | 100 | 100 |
| 4 | Enlist One | 32 fl oz/a | | C | | | | | | |
| 4 | Liberty | 32 fl oz/a | | C | | | | | | |
| 4 | AMS | 17 lb/100 gal | | C | | | | | | |
| 5 | Valor | 2 oz/a | | A | 88 | 0 | 100 | 0 | 100 | 98 |
| 5 | Warrant | 3 pt/a | | C | | | | | | |
| 5 | Enlist Duo | 4.75 pt/a | | C | | | | | | |
| 5 | AMS | 17 lb/100 gal | | C | | | | | | |
| 6 | Valor | 2 oz/a | | A | 95 | 0 | 99 | 0 | 100 | 100 |
| 6 | Warrant | 3 pt/a | | C | | | | | | |
| 6 | Liberty | 32 fl oz/a | | C | | | | | | |
| 6 | AMS | 17 lb/100 gal | | C | | | | | | |
| 7 | Valor | 2 oz/a | | A | 88 | 0 | 100 | 0 | 100 | 100 |
| 7 | Warrant | 3 pt/a | | C | | | | | | |
| 7 | Enlist One | 32 fl oz/a | | C | | | | | | |
| 7 | Liberty | 32 fl oz/a | | C | | | | | | |
| 7 | AMS | 17 lb/100 gal | | C | | | | | | |
| 8 | Valor | 2 oz/a | | A | 89 | 0 | 100 | 0 | 100 | 100 |
| 8 | Dual II Magnum | 1.33 pt/a | | C | | | | | | |
| 8 | Enlist One | 32 fl oz/a | | C | | | | | | |
| 8 | Liberty | 32 fl oz/a | | C | | | | | | |
| 8 | AMS | 17 lb/100 gal | | C | | | | | | |
| 9 | Valor | 2 oz/a | | A | 88 | 0 | 100 | 0 | 100 | 100 |
| 9 | Outlook | 16 fl oz/a | | C | | | | | | |
| 9 | Enlist One | 32 fl oz/a | | C | | | | | | |
| 9 | Liberty | 32 fl oz/a | | C | | | | | | |
| 9 | AMS | 17 lb/100 gal | | C | | | | | | |
| 10 | Valor | 2 oz/a | | A | 83 | 0 | 100 | 0 | 100 | 100 |
| 10 | Zidua SC | 4 fl oz/a | | C | | | | | | |
| 10 | Enlist One | 32 fl oz/a | | C | | | | | | |
| 10 | Liberty | 32 fl oz/a | | C | | | | | | |
| 10 | AMS | 17 lb/100 gal | | C | | | | | | |
| 11 | Roundup PowerMax | 32 fl oz/a | | B | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | AMS | 17 lb/100 gal | | B | | | | | | |
| 12 | Enlist Duo | 4.75 pt/a | | B | 100 | 0 | 96 | 0 | 98 | 95 |
| 12 | AMS | 17 lb/100 gal | | B | | | | | | |
| 13 | Liberty | 32 fl oz/a | | B | 99 | 0 | 81 | 0 | 75 | 75 |
| 13 | AMS | 17 lb/100 gal | | B | | | | | | |

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| Pest Code | AMATU | AMATU | AMATU | AMATU | AMATU | AMATU | | | | |
|--------------------|------------------|---------------|----------|-----------|----------|----------|----|---|------|------|
| Crop Type, Code | C, GLXMA | C, GLXMA | C, GLXMA | C, GLXMA | C, GLXMA | C, GLXMA | | | | |
| Rating Date | 7-7-21 | 7-21-21 | 7-21-21 | 8-11-21 | 8-11-21 | 9-30-21 | | | | |
| Rating Type | control | injury | control | injury | control | control | | | | |
| Rating Unit | % | % | % | % | % | % | | | | |
| Trt-Eval Interval | 48 DA-A | 14 DA-C | 14 DA-C | 35 DA-C | 35 DA-C | 85 DA-C | | | | |
| Trt No. | Treatment Name | Rate | Unit | Appl Code | | | | | | |
| 14 | Enlist One | 32 fl oz/a | | B | 100 | 0 | 92 | 0 | 89 | 96 |
| 14 | Liberty | 32 fl oz/a | | B | | | | | | |
| 14 | AMS | 17 lb/100 gal | | B | | | | | | |
| 15 | Liberty | 32 fl oz/a | | B | 97 | 0 | 81 | 0 | 78 | 77 |
| 15 | Roundup PowerMax | 32 fl oz/a | | B | | | | | | |
| 15 | AMS | 17 lb/100 gal | | B | | | | | | |
| 16 | Enlist One | 32 fl oz/a | | B | 100 | 0 | 94 | 0 | 93 | 92 |
| 16 | Liberty | 32 fl oz/a | | B | | | | | | |
| 16 | Roundup PowerMax | 32 fl oz/a | | B | | | | | | |
| 16 | AMS | 17 lb/100 gal | | B | | | | | | |
| LSD | P=.05 | 11.4 | | | 6.3 | | | | 6.0 | 6.8 |
| Standard Deviation | | 8.0 | | | 4.5 | | | | 4.2 | 4.8 |
| CV | | 9.33 | | | 4.96 | | | | 4.74 | 5.33 |