

## Sharpen Burndown Adjuvant and Carrier Volume Study.

Trial ID: 10-YRC-SharpAdjuvant Location: Young Res. Center

Investigator: Bryan Young, Professor, Southern Illinois University, bgyoung@siu.edu  
 City State Zip Country: Murphysboro IL 62966 USA  
 Trial Status: FINAL Initiation Date: 06-04-10

Objectives: Determine the influence of adjuvant type, rate and carrier volume on the efficacy of Sharpen in preplant burndown applications in soybean.

Crop 1: YACKR Arable land Variety: NON-CROP

Pest 1 Type: W Code: ERICA Conyza canadensis (L.) Crong. horseweed  
 Pest Description: glyphosate-resistant marestail  
 Pest 2 Type: W Code: AMASS Amaranthus species amaranthus species

Plot Width, Unit: 10 FT Site Type: FIELD  
 Plot Length, Unit: 30 FT Tillage Type: NO-TILL  
 Replications: 3 Study Design: Randomized Complete Block

Prior Crops, Year  
 1. ZEAMD 2009

Field Prep./Maintenance: N 0 LB/A, P2O5 0 LB/A, K2O 0 LB/A

% OM: 2.1 Texture: VERY FINE SANDY LOAM  
 pH: 5 Soil Name: ALVIN  
 CEC: 9 Fert. Level: P1 133 LB/A, K 209 LB/A

## Application Description

|                         | A        | B        |
|-------------------------|----------|----------|
| Application Date:       | 06-04-10 | 06-04-10 |
| Time of Day:            | 13:30    | 13:30    |
| Application Method:     | Spray    | Spray    |
| Application Timing:     | 7DBP-1   | 7DBP-2   |
| Application Placement:  | BROFOL   | BROFOL   |
| Applied By:             | DKT      | DKT      |
| Air Temperature, Unit:  | 90 F     | 90 F     |
| % Relative Humidity:    | 52       | 52       |
| Wind Velocity, Unit:    | 4 MPH    | 4 MPH    |
| Wind Direction:         | S        | S        |
| Dew Presence (Y/N):     | N        | N        |
| Soil Temperature, Unit: | 80 F     | 80 F     |
| Soil Moisture:          | NORMAL   | NORMAL   |
| % Cloud Cover:          | 60       | 60       |

|                            | A  | B  |
|----------------------------|----|----|
| Crop stage at application: | NA | NA |

## Pest Stage At Each Application

|                          | A        | B        |
|--------------------------|----------|----------|
| Application Date:        | 06-04-10 | 06-04-10 |
| Weed Code:               | ERICA    | ERICA    |
| Stage Majority (leaves): | 20       | 20       |
| Stage Min, Max:          | 6 30     | 6 30     |
| Height Majority:         | 6 IN     | 6 IN     |
| Height Min, Max:         | 1 8      | 1 8      |
| Density, Unit:           | 1 FT2    | 1 FT2    |
| Weed Code:               | AMASS    | AMASS    |
| Stage Majority (leaves): | 10       | 10       |
| Stage Min, Max:          | COTY 20  | COTY 20  |
| Height Majority:         | 6 IN     | 6 IN     |
| Height Min, Max:         | 0.25 10  | 0.25 10  |
| Density, Unit:           | 4 FT2    | 4 FT2    |

## Application Equipment

|                     | A           | B           |
|---------------------|-------------|-------------|
| Appl. Equipment:    | CO2 sprayer | CO2 sprayer |
| Operating Pressure: | 30 PSI      | 30 PSI      |
| Nozzle Type:        | Flat fan    | Flat fan    |
| Nozzle Size:        | TT 110015   | TT 11002    |
| Boom Length, Unit:  | 6.67 FT     | 6.67 FT     |
| Spray Volume, Unit: | 10 GPA      | 20 GPA      |

