

University of Georgia

Winter weed burndown response to glyphosate/Valor applications.

Trial ID: C1-03
Location: Jones farm

Study Dir.: Stanley Culpepper
Investigator: Stanley Culpepper

GENERAL TRIAL INFORMATION

Study Director: Stanley Culpepper **Title:** Ext. Weed Science
Affiliation: University of Georgia
Postal Code: 31794
Investigator: Stanley Culpepper **Title:** Ext. Weed Science
Affiliation: University of Georgia
Postal Code: 31794

TRIAL LOCATION

City: Tifton **Trial Status:** completed
State/Prov.: GA **Trial Reliability:** good
Postal Code: 31794 **Initiation Date:** Mar-07-03
Country: USA

Conducted Under GLP (Y/N): N

Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

| Weed | Code | Common Name | Scientific Name |
|------|-------|-------------------------|-----------------|
| 1. | OEOLA | cutleaf eveningprimrose | |
| 2. | LAMAM | henbit | |
| 3. | RCHSC | Florida pusley | |

Crop 1: none non-crop

Variety: .

SITE AND DESIGN

Plot Width, Unit: 6 FT **Plot Length, Unit:** 25 FT **Reps:** 4
Site Type: research station
Tillage Type: stale seedbed **Study Design:** SPLIT-PLOT

SOIL DESCRIPTION

% Sand: 92 **% OM:** 1 **Texture:** sand
% Silt: 4 **pH:** 5.8 **Soil Name:** Tifton sandy loam
% Clay: 4

Overall Moisture Conditions: wet

APPLICATION DESCRIPTION

| | A | B |
|-----------------------------|-----------|-----------|
| Application Date: | Mar-07-03 | Mar-29-03 |
| Time of Day: | 10 am | 9 am |
| Application Method: | broadcast | broadcast |
| Application Timing: | early | late |
| Applic. Placement: | overtop | overtop |
| Air Temp., Unit: | 69 F | 69 F |
| % Relative Humidity: | 44 | 35 |
| Wind Velocity, Unit: | 3 mph | 1 mph |
| Dew Presence (Y/N): | n | y |
| Soil Temp., Unit: | 62 F | 65 F |
| Soil Moisture: | wet | wet |
| % Cloud Cover: | 80 | 0 |

CROP STAGE AT EACH APPLICATION

| | A | B |
|----------------------------|--------|------|
| Crop 1 Code, Stage: | none . | none |
| Stage Scale: | . | |

University of Georgia

WEED STAGE AT EACH APPLICATION

| | A | B |
|----------------------------|----------------|-----------------|
| Weed 1 Code, Stage: | OEOLA 5-8"diam | OEOLA 12-20"dia |
| Stage Scale: | pre-bloom | fullbloom |
| Density, Unit: | 7 ydsq | . . |
| Weed 2 Code, Stage: | LAMAM 5 inch | LAMAM 15" |
| Stage Scale: | full bloo | bloom |
| Density, Unit: | 7 ydsq | . . |
| Weed 3 Code, Stage: | RCHSC PRE | RCHSC <0.25" |
| Stage Scale: | . | . |
| Density, Unit: | . . | 25 ydsq |

APPLICATION EQUIPMENT

| | A | B |
|------------------------------|----------|----------|
| Appl. Equipment: | backpack | backpack |
| Operating Pressure: | see comm | see comm |
| Nozzle Type: | see comm | see comm |
| Nozzle Size: | see comm | see comm |
| Nozzle Spacing, Unit: | 18 inch | 18 inch |
| Boom Length, Unit: | 4.5 feet | 4.5 feet |
| Boom Height, Unit: | 15 inch | 15 inch |
| Ground Speed, Unit: | 3 mph | 3 mph |
| Carrier: | water | water |
| Spray Volume, Unit: | 14.8 GPA | 14.8 GPA |
| Propellant: | CO2 | CO2 |
| Tank Mix (Y/N): | Y | Y |

University of Georgia

Winter weed burndown response to glyphosate/Valor applications.

