

Leading with Liberty for weed control in Enlist E3 soybean

Trial ID: SOY04-23 Study Dir.: Sprague, Stiles
 Conducted: Campus, C-12 Investigator: Christy Sprague

Planting Date: May-10-2023 **Row Spacing:** 30 IN
Variety: P25A16E **No. of Reps:** 4
Population: 150000 seeds/A **% OM:** 3
Soil Type: CL clay loam **pH:** 7.4
Plot Size: 10 X 30 FT **Study Design:** Randomized Complete Block (RCB)

Tillage/Previous Crops: Fall chisel plowed, fall soil finished twice, spring soil finished twice.
Fertilizer:

Crop and Weed Description

| Weed | Code | Common Name | Scientific Name |
|------|-------|----------------------|-------------------------|
| 1 | ANGR | annual grass | mainly foxtail species |
| 2 | CHEAL | common lambsquarters | Chenopodium album |
| 3 | AMAPO | Powell amaranth | Amaranthus powellii |
| 4 | AMBEL | common ragweed | Ambrosia artemisiifolia |
| Crop | Code | Common Name | |
| 1 | GLYMX | Soybean | |

Application Description

| | A | B |
|---------------------------------------|-------------|-------------|
| Application Timing: | POST | +14 d |
| Date Treated: | Jun-16-2023 | Jun-28-2023 |
| Time Treated: | 9:00 AM | 8:00 AM |
| % Cloud Cover: | 100 | 100 |
| Air Temp., Unit: | 59 F | 65 F |
| % Relative Humidity: | 85 | 93 |
| Wind Speed/Unit/Dir: | 7.5 MPH N | 6 MPH S |
| Soil Temp, Unit: | 64 F | 69 F |
| Leaf Moist/Dew Presence (Y/N): | N | N |
| Soil Moist: | 5 | 4 |

Crop Stage at Each Application

| | A | B |
|---------------------|-------|-------|
| Crop 1 Name: | GLYMX | GLYMX |
| Height: | 6 " | 9 " |
| Stage: | V2-V3 | V4 |

Weed Stage at Each Application

| | A | B |
|---------------------|--------------|---------------|
| Weed 1 Name: | ANGR | ANGR |
| Height: | 3-6 " (5) | 3-7 " (5) |
| Stage: | 3L-4L (4L) | 7L-13L (8L) |
| Weed 2 Name: | CHEAL | CHEAL |
| Height: | 1-5 " (4) | 2-8 " (4) |
| Stage: | 6L-20L (10L) | 8L-16L (many) |
| Weed 3 Name: | AMAPO | AMAPO |
| Height: | 2-4 " (3) | |
| Stage: | 10L | |
| Weed 4 Name: | AMBEL | AMBEL |
| Height: | 1-5 " (4) | 3-6 " (4) |
| Stage: | 4L-12L (8L) | 4L-16L (8L) |

Weed Density

| | 1 | 2 | 3 | 4 |
|-------------------|-------------|-------------|-------------|-------------|
| Date: | Jun-16-2023 | Jun-16-2023 | Jun-16-2023 | Jun-16-2023 |
| Weed Name: | ANGR | CHEAL | AMAPO | AMBEL |
| Density: | 2 FT2 | 1 FT2 | 1 FT2 | 3 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 | 3.8 MPH | AIXR | 11003 | 22.0 " | 20.0 " | 100.0 " | 19 GAL/AC | WATER | 30 PSI |
| B | CUB | 3.8 MPH | AIXR | 11003 | 24.0 " | 20.0 " | 100.0 " | 19 GAL/AC | WATER | 30 PSI |

Comments: Common ragweed (AMBEL) at this location is resistant to the Group 2 (ALS-inhibiting) herbicides.

