

Purdue University

Residual corn herbicides and winter weed emergence

Trial ID: 04-ACRE-CORN-WINT
Location: ACRE

Study Dir.:
Investigator: Dr. Bill Johnson

GENERAL TRIAL INFORMATION

Investigator: Dr. Bill Johnson

TRIAL LOCATION

City: West Lafayette
State/Prov.: IN
Postal Code: 47906
Country: USA
E-Longitude of LL Corner °: 272.996180 **N-Latitude of LL Corner °:** 40.491320
Altitude of LL Corner: 656.00 **Unit:** FT
Directions: Agronomy Center for Research and Education (ACRE) - Field 102

COOPERATOR/LANDOWNER

Cooperator: Agronomy Center for Res. & Educ **Phone No:** 765-463-2632
Address 1: 4540 U.S. 52 West
City: West Lafayette
State/Prov: IN
Postal Code: 47906

Conducted Under GLP (Y/N): N **Conducted Under GEP (Y/N):** N

CROP AND WEED DESCRIPTION

| Weed | Code | Common Name | Scientific Name |
|------|-------|------------------------|-----------------------------|
| 1. | ERICA | Horseweed (marestail) | <i>Conyza canadensis</i> |
| 2. | STEME | Chickweed, common | <i>Stellaria media</i> |
| 3. | LAMAM | Henbit | <i>Lamium amplexicaule</i> |
| 4. | SENGL | Groundsel, cressleaf | <i>Packera glabellus</i> |
| 5. | VARAR | Wall speedwell | <i>Veronica arvensis</i> |
| 6. | RANAB | Buttercup, smallflower | <i>Ranunculus abortivus</i> |

Crop 1: GLXMA SOYBEAN **Variety:** Harvest Residue

Crop 2: ZEAMX CORN, FIELD **Variety:** DKC 60-09 RR/YG CB
Planting Date: 17/May/2004 **Planting Method:** No-till planted
Row Spacing: 30 IN

SITE AND DESIGN

Plot Width, Unit: 10 FT **Plot Length, Unit:** 30 FT **Reps:** 4
Tillage Type: No-Till **Study Design:** RANDOMIZED COMPLETE BLOCK

| | Previous Crops | Previous Pesticides | Year |
|----|----------------|---------------------|------|
| 1. | soybean | glyphosate | 2003 |

MAINTENANCE

Field Prep./Maintenance: 135# N knifed in by DTC crew - (week of 06/22/2004)

APPLICATION DESCRIPTION

| | A | B |
|-----------------------------|--------------|-------------|
| Application Date: | 19/May/2004 | 7/Jun/2004 |
| Time of Day: | 1415-1445 | 1400-1430 |
| Application Method: | SPRAY | SPRAY |
| Application Timing: | PREPRE | POSPOS |
| Applic. Placement: | BROSOI | BROFOL |
| Air Temp., Unit: | 82 F | 87 F |
| % Relative Humidity: | 80 | 55 |
| Wind Velocity, Unit: | 4.5 MPH | 10 MPH |
| Soil Temp., Unit: | 78 F | 84 F |
| Soil Moisture: | wet | dry surf |
| % Cloud Cover: | 30 | 5 |

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CROP STAGE AT EACH APPLICATION

| | A | B |
|----------------------------|---------------|---------------|
| Crop 1 Code, Stage: | GLXMA residue | GLXMA residue |
| Stage Scale: | 90% resid | not noted |
| Crop 2 Code, Stage: | ZEAMX | ZEAMX V3 |
| Stage Scale: | na - pre | 6-8" |
| Height, Unit: | | 7 IN |

APPLICATION EQUIPMENT

| | A | B |
|------------------------------|-----------|-----------|
| Appl. Equipment: | CO2 Backp | CO2 Backp |
| Operating Pressure: | 25 psi | 25 psi |
| Nozzle Type: | VS | VS |
| Nozzle Size: | 8002 | 8002 |
| Nozzle Spacing, Unit: | 20 IN | 20 IN |
| Boom Length, Unit: | 10 FT | 10 FT |
| Ground Speed, Unit: | 3 MPH | 3 MPH |
| Carrier: | water | water |
| Spray Volume, Unit: | 15 gpa | 15 gpa |
| Propellant: | CO2 | CO2 |

| Trt No | Treatment Application Comment |
|--------|--|
| 4 | Post treatment #4 was accidentally skipped on 6/7. Applied 6/18(12"corn) |