Trial ID: C1-03

Study Dir.: Stanley Culpepper

Location: Jones farm

Investigator: Stanley Culpepper

| Weed Code | Rating Data Type | Rating Unit | Rating Date | Trt-Eval Interval | OEOLA control percent Mar-16-03 -356 DA- | OEOLA control percent Mar-24-03 -348 DA- | OEOLA control percent Apr-02-03 26 DA-A | OEOLA control percent Apr-11-03 35 DA-A | OEOLA control percent Apr-23-03 47 DA-A | LAMAM control percent Mar-16-03 -356 DA- | LAMAM control percent Mar-24-03 -348 DA- |
|-----------|--|-------------|----------------|-------------------|--|--|---|---|---|--|--|
| Trt No. | Treatment Name | Rate | Unit | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | no herbicide Flat Fan early March application | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | no herbicide Flat Fan early April application | | | | | | 0.0 | 0.0 | 0.0 | | |
| 3 | no herbicide AI nozzles early March application | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4 | no herbicide AI nozzles early April application | | | | | | 0.0 | 0.0 | 0.0 | | |
| 5 | Roundup Weathermax Flat Fan early March application | 22 | oz/a | | 28.8 | 66.0 | 78.0 | 82.5 | 86.8 | 35.5 | 90.3 |
| 6 | Roundup Weathermax Flat Fan early April application | 22 | oz/a | | | | 6.3 | 45.0 | 83.0 | | |
| 7 | Roundup Weathermax AI nozzles early March application | 22 | oz/a | | 23.8 | 62.5 | 79.3 | 79.8 | 80.8 | 31.3 | 91.8 |
| 8 | Roundup Weathermax AI nozzles early April application | 22 | oz/a | | | | 3.8 | 52.5 | 81.5 | | |
| 9 | Roundup Weathermax 2,4-D amine Flat Fan early March application | 22 | oz/a 1 pt/a | | 41.3 | 82.5 | 97.0 | 99.5 | 99.8 | 41.3 | 89.5 |
| 10 | Roundup Weathermax 2,4-D amine Flat Fan early April application | 22 | oz/a 1 pt/a | | | | 27.5 | 65.0 | 96.3 | | |
| 11 | Roundup Weathermax 2,4-D amine AI nozzles early March application | 22 | oz/a 1 pt/a | | 31.3 | 65.0 | 93.5 | 99.3 | 99.8 | 33.8 | 83.5 |
| 12 | Roundup Weathermax 2,4-D amine AI nozzles early April application | 22 | oz/a 1 pt/a | | | | 28.8 | 59.8 | 87.8 | | |
| 13 | Roundup Weathermax Valor Flat Fan early March application | 22 | oz/a 1 oz/a | | 75.0 | 91.0 | 92.0 | 91.0 | 89.0 | 81.0 | 99.0 |
| 14 | Roundup Weathermax Valor Flat Fan early April application | 22 | oz/a 1 oz/a | | | | 35.0 | 84.3 | 90.3 | | |
| 15 | Roundup Weathermax Valor AI nozzles early March application | 22 | oz/a 1 oz/a | | 61.3 | 61.5 | 78.0 | 80.8 | 74.5 | 65.3 | 86.0 |

University of Georgia

| Weed Code Rating Data Type Rating Unit Rating Date Trt-Eval Interval | | | OEOLA control percent Mar-16-03 -356 DA- | OEOLA control percent Mar-24-03 -348 DA- | OEOLA control percent Apr-02-03 26 DA-A | OEOLA control percent Apr-11-03 35 DA-A | OEOLA control percent Apr-23-03 47 DA-A | LAMAM control percent Mar-16-03 -356 DA- | LAMAM control percent Mar-24-03 -348 DA- |
|--|---|---------------------------------|--|--|---|---|---|--|--|
| Trt No. | Treatment Name | Rate Unit | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16 | Roundup Weathermax Valor AI nozzles early April application | 22 oz/a 1 oz/a | | | 22.5 | 73.5 | 83.3 | | |
| 17 | Roundup Weathermax Valor Flat Fan early March application | 22 oz/a 2 oz/a | 82.8 | 94.5 | 96.5 | 96.5 | 99.0 | 90.8 | 99.0 |
| 18 | Roundup Weathermax Valor Flat Fan early April application | 22 oz/a 2 oz/a | | | 40.5 | 87.0 | 94.5 | | |
| 19 | Roundup Weathermax Valor AI nozzles early March application | 22 oz/a 2 oz/a | 73.8 | 92.3 | 91.8 | 90.8 | 86.8 | 79.8 | 99.0 |
| 20 | Roundup Weathermax Valor AI nozzles early April application | 22 oz/a 2 oz/a | | | 23.8 | 75.8 | 86.3 | | |
| 21 | Roundup Weathermax Valor NIS Flat Fan early March application | 22 oz/a 1 oz/a 0.25 % v/v | 83.8 | 94.8 | 94.8 | 94.8 | 93.3 | 92.0 | 99.0 |
| 22 | Roundup Weathermax Valor NIS Flat Fan early April application | 22 oz/a 1 oz/a 0.25 % v/v | | | 46.3 | 90.0 | 93.0 | | |
| 23 | Roundup Weathermax Valor NIS AI nozzles early March application | 22 oz/a 1 oz/a 0.25 % v/v | 72.0 | 87.5 | 87.0 | 87.3 | 85.8 | 80.8 | 98.0 |
| 24 | Roundup Weathermax Valor NIS AI nozzles early April application | 22 oz/a 1 oz/a 0.25 % v/v | | | 35.8 | 79.5 | 81.5 | | |
| 25 | Roundup Weathermax Valor NIS Flat Fan early March application | 22 oz/a 2 oz/a 0.25 % v/v | 85.8 | 96.5 | 98.3 | 97.5 | 95.8 | 93.3 | 99.0 |
| 26 | Roundup Weathermax Valor NIS Flat Fan early April application | 22 oz/a 2 oz/a 0.25 % v/v | | | 41.3 | 90.8 | 96.5 | | |
| 27 | Roundup Weathermax Valor NIS AI nozzles early March application | 22 oz/a 2 oz/a 0.25 % v/v | 77.3 | 90.5 | 91.5 | 90.8 | 84.5 | 87.3 | 97.3 |

