

## Waterhemp Control with Residual Herbicides - Valent.

Trial ID: 09-DeSoto-ValentPre Location: De Soto, IL

Investigator: Bryan Young, Professor, Southern Illinois University, bgyoung@siu.edu  
 City State Zip Country: De Soto IL 62924 USA  
 Trial Status: FINAL Initiation Date: 05-23-09

Objectives: Evaluate Valent and competitive residual herbicides applied preemergence for control of glyphosate-resistant waterhemp in soybean.

Crop 1: GLXMA Soybean Variety: AG 4404 Description: RR/STS  
 Planting Method: SEEDS Planting Date: 05-23-09  
 Rate, Unit: 180000 S/A Depth, Unit: 1.25 IN  
 Row Spacing, Unit: 30 IN  
 Soil Moisture: ABOVE NORMAL

Pest 1 Type: W Code: AMATA Amaranthus rudis Sauer waterhemp, common  
 Pest Description: glyphosate-resistant waterhemp

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. GLXMA 2008

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

% OM: 2.5 Texture: SILT LOAM  
 pH: 6.8 Soil Name: OKAW  
 CEC: 12 Fert. Level: P1 88 LB/A, K 207 LB/A

## Application Description

|                         | A        | B        |
|-------------------------|----------|----------|
| Application Date:       | 05-23-09 | 06-29-09 |
| Time of Day:            | 9:00     | 10:00    |
| Application Method:     | Spray    | Spray    |
| Application Timing:     | PRE      | 28DAP    |
| Application Placement:  | BROFOL   | BROFOL   |
| Applied By:             | NRJ      | DKT      |
| Air Temperature, Unit:  | 73 F     | 91 F     |
| % Relative Humidity:    | 87       | 31       |
| Wind Velocity, Unit:    | 1 MPH    | 2 MPH    |
| Wind Direction:         | NW       | SW       |
| Dew Presence (Y/N):     | N        | N        |
| Soil Temperature, Unit: | 70 F     | 80 F     |
| Soil Moisture:          | NORMAL   | NORMAL   |
| % Cloud Cover:          | 90       | 0        |

|                            | 5/23/09 | 6/29/09 |
|----------------------------|---------|---------|
| Crop stage at application: | NA      | V5      |
| Height Min, Max (inch):    | 10      | 11      |

## Pest Stage At Each Application

|                          | 05-23-09 | 06-29-09 |
|--------------------------|----------|----------|
| Application Date:        | 05-23-09 | 06-29-09 |
| Weed Code:               | AMATA    | AMATA    |
| Stage Majority (leaves): | NA       | 12       |
| Stage Min, Max:          |          | 6 18     |
| Height Majority:         |          | 7 IN     |
| Height Min, Max:         |          | 3 10     |
| Density, Unit:           |          | 6 FT2    |

## Application Equipment

|                     | CO2 sprayer | CO2 sprayer |
|---------------------|-------------|-------------|
| Appl. Equipment:    | CO2 sprayer | CO2 sprayer |
| Operating Pressure: | 30 PSI      | 30 PSI      |
| Nozzle Type:        | Flat fan    | Flat fan    |
| Nozzle Size:        | XR 8002     | XR 8002     |
| Boom Length, Unit:  | 6.67 FT     | 6.67 FT     |
| Spray Volume, Unit: | 15 GPA      | 15 GPA      |

## Waterhemp Control with Residual Herbicides - Valent.

Trial ID: 09-DeSoto-ValentPre Location: De Soto, IL

Pest Code  
Crop Code  
Rating Date  
Rating Data Type  
Rating Unit  
Rating Timing  
Trt-Eval Interval

| GLXMA<br>06-06-09<br>Injury<br>Percent | GLXMA<br>06-20-09<br>Injury<br>Percent | GLXMA<br>07-04-09<br>Injury<br>Percent | GLXMA<br>07-13-09<br>Injury<br>Percent | GLXMA<br>07-27-09<br>Injury<br>Percent |
|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
| 14 DA-A                                | 28 DA-A                                | 42 DA-A                                | 51 DA-A                                | 65 DA-A                                |