## Sharpen Burndown Adjuvant and Carrier Volume Study.

Trial ID: 10-YRC-SharpAdjuvant Location: Young Res. Center

|                   |                     |           |           |        |           |            |                 |              | ERICA-HR  | ERICA-HR | AMASS    | AMASS    |
|-------------------|---------------------|-----------|-----------|--------|-----------|------------|-----------------|--------------|-----------|----------|----------|----------|
| Pest Code         |                     |           |           |        |           |            |                 |              | 06-11-10  | 06-25-10 | 06-11-10 | 06-25-10 |
| Crop Code         |                     |           |           |        |           |            |                 |              | Control   | Control  | Control  | Control  |
| Rating Date       |                     |           |           |        |           |            |                 |              | Percent   | Percent  | Percent  | Percent  |
| Rating Data Type  |                     |           |           |        |           |            |                 |              |           |          |          |          |
| Rating Unit       |                     |           |           |        |           |            |                 |              |           |          |          |          |
| Rating Timing     |                     |           |           |        |           |            |                 |              |           |          |          |          |
| Trt-Eval Interval |                     |           |           |        |           |            |                 |              | 7 DAT     | 21 DAT   | 7 DAT    | 21 DAT   |
| Trt No.           | Treatment Name      | Form Conc | Form Type | Rate   | Rate Unit | Other Rate | Other Rate Unit | Growth Stage | Appl Code |          |          |          |
| 1                 | 20 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 97 cde   | 96 abc   | 95 a-d   |
| 1                 | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-2 B     |           |          |          | 90 cd    |
| 1                 | MSO (DESTINY)       | 100       | SL        | 1      | % v/v     | 1          | % v/v           | 7DBP-2 B     |           |          |          |          |
| 2                 | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 98 abc   | 97 ab    | 97 ab    |
| 2                 | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          | 93 a-d   |
| 2                 | MSO (DESTINY)       | 100       | SL        | 1      | % v/v     | 1          | % v/v           | 7DBP-1 A     |           |          |          |          |
| 3                 | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 98 ab    | 98 a     | 97 a     |
| 3                 | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          | 97 ab    |
| 3                 | MSO (DESTINY)       | 100       | SL        | 1.88   | % v/v     | 1.5        | pt/a            | 7DBP-1 A     |           |          |          |          |
| 4                 | 20 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 98 abc   | 98 ab    | 96 ab    |
| 4                 | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-2 B     |           |          |          | 94 a-d   |
| 4                 | DESTINY HC          | 100       | SL        | 0.5    | % v/v     | 0.5        | % v/v           | 7DBP-2 B     |           |          |          |          |
| 5                 | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 96 ef    | 95 bc    | 91 de    |
| 5                 | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          | 91 bcd   |
| 5                 | DESTINY HC          | 100       | SL        | 0.5    | % v/v     | 0.5        | % v/v           | 7DBP-1 A     |           |          |          |          |
| 6                 | 20 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 97 bcd   | 98 ab    | 95 abc   |
| 6                 | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-2 B     |           |          |          | 97 ab    |
| 6                 | DESTINY HC          | 100       | SL        | 0.625  | % v/v     | 1          | pt/a            | 7DBP-2 B     |           |          |          |          |
| 7                 | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 99 a     | 98 ab    | 97 a     |
| 7                 | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          | 96 abc   |
| 7                 | DESTINY HC          | 100       | SL        | 1.25   | % v/v     | 1          | pt/a            | 7DBP-1 A     |           |          |          |          |
| 8                 | 20 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 96 def   | 97 ab    | 96 ab    |
| 8                 | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-2 B     |           |          |          | 97 ab    |
| 8                 | DESTINY HC          | 100       | SL        | 0.47   | % v/v     | 0.75       | pt/a            | 7DBP-2 B     |           |          |          |          |
| 9                 | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 97 cde   | 98 a     | 96 ab    |