University of Georgia

| Weed Code | | | OEOLA | OEOLA | OEOLA | OEOLA | OEOLA | LAMAM | LAMAM | |
|--------------------|---|-----------------|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| Rating Data Type | | | control | control | control | control | control | control | control | |
| Rating Unit | | | percent | percent | percent | percent | percent | percent | percent | |
| Rating Date | | | Mar-16-03 | Mar-24-03 | Apr-02-03 | Apr-11-03 | Apr-23-03 | Mar-16-03 | Mar-24-03 | |
| Trt-Eval Interval | | | -356 DA- | -348 DA- | 26 DA-A | 35 DA-A | 47 DA-A | -356 DA- | -348 DA- | |
| Trt No. | Treatment Name | Rate | Unit | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28 | Roundup Weathermax Valor NIS AI nozzles early April application | 22 2 0.25 | oz/a oz/a % v/v | | | 36.3 | 86.5 | 90.5 | | |
| 29 | Roundup Weathermax Valor COC Flat Fan early March application | 22 1 1 | oz/a oz/a % v/v | 87.3 | 95.3 | 98.8 | 97.3 | 96.0 | 99.0 | 99.0 |
| 30 | Roundup Weathermax Valor COC Flat Fan early April application | 22 1 1 | oz/a oz/a % v/v | | | 48.8 | 90.8 | 94.3 | | |
| 31 | Roundup Weathermax Valor COC AI nozzles early March application | 22 1 1 | oz/a oz/a % v/v | 78.3 | 89.5 | 85.3 | 84.5 | 82.8 | 85.5 | 99.0 |
| 32 | Roundup Weathermax Valor COC AI nozzles early April application | 22 1 1 | oz/a oz/a % v/v | | | 41.3 | 81.5 | 83.0 | | |
| 33 | Roundup Weathermax Valor COC Flat Fan early March application | 22 2 1 | oz/a oz/a % v/v | 90.8 | 96.0 | 97.5 | 98.3 | 98.3 | 95.5 | 99.0 |
| 34 | Roundup Weathermax Valor COC Flat Fan early April application | 22 2 1 | oz/a oz/a % v/v | | | 53.8 | 91.3 | 99.0 | | |
| 35 | Roundup Weathermax Valor COC AI nozzles early March application | 22 2 1 | oz/a oz/a % v/v | 81.3 | 95.5 | 92.0 | 92.3 | 91.0 | 87.0 | 99.0 |
| 36 | Roundup Weathermax Valor COC AI nozzles early April application | 22 2 1 | oz/a oz/a % v/v | | | 41.5 | 81.0 | 87.3 | | |
| LSD (P=.05) | | | | 7.65 | 14.96 | 8.92 | 7.43 | 8.25 | 7.97 | 6.68 |
| Standard Deviation | | | | 5.41 | 10.58 | 6.37 | 5.31 | 5.89 | 5.63 | 4.72 |
| CV | | | | 9.06 | 14.0 | 11.56 | 7.09 | 7.38 | 8.6 | 5.57 |
| Bartlett's X2 | | | | 19.136 | 78.466 | 70.147 | 66.157 | 68.316 | 18.786 | 8.731 |
| P(Bartlett's X2) | | | | 0.208 | 0.001* | 0.001* | 0.001* | 0.001* | 0.173 | 0.189 |