| Trt No.           | Treatment Name     | Form Conc | Form Type | Rate    | Rate Unit | Other Rate | Other Rate Unit | Growth Stage | Appl Code |        |        |        |        |        |     |
|-------------------|--------------------|-----------|-----------|---------|-----------|------------|-----------------|--------------|-----------|--------|--------|--------|--------|--------|-----|
| 1                 | NONTREATED         |           |           |         |           |            |                 |              |           |        | 0 a    | 0 a    | 0 b    | 0 a    | 0 a |
| 2                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        | 0 b    | 0 a    | 0 a |
| 2                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| 3                 | VALOR SX           | 51        | WG        | 0.08    | lb ai/a   | 2.5        | oz/a            | PRE          | A         | 0 a    | 0 a    | 0 b    | 0 a    | 0 a    |     |
| 3                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 3                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| 4                 | VALOR XLT          | 40.3      | WG        |         |           | 3          | oz/a            | PRE          | A         | 0 a    | 0 a    | 0 b    | 0 a    | 0 a    |     |
| 4                 | VALOR SX           | 51        | WG        | 0.056   | lb ai/a   |            |                 | PRE          | A         |        |        |        |        |        |     |
| 4                 | CLASSIC            | 25        | WG        | 0.0194  | lb ai/a   |            |                 | PRE          | A         |        |        |        |        |        |     |
| 4                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 4                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| 5                 | VALOR XLT          | 40.3      | WG        |         |           | 4          | oz/a            | PRE          | A         | 0 a    | 0 a    | 0 b    | 0 a    | 0 a    |     |
| 5                 | VALOR SX           | 51        | WG        | 0.075   | lb ai/a   |            |                 | PRE          | A         |        |        |        |        |        |     |
| 5                 | CLASSIC            | 25        | WG        | 0.0258  | lb ai/a   |            |                 | PRE          | A         |        |        |        |        |        |     |
| 5                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 5                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| 6                 | GANGSTER (CO-PACK) |           |           |         |           | 3.6        | oz/a            | PRE          | A         | 0 a    | 0 a    | 0 b    | 0 a    | 0 a    |     |
| 6                 | GANGSTER FR        | 84        | WG        | 0.0315  | lb ai/a   | 0.6        | oz/a            | PRE          | A         |        |        |        |        |        |     |
| 6                 | GANGSTER V         | 51        | WG        | 0.096   | lb ai/a   | 3          | oz/a            | PRE          | A         |        |        |        |        |        |     |
| 6                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 6                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| 7                 | V-10233            | 76        | WG        | 0.143   | lb ai/a   | 3          | oz/a            | PRE          | A         | 0 a    | 0 a    | 0 b    | 0 a    | 0 a    |     |
| 7                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 7                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| 8                 | VALOR SX           | 51        | WG        | 0.064   | lb ai/a   | 2          | oz/a            | PRE          | A         | 0 a    | 0 a    | 0 b    | 0 a    | 0 a    |     |
| 8                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 8                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| 9                 | AUTHORITY FIRST    | 70        | WG        | 0.153   | lb ai/a   | 3.5        | oz/a            | PRE          | A         | 0 a    | 0 a    | 0 b    | 0 a    | 0 a    |     |
| 9                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 9                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| 10                | V-10233            | 76        | WG        | 0.214   | lb ai/a   | 4.5        | oz/a            | PRE          | A         | 0 a    | 0 a    | 0 b    | 0 a    | 0 a    |     |
| 10                | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 10                | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| 11                | ENVIVE             | 41.3      | WG        |         |           | 4          | oz/a            | PRE          | A         | 0 a    | 0 a    | 0 b    | 0 a    | 0 a    |     |
| 11                | CLASSIC            | 25        | WG        | 0.023   | lb ai/a   |            |                 | PRE          | A         |        |        |        |        |        |     |
| 11                | HARMONY SG         | 50        | SG        | 0.00725 | lb ai/a   |            |                 | PRE          | A         |        |        |        |        |        |     |
| 11                | VALOR SX           | 51        | WG        | 0.073   | lb ai/a   |            |                 | PRE          | A         |        |        |        |        |        |     |
| 11                | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 11                | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| 12                | PREFIX             | 5.29      | EC        | 1.1     | lb ai/a   | 1.67       | pt/a            | PRE          | A         | 0 a    | 0 a    | 0 b    | 0 a    | 0 a    |     |
| 12                | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 12                | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| 13                | VALOR SX           | 51        | WG        | 0.08    | lb ai/a   | 2.5        | oz/a            | PRE          | A         | 0 a    | 0 a    | 7 a    | 0 a    | 0 a    |     |
| 13                | RESOURCE           | 0.86      | EC        | 0.054   | lb ai/a   | 8          | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 13                | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |        |        |        |        |        |     |
| 13                | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |        |        |        |        |        |     |
| LSD (P=.05)       |                    |           |           |         |           |            |                 |              |           | 0.0    | 0.0    | 1.2    | 0.0    | 0.0    |     |
| Replicate F       |                    |           |           |         |           |            |                 |              |           | 0.000  | 0.000  | 1.000  | 0.000  | 0.000  |     |
| Replicate Prob(F) |                    |           |           |         |           |            |                 |              |           | 1.0000 | 1.0000 | 0.3827 | 1.0000 | 1.0000 |     |
| Treatment F       |                    |           |           |         |           |            |                 |              |           | 0.000  | 0.000  | 25.474 | 0.000  | 0.000  |     |
| Treatment Prob(F) |                    |           |           |         |           |            |                 |              |           | 1.0000 | 1.0000 | 0.0001 | 1.0000 | 1.0000 |     |