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Trial ID: SOY04-23

Protocol ID: SOY04-23 Location: Campus, C-12 Trial Year: 2023

Study Director: Sprague, Stiles Sponsor Contact:

Investigator: Christy Sprague

| Rating Date | Jun-23-2023 | Jun-23-2023 | Jun-23-2023 | Jun-23-2023 | Jun-30-2023 | Jun-30-2023 |
|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Rating Type | injury | control | control | control | injury | control |
| Rating Unit/Min/Max | %, 0, 100 | %, 0, 100 | %, 0, 100 | %, 0, 100 | %, 0, 100 | %, 0, 100 |
| Crop Type, Code | C, GLXMA | | | C, GLXMA | | |
| Pest Code | | ANGR | CHEAL | AMBEL | | ANGR |
| Trt-Eval Interval | 7 DA-A | 7 DA-A | 7 DA-A | 7 DA-A | 14 DA-A | 14 DA-A |
| Number of Decimals | 0 | 0 | 0 | 0 | 0 | 0 |

| Trt No. | Treatment Name | Rate | Appl Unit | Appl Code | Appl Timing | Jun-23-2023 injury | Jun-23-2023 control | Jun-23-2023 control | Jun-23-2023 control | Jun-30-2023 injury | Jun-30-2023 control |
|---------|----------------------|-------------|-----------|-----------|-------------|--------------------|---------------------|---------------------|---------------------|--------------------|---------------------|
| 1 | Liberty Ultra | 24 fl oz/a | A | | POST | 8 | 90 | 96 | 95 | 10 | 100 |
| | SelectMax | 12 fl oz/a | A | | POST | | | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | | | |
| | Crop oil concentrate | 1 % v/v | A | | POST | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | |
| 2 | Liberty Ultra | 24 fl oz/a | A | | POST | 7 | 95 | 100 | 98 | 8 | 100 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | |
| 3 | Enlist One | 32 fl oz/a | A | | POST | 9 | 66 | 84 | 80 | 13 | 80 |
| | SelectMax | 12 fl oz/a | A | | POST | | | | | | |
| | Dual II Magnum | 1 pt/a | A | | POST | | | | | | |
| | Crop oil concentrate | 1 % v/v | A | | POST | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | |
| 4 | Untreated | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | Enlist One | 32 fl oz/a | A | | POST | 6 | 100 | 90 | 81 | 12 | 100 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | | | |
| | Dual II Magnum | 1 pt/a | A | | POST | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | |
| 6 | Enlist One | 32 fl oz/a | A | | POST | 9 | 100 | 99 | 96 | 10 | 100 |
| | Liberty Ultra | 24 fl oz/a | A | | POST | | | | | | |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | |
| 7 | Liberty Ultra | 24 fl oz/a | A | | POST | 7 | 99 | 100 | 97 | 11 | 100 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | |
| | Enlist One | 32 fl oz/a | B | | +14 d | | | | | | |
| | Roundup PowerMax 3 | 30 fl oz/a | B | | +14 d | | | | | | |
| | AMS | 1.5 lb/a | B | | +14 d | | | | | | |
| 8 | Enlist One | 32 fl oz/a | A | | POST | 6 | 98 | 86 | 85 | 13 | 100 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | | | |
| | Dual II Magnum | 1 pt/a | A | | POST | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | |
| | Liberty Ultra | 24 fl oz/a | B | | +14 d | | | | | | |
| | Roundup PowerMax 3 | 30 fl oz/a | B | | +14 d | | | | | | |
| | AMS | 1.5 lb/a | B | | +14 d | | | | | | |
| | LSD P=.05 | | | | | 3.8 | 3.5 | 4.4 | 5.3 | 4.2 | 1.7 |
| | Standard Deviation | | | | | 2.6 | 2.3 | 3.0 | 3.6 | 2.9 | 1.2 |
| | CV | | | | | 40.04 | 2.91 | 3.64 | 4.55 | 30.21 | 1.37 |

Could not calculate LSD (% mean diff) for columns 16 because error mean square = 0.