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 Location: ACRE

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| Weed Code | ERICA | STEME | LAMAM | SENGL | VERAR | | | | |
|--------------------|--------------------|-------------|-------------|-------------|-------------|--------|--------|--------|--------|
| Part Rated | PLAEME P | PLAEME P | PLAEME P | PLAEME P | PLAEME P | | | | |
| Rating Data Type | COUPLA | COUPLA | COUPLA | COUPLA | COUPLA | | | | |
| Rating Unit | /sq. m | /sq. m | /sq. m | /sq. m | /sq. m | | | | |
| Rating Date | 21/Dec/2004 | 21/Dec/2004 | 21/Dec/2004 | 21/Dec/2004 | 21/Dec/2004 | | | | |
| Weed Stage | emerge | emerge | emerge | emerge | emerge | | | | |
| Assessed By | group | group | group | group | group | | | | |
| Trt-Eval Interval | 197 DA-B | 197 DA-B | 197 DA-B | 197 DA-B | 197 DA-B | | | | |
| # Subsamples, Dec. | 2 0 | 2 0 | 2 0 | 2 0 | 2 0 | | | | |
| Trt No. | Treatment Name | Rate | Unit | Grow Stg | 1 | 2 | 3 | 4 | 5 |
| 1 | Atrazine | 1.5 | lb ai/a | PRE | 0 a | 0 a | 0 a | 3 a | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | | | | | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | | | | | |
| | AMS | | | 12" corn | | | | | |
| 2 | Atrazine | 2 | lb ai/a | PRE | 0 a | 0 a | 0 a | 1 a | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | | | | | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | | | | | |
| | AMS | | | 12" corn | | | | | |
| 3 | Atrazine | 1.5 | lb ai/a | PRE | 0 a | 0 a | 0 a | 3 a | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | | | | | |
| | Atrazine | 1 | lb ai/a | 12" corn | | | | | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | | | | | |
| | AMS | | | 12" corn | | | | | |
| 4 | Degree | 1.9 | lb ai/a | PRE | 0 a | 0 a | 0 a | 3 a | 0 a |
| | Atrazine | 1 | lb ai/a | 12" corn | | | | | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | | | | | |
| | AMS | | | 12" corn | | | | | |
| 5 | Degree | 1.9 | lb ai/a | PRE | 0 a | 0 a | 0 a | 3 a | 0 a |
| | Princep | 1 | lb ai/a | PRE | | | | | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | | | | | |
| | AMS | | | 12" corn | | | | | |
| 6 | Degree | 1.9 | lb ai/a | PRE | 0 a | 0 a | 0 a | 1 a | 0 a |
| | Princep | 2 | lb ai/a | PRE | | | | | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | | | | | |
| | AMS | | | 12" corn | | | | | |
| 7 | Hornet | 0.147 | lb ai/a | PRE | 0 a | 0 a | 0 a | 2 a | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | | | | | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | | | | | |
| | AMS | | | 12" corn | | | | | |
| 8 | Degree | 1.9 | lb ai/a | PRE | 0 a | 0 a | 0 a | 1 a | 0 a |
| | Hornet | 0.147 | lb ai/a | 12" corn | | | | | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | | | | | |
| | AMS | | | 12" corn | | | | | |
| 9 | Callisto | 0.187 | lb ai/a | PRE | 0 a | 0 a | 0 a | 3 a | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | | | | | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | | | | | |
| | AMS | | | 12" corn | | | | | |
| 10 | Degree | 1.9 | lb ai/a | PRE | 0 a | 0 a | 0 a | 2 a | 0 a |
| | Callisto | 0.094 | lb ai/a | 12" corn | | | | | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | | | | | |
| | AMS | | | 12" corn | | | | | |
| 11 | Untreated | | | | 0 a | 0 a | 0 a | 3 a | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | | | | | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | | | | | |
| | AMS | | | 12" corn | | | | | |
| LSD (P=.05) | | | | | 0.1 | 0.3 | 0.1 | 2.4 | 0.2 |
| Standard Deviation | | | | | 0.1 | 0.2 | 0.1 | 1.7 | 0.1 |
| CV | | | | | 663.33 | 235.39 | 663.33 | 72.58 | 476.79 |
| Grand Mean | | | | | 0.01 | 0.1 | 0.01 | 2.3 | 0.02 |
| Bartlett's X2 | | | | | 0.0 | 2.952 | 0.0 | 11.207 | 0.0 |
| P(Bartlett's X2) | | | | | . | 0.815 | . | 0.342 | 0.001* |

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| Weed Code | ERICA | STEME | LAMAM | SENGL | VERAR |
|--------------------|-------------|-------------|-------------|-------------|-------------|
| Part Rated | PLAEME P |
| Rating Data Type | COUPLA | COUPLA | COUPLA | COUPLA | COUPLA |
| Rating Unit | /sq. m |
| Rating Date | 21/Dec/2004 | 21/Dec/2004 | 21/Dec/2004 | 21/Dec/2004 | 21/Dec/2004 |
| Weed Stage | emerge | emerge | emerge | emerge | emerge |
| Assessed By | group | group | group | group | group |
| Trt-Eval Interval | 197 DA-B |
| # Subsamples, Dec. | 2 0 | 2 0 | 2 0 | 2 0 | 2 0 |
| Replicate F | 1.000 | 1.144 | 1.000 | 2.039 | 0.645 |
| Replicate Prob(F) | 0.4064 | 0.3474 | 0.4064 | 0.1296 | 0.5921 |
| Treatment F | 1.000 | 0.608 | 1.000 | 1.023 | 0.871 |
| Treatment Prob(F) | 0.4654 | 0.7947 | 0.4654 | 0.4478 | 0.5690 |

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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| Weed Code | | | | RANAB | |
|--------------------|--------------------|-------|---------|-------------|--------|
| Part Rated | | | | PLAEME P | |
| Rating Data Type | | | | COUPLA