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

University of Georgia

| Weed Code | | | RCHSC | RCHSC |
|-------------------|--|-------------------|-----------|-----------|
| Rating Data Type | | | control | control |
| Rating Unit | | | percent | percent |
| Rating Date | | | Apr-11-03 | Apr-23-03 |
| Trt-Eval Interval | | | 35 DA-A | 47 DA-A |
| Trt No. | Treatment Name | Rate Unit | 8 | 9 |
| 1 | no herbicide Flat Fan early March application | | 0.0 | 0.0 |
| 2 | no herbicide Flat Fan early April application | | 0.0 | 0.0 |
| 3 | no herbicide AI nozzles early March application | | 0.0 | 0.0 |
| 4 | no herbicide AI nozzles early April application | | 0.0 | 0.0 |
| 5 | Roundup Weathermax Flat Fan early March application | 22 oz/a | 0.0 | 41.0 |
| 6 | Roundup Weathermax Flat Fan early April application | 22 oz/a | 83.5 | 76.0 |
| 7 | Roundup Weathermax AI nozzles early March application | 22 oz/a | 0.0 | 39.8 |
| 8 | Roundup Weathermax AI nozzles early April application | 22 oz/a | 83.5 | 63.3 |
| 9 | Roundup Weathermax 2,4-D amine Flat Fan early March application | 22 oz/a 1 pt/a | 0.0 | 49.8 |
| 10 | Roundup Weathermax 2,4-D amine Flat Fan early April application | 22 oz/a 1 pt/a | 97.0 | 86.5 |
| 11 | Roundup Weathermax 2,4-D amine AI nozzles early March application | 22 oz/a 1 pt/a | 0.0 | 49.8 |
| 12 | Roundup Weathermax 2,4-D amine AI nozzles early April application | 22 oz/a 1 pt/a | 71.3 | 78.3 |
| 13 | Roundup Weathermax Valor Flat Fan early March application | 22 oz/a 1 oz/a | 87.0 | 50.3 |
| 14 | Roundup Weathermax Valor Flat Fan early April application | 22 oz/a 1 oz/a | 98.3 | 91.5 |
| 15 | Roundup Weathermax Valor AI nozzles early March application | 22 oz/a 1 oz/a | 76.8 | 48.5 |
| 16 | Roundup Weathermax Valor AI nozzles early April application | 22 oz/a 1 oz/a | 97.0 | 80.5 |

University of Georgia

| Weed Code | | | RCHSC | RCHSC |
|-------------------|---|---------------------------------|-----------|-----------|
| Rating Data Type | | | control | control |
| Rating Unit | | | percent | percent |
| Rating Date | | | Apr-11-03 | Apr-23-03 |
| Trt-Eval Interval | | | 35 DA-A | 47 DA-A |
| Trt No. | Treatment Name | Rate Unit | 8 | 9 |
| 17 | Roundup Weathermax Valor Flat Fan early March application | 22 oz/a 2 oz/a | 99.3 | 98.0 |
| 18 | Roundup Weathermax Valor Flat Fan early April application | 22 oz/a 2 oz/a | 98.3 | 96.3 |
| 19 | Roundup Weathermax Valor AI nozzles early March application | 22 oz/a 2 oz/a | 92.0 | 75.3 |
| 20 | Roundup Weathermax Valor AI nozzles early April application | 22 oz/a 2 oz/a | 96.5 | 91.5 |
| 21 | Roundup Weathermax Valor NIS Flat Fan early March application | 22 oz/a 1 oz/a 0.25 % v/v | 80.8 | 89.8 |
| 22 | Roundup Weathermax Valor NIS Flat Fan early April application | 22 oz/a 1 oz/a 0.25 % v/v | 97.5 | 92.0 |
| 23 | Roundup Weathermax Valor NIS AI nozzles early March application | 22 oz/a 1 oz/a 0.25 % v/v | 78.8 | 70.3 |
| 24 | Roundup Weathermax Valor NIS AI nozzles early April application | 22 oz/a 1 oz/a 0.25 % v/v | 95.5 | 80.0 |
| 25 | Roundup Weathermax Valor NIS Flat Fan early March application | 22 oz/a 2 oz/a 0.25 % v/v | 94.5 | 92.0 |
| 26 | Roundup Weathermax Valor NIS Flat Fan early April application | 22 oz/a 2 oz/a 0.25 % v/v | 98.0 | 98.0 |
| 27 | Roundup Weathermax Valor NIS AI nozzles early March application | 22 oz/a 2 oz/a 0.25 % v/v | 92.8 | 84.3 |
| 28 | Roundup Weathermax Valor NIS AI nozzles early April application | 22 oz/a 2 oz/a 0.25 % v/v | 99.0 | 96.0 |