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Trial ID: SOY04-23

Protocol ID: SOY04-23 Location: Campus, C-12 Trial Year: 2023

Study Director: Sprague, Stiles Sponsor Contact:

Investigator: Christy Sprague

| Rating Date | Jun-30-2023 | Jun-30-2023 | Jul-5-2023 | Jul-5-2023 | Jul-5-2023 | Jul-5-2023 | Jul-12-2023 |
|---------------------|-------------|-------------|------------|------------|------------|------------|-------------|
| Rating Type | control | control | injury | control | control | control | injury |
| Rating Unit/Min/Max | %, 0, 100 | %, 0, 100 | %, 0, 100 | %, 0, 100 | %, 0, 100 | %, 0, 100 | %, 0, 100 |
| Crop Type, Code | C, GLXMA | | | | | | C, GLXMA |
| Pest Code | CHEAL | AMBEL | | ANGR | CHEAL | AMBEL | |
| Trt-Eval Interval | 14 DA-A | 14 DA-A | 7 DA-B | 7 DA-B | 7 DA-B | 7 DA-B | 14 DA-B |
| Number of Decimals | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Trt No. | Treatment Name | Rate | Appl Unit | Appl Code | Appl Timing | | | | | | | |
|---------|----------------------|-------------|-----------|-----------|-------------|------|------|-------|-----|------|------|--------|
| 1 | Liberty Ultra | 24 fl oz/a | A | | POST | 93 | 100 | 2 | 100 | 88 | 100 | 0 |
| | SelectMax | 12 fl oz/a | A | | POST | | | | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | | | | |
| | Crop oil concentrate | 1 % v/v | A | | POST | | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | | |
| 2 | Liberty Ultra | 24 fl oz/a | A | | POST | 100 | 100 | 2 | 100 | 100 | 100 | 0 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | | |
| 3 | Enlist One | 32 fl oz/a | A | | POST | 88 | 85 | 7 | 75 | 98 | 96 | 1 |
| | SelectMax | 12 fl oz/a | A | | POST | | | | | | | |
| | Dual II Magnum | 1 pt/a | A | | POST | | | | | | | |
| | Crop oil concentrate | 1 % v/v | A | | POST | | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | | |
| 4 | Untreated | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | Enlist One | 32 fl oz/a | A | | POST | 100 | 100 | 7 | 100 | 100 | 100 | 3 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | | | | |
| | Dual II Magnum | 1 pt/a | A | | POST | | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | | |
| 6 | Enlist One | 32 fl oz/a | A | | POST | 100 | 100 | 2 | 100 | 100 | 100 | 1 |
| | Liberty Ultra | 24 fl oz/a | A | | POST | | | | | | | |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | | |
| 7 | Liberty Ultra | 24 fl oz/a | A | | POST | 100 | 100 | 2 | 100 | 100 | 100 | 0 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | | |
| | Enlist One | 32 fl oz/a | B | | +14 d | | | | | | | |
| | Roundup PowerMax 3 | 30 fl oz/a | B | | +14 d | | | | | | | |
| | AMS | 1.5 lb/a | B | | +14 d | | | | | | | |
| 8 | Enlist One | 32 fl oz/a | A | | POST | 100 | 100 | 6 | 100 | 100 | 100 | 3 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | | | | |
| | Dual II Magnum | 1 pt/a | A | | POST | | | | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | | | | |
| | Liberty Ultra | 24 fl oz/a | B | | +14 d | | | | | | | |
| | Roundup PowerMax 3 | 30 fl oz/a | B | | +14 d | | | | | | | |
| | AMS | 1.5 lb/a | B | | +14 d | | | | | | | |
| | LSD P=.05 | | | | | 4.1 | 2.1 | 2.3 | 4.7 | 5.6 | 2.5 | 1.5 |
| | Standard Deviation | | | | | 2.8 | 1.4 | 1.6 | 3.2 | 3.8 | 1.7 | 1.0 |
| | CV | | | | | 3.32 | 1.69 | 47.13 | 3.8 | 4.48 | 1.94 | 112.06 |

Could not calculate LSD (% mean diff) for columns 16 because error mean square = 0.