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

## Waterhemp Control with Residual Herbicides - Valent.

Trial ID: 09-DeSoto-ValentPre Location: De Soto, IL

|                   |                    |           |           |         |           |            |                 |              |           | AMATA-HR | AMATA-HR | AMATA-HR | AMATA-HR |
|-------------------|--------------------|-----------|-----------|---------|-----------|------------|-----------------|--------------|-----------|----------|----------|----------|----------|
| Pest Code         |                    |           |           |         |           |            |                 |              |           | 06-06-09 | 06-20-09 | 07-04-09 | 07-18-09 |
| Crop Code         |                    |           |           |         |           |            |                 |              |           | Control  | Control  | Control  | Control  |
| Rating Date       |                    |           |           |         |           |            |                 |              |           | Percent  | Percent  | Percent  | Percent  |
| Rating Data Type  |                    |           |           |         |           |            |                 |              |           |          |          | 5 DA-B   | 19 DA-B  |
| Rating Unit       |                    |           |           |         |           |            |                 |              |           |          |          | 42 DA-A  | 56 DA-A  |
| Rating Timing     |                    |           |           |         |           |            |                 |              |           |          |          |          |          |
| Trt-Eval Interval |                    |           |           |         |           |            |                 |              |           | 14 DA-A  | 28 DA-A  |          |          |
| Trt No.           | Treatment Name     | Form Conc | Form Type | Rate    | Rate Unit | Other Rate | Other Rate Unit | Growth Stage | Appl Code |          |          |          |          |
| 1                 | NONTREATED         |           |           |         |           |            |                 |              |           | 0 b      | 0 c      | 0 e      | 0 f      |
| 2                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          | 32 d     | 30 e     |
| 2                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| 3                 | VALOR SX           | 51        | WG        | 0.08    | lb ai/a   | 2.5        | oz/a            | PRE          | A         | 99 a     | 99 a     | 84 b     | 83 c     |
| 3                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 3                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| 4                 | VALOR XLT          | 40.3      | WG        |         |           | 3          | oz/a            | PRE          | A         | 99 a     | 99 a     | 91 ab    | 88 abc   |
| 4                 | VALOR SX           | 51        | WG        | 0.056   | lb ai/a   |            |                 | PRE          | A         |          |          |          |          |
| 4                 | CLASSIC            | 25        | WG        | 0.0194  | lb ai/a   |            |                 | PRE          | A         |          |          |          |          |
| 4                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 4                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| 5                 | VALOR XLT          | 40.3      | WG        |         |           | 4          | oz/a            | PRE          | A         | 99 a     | 99 a     | 94 a     | 94 a     |
| 5                 | VALOR SX           | 51        | WG        | 0.075   | lb ai/a   |            |                 | PRE          | A         |          |          |          |          |
| 5                 | CLASSIC            | 25        | WG        | 0.0258  | lb ai/a   |            |                 | PRE          | A         |          |          |          |          |
| 5                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 5                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| 6                 | GANGSTER (CO-PACK) |           |           |         |           | 3.6        | oz/a            | PRE          | A         | 99 a     | 99 a     | 95 a     | 94 a     |
| 6                 | GANGSTER FR        | 84        | WG        | 0.0315  | lb ai/a   | 0.6        | oz/a            | PRE          | A         |          |          |          |          |
| 6                 | GANGSTER V         | 51        | WG        | 0.096   | lb ai/a   | 3          | oz/a            | PRE          | A         |          |          |          |          |