University of Georgia

| Weed Code | | | RCHSC | RCHSC |
|--------------------|---|--------------|-----------------------|--------------|
| Rating Data Type | | | control | control |
| Rating Unit | | | percent | percent |
| Rating Date | | | Apr-11-03 | Apr-23-03 |
| Trt-Eval Interval | | | 35 DA-A | 47 DA-A |
| Trt No. | Treatment Name | Rate | Unit | |
| | | | | |
| 29 | Roundup Weathermax Valor COC Flat Fan early March application | 22 1 1 | oz/a oz/a % v/v | 78.8 62.8 |
| 30 | Roundup Weathermax Valor COC Flat Fan early April application | 22 1 1 | oz/a oz/a % v/v | 98.0 94.5 |
| 31 | Roundup Weathermax Valor COC AI nozzles early March application | 22 1 1 | oz/a oz/a % v/v | 87.8 62.0 |
| 32 | Roundup Weathermax Valor COC AI nozzles early April application | 22 1 1 | oz/a oz/a % v/v | 94.3 87.0 |
| 33 | Roundup Weathermax Valor COC Flat Fan early March application | 22 2 1 | oz/a oz/a % v/v | 93.0 96.5 |
| 34 | Roundup Weathermax Valor COC Flat Fan early April application | 22 2 1 | oz/a oz/a % v/v | 98.0 99.0 |
| 35 | Roundup Weathermax Valor COC AI nozzles early March application | 22 2 1 | oz/a oz/a % v/v | 94.3 92.0 |
| 36 | Roundup Weathermax Valor COC AI nozzles early April application | 22 2 1 | oz/a oz/a % v/v | 96.8 87.3 |
| LSD (P=.05) | | | 15.83 | 16.95 |
| Standard Deviation | | | 11.30 | 12.11 |
| CV | | | 15.91 | 17.44 |
| Bartlett's X2 | | | 109.509 | 67.852 |
| P(Bartlett's X2) | | | 0.001* | 0.001* |

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Trial Comments

OBJECTIVE: Determine nozzle impact and adjuvant on glyphosate plus Valor applied for primrose control.

GENERAL COMMENTS:

1) Flat fan nozzles were 11002 XR Teejet (22 PSI), AI tips were 02 AI tips from grower sprayer (20 PSI).

RESULTS AND DISCUSSION (main effect and two way interactions were predominately significant):

University of Georgia

Primrose:

1) In late april when pooled over application timing and nozzles, Roundup plus 2,4-D and glyphosate plus 2 oz/A of Valor plus COC provided similar control. Without and adjuvant, Valor (1 oz) mixed with glyphosate was no more effective than glyphosate alone. Mixing a NIS or COC with Valor at 1 oz/A improved control; increased control with this addition of an adjuvant was not evident with the 2 oz of Valor combination. Additionally, adding a COC with Valor was no more effective than adding NIS when applied in combination with glyphosate.

2) Nozzle type did not affect control of glyphosate or glyphosate plus 2,4-D. However when pooled over application date in late April, AI tips were 8 to 12% less effective with Valor combinations when compared to flat fan tips.

Henbit:

1) Henbit died out prior to the early April location thus control ratings were from the early application only.

2) Control was excellent with most treatments. The one thing worth noting was that control from Roundup + Valor with no adjuvant was 13% less effective when applied with AI tips compared to flat fan tips.

Florida Pusley:

1) Control was extremely variable. Bottom line: If Valor got to the ground it provided good residual control; however, when plots contained a large degree of plant matter the Valor plots were no more effective than no Valor in providing residual pusley control.

2) Control was better with fan fan tips as compared to AI tips. Result probably do to better coverage.

CONCLUSIONS:

1) Add adjuvant in with Valor plus Roundup WeatherMax.

2) Valor is more effective when applied with flat fan tips as compared to AI tips.