| 9                 | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          | 98 a     |
| 9                 | DESTINY HC          | 100       | SL        | 0.94   | % v/v     | 0.75       | pt/a            | 7DBP-1 A     |           |          |          |          |
| 10                | 20 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 98 abc   | 98 ab    | 92 cde   |
| 10                | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-2 B     |           |          |          | 91 bcd   |
| 10                | DESTINY HC          | 100       | SL        | 0.75   | % v/v     | 0.75       | % v/v           | 7DBP-2 B     |           |          |          |          |
| 11                | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 97 bcd   | 97 ab    | 82 g     |
| 11                | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          | 77 e     |
| 11                | DESTINY HC          | 100       | SL        | 0.75   | % v/v     | 0.75       | % v/v           | 7DBP-1 A     |           |          |          |          |
| 12                | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 96 f     | 94 c     | 86 f     |
| 12                | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          | 81 e     |
| 12                | DESTINY HC          | 100       | SL        | 0.5    | % v/v     | 0.5        | % v/v           | 7DBP-1 A     |           |          |          |          |
| 12                | INTERLOCK           | 100       | SL        | 4      | fl oz/a   | 4          | fl oz/a         | 7DBP-1 A     |           |          |          |          |
| 13                | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 97 bcd   | 95 bc    | 97 a     |
| 13                | ROUNDUP POWERMAX    | 4.5       | SL        | 0.77   | lb ae/a   | 22         | fl oz/a         | 7DBP-1 A     |           |          |          | 98 ab    |
| 13                | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          |          |
| 14                | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 99 a     | 97 ab    | 98 a     |
| 14                | ROUNDUP POWERMAX    | 4.5       | SL        | 0.77   | lb ae/a   | 22         | fl oz/a         | 7DBP-1 A     |           |          |          | 97 ab    |
| 14                | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          |          |
| 14                | MSO (DESTINY)       | 100       | SL        | 1      | % v/v     | 1          | % v/v           | 7DBP-1 A     |           |          |          |          |
| 15                | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 98 abc   | 98 ab    | 94 bcd   |
| 15                | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          | 89 d     |
| 15                | 60/40 MSO           | 100       | SL        | 4      | fl oz/a   | 4          | fl oz/a         | 7DBP-1 A     |           |          |          |          |
| 15                | AMS                 | 100       | SG        | 1      | % w/w     | 8.5        | lb/100 gal      | 7DBP-1 A     |           |          |          |          |
| 16                | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 97 bcd   | 98 a     | 96 ab    |
| 16                | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          | 98 ab    |
| 16                | CHEMPRO S-180       | 100       | SL        | 1.5    | % v/v     | 1.5        | % v/v           | 7DBP-1 A     |           |          |          |          |
| 17                | 10 GPA SPRAY VOLUME |           |           |        |           |            |                 |              |           | 96 def   | 97 ab    | 89 ef    |
| 17                | SHARPEN             | 2.85      | SC        | 0.0111 | lb ai/a   | 0.5        | fl oz/a         | 7DBP-1 A     |           |          |          | 94 a-d   |
| 17                | AMS                 | 100       | SG        | 1      | % w/w     | 8.5        | lb/100 gal      | 7DBP-1 A     |           |          |          |          |

| Pest Code         | ERICA-HR | ERICA-HR | AMASS    | AMASS    |
|-------------------|----------|----------|----------|----------|
| Crop Code         |          |          |          |          |
| Rating Date       | 06-11-10 | 06-25-10 | 06-11-10 | 06-25-10 |
| Rating Data Type  | Control  | Control  | Control  | Control  |
| Rating Unit       | Percent  | Percent  | Percent  | Percent  |
| Rating Timing     |          |          |          |          |
| Trt-Eval Interval | 7 DAT    | 21 DAT   | 7 DAT    | 21 DAT   |

Means followed by same letter do not significantly differ (P=.05, LSD)

1. Protocol: Winfield Solutions, Chemorse.
2. Ratings: WC at 7 and 21 DAT.
3. Mixing/application instructions; note there are 10 and 20 GPA treatments which use different mix sizes and spray tips.
4. Blanket burndown application of glyphosate (1.13 lbae/A) plus NIS (0.5% v/v) plus AMS solution (5% v/v) was applied 4-19-10.
5. ERICA-HR = Herbicide-resistant marestail (glyphosate).  
AMASS = Amaranth species including AMATA (common waterhemp) and AMARE (redroot pigweed).
6. Not harvested.