| 6                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 6                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| 7                 | V-10233            | 76        | WG        | 0.143   | lb ai/a   | 3          | oz/a            | PRE          | A         | 99 a     | 99 a     | 89 ab    | 87 abc   |
| 7                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 7                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| 8                 | VALOR SX           | 51        | WG        | 0.064   | lb ai/a   | 2          | oz/a            | PRE          | A         | 99 a     | 96 b     | 70 c     | 65 d     |
| 8                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 8                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| 9                 | AUTHORITY FIRST    | 70        | WG        | 0.153   | lb ai/a   | 3.5        | oz/a            | PRE          | A         | 99 a     | 99 a     | 93 ab    | 93 ab    |
| 9                 | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 9                 | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| 10                | V-10233            | 76        | WG        | 0.214   | lb ai/a   | 4.5        | oz/a            | PRE          | A         | 99 a     | 99 a     | 94 ab    | 92 abc   |
| 10                | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 10                | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| 11                | ENVIVE             | 41.3      | WG        |         |           | 4          | oz/a            | PRE          | A         | 99 a     | 99 a     | 93 ab    | 92 abc   |
| 11                | CLASSIC            | 25        | WG        | 0.023   | lb ai/a   |            |                 | PRE          | A         |          |          |          |          |
| 11                | HARMONY SG         | 50        | SG        | 0.00725 | lb ai/a   |            |                 | PRE          | A         |          |          |          |          |
| 11                | VALOR SX           | 51        | WG        | 0.073   | lb ai/a   |            |                 | PRE          | A         |          |          |          |          |
| 11                | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 11                | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| 12                | PREFIX             | 5.29      | EC        | 1.1     | lb ai/a   | 1.67       | pt/a            | PRE          | A         | 99 a     | 99 a     | 88 ab    | 83 bc    |
| 12                | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 12                | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| 13                | VALOR SX           | 51        | WG        | 0.08    | lb ai/a   | 2.5        | oz/a            | PRE          | A         | 99 a     | 98 a     | 91 ab    | 90 abc   |
| 13                | RESOURCE           | 0.86      | EC        | 0.054   | lb ai/a   | 8          | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 13                | ROUNDUP POWERMAX   | 4.5       | SL        | 0.77    | lb ae/a   | 22         | fl oz/a         | 28DAP        | B         |          |          |          |          |
| 13                | N-PAK AMS          | 100       | SL        | 5       | % v/v     | 5          | % v/v           | 28DAP        | B         |          |          |          |          |
| LSD (P=.05)       |                    |           |           |         |           |            |                 |              |           | 0.0      | 0.9      | 9.8      | 10.0     |
| Replicate F       |                    |           |           |         |           |            |                 |              |           | 0.000    | 2.069    | 0.479    | 0.594    |
| Replicate Prob(F) |                    |           |           |         |           |            |                 |              |           | 1.0000   | 0.1502   | 0.6251   | 0.5604   |
| Treatment F       |                    |           |           |         |           |            |                 |              |           | 0.000    | 9535.238 | 74.972   | 70.977   |
| Treatment Prob(F) |                    |           |           |         |           |            |                 |              |           | 1.0000   | 0.0001   | 0.0001   | 0.0001   |

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

Waterhemp Control with Residual Herbicides - Valent.

Trial ID: 09-DeSoto-ValentPre      Location: De Soto, IL

Trial Comments

1. Protocol: Valent (MD64.07).
2. Ratings: CI 14 + 28 DAT; WC 28, 42 + 56 DAT (PRE).
3. Yield not necessary.
4. Blanket burndown application at 7-14 EPP of Roundup PowerMax (32 fl oz/A) + 2,4-D (1 pt/A) + AMS (1% w/w) was applied on 4-26-09.
5. AMATA-HR = Herbicide-resistant waterhemp (glyphosate).
6. Not harvested.