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Trial ID: SOY04-23

Protocol ID: SOY04-23 Location: Campus, C-12 Trial Year: 2023

Study Director: Sprague, Stiles Sponsor Contact:

Investigator: Christy Sprague

| Rating Date | Jul-12-2023 | Jul-12-2023 | Jul-12-2023 | Jul-12-2023 |
|---------------------|-------------|-------------|-------------|-------------|
| Rating Type | control | control | control | control |
| Rating Unit/Min/Max | %, 0, 100 | %, 0, 100 | %, 0, 100 | %, 0, 100 |
| Crop Type, Code | | | | |
| Pest Code | ANGR | CHEAL | AMAPO | AMBEL |
| Trt-Eval Interval | 14 DA-B | 14 DA-B | 14 DA-B | 14 DA-B |
| Number of Decimals | 0 | 0 | 0 | 0 |

| Trt No. | Treatment Name | Rate | Appl Unit | Appl Code | Timing | Jul-12-2023 control | Jul-12-2023 control | Jul-12-2023 control | Jul-12-2023 control |
|---------|----------------------|-------------|-----------|-----------|--------|---------------------|---------------------|---------------------|---------------------|
| 1 | Liberty Ultra | 24 fl oz/a | A | | POST | 100 | 90 | 100 | 100 |
| | SelectMax | 12 fl oz/a | A | | POST | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | |
| | Crop oil concentrate | 1 % v/v | A | | POST | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | |
| 2 | Liberty Ultra | 24 fl oz/a | A | | POST | 100 | 100 | 100 | 100 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | |
| 3 | Enlist One | 32 fl oz/a | A | | POST | 81 | 100 | 100 | 100 |
| | SelectMax | 12 fl oz/a | A | | POST | | | | |
| | Dual II Magnum | 1 pt/a | A | | POST | | | | |
| | Crop oil concentrate | 1 % v/v | A | | POST | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | |
| 4 | Untreated | | | | | 0 | 0 | 0 | 0 |
| 5 | Enlist One | 32 fl oz/a | A | | POST | 100 | 100 | 100 | 100 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | |
| | Dual II Magnum | 1 pt/a | A | | POST | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | |
| 6 | Enlist One | 32 fl oz/a | A | | POST | 100 | 100 | 100 | 100 |
| | Liberty Ultra | 24 fl oz/a | A | | POST | | | | |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | |
| 7 | Liberty Ultra | 24 fl oz/a | A | | POST | 100 | 100 | 100 | 100 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | |
| | Zidua SC | 2.5 fl oz/a | A | | POST | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | |
| | Enlist One | 32 fl oz/a | B | | +14 d | | | | |
| | Roundup PowerMax 3 | 30 fl oz/a | B | | +14 d | | | | |
| | AMS | 1.5 lb/a | B | | +14 d | | | | |
| 8 | Enlist One | 32 fl oz/a | A | | POST | 100 | 100 | 100 | 100 |
| | Roundup PowerMax 3 | 30 fl oz/a | A | | POST | | | | |
| | Dual II Magnum | 1 pt/a | A | | POST | | | | |
| | AMS | 1.5 lb/a | A | | POST | | | | |
| | Liberty Ultra | 24 fl oz/a | B | | +14 d | | | | |
| | Roundup PowerMax 3 | 30 fl oz/a | B | | +14 d | | | | |
| | AMS | 1.5 lb/a | B | | +14 d | | | | |
| | LSD P=.05 | | | | | 2.5 | 5.2 | . | 0.5 |
| | Standard Deviation | | | | | 1.7 | 3.5 | 0.0 | 0.4 |
| | CV | | | | | 1.98 | 4.12 | 0.0 | 0.4 |

Could not calculate LSD (% mean diff) for columns 16 because error mean square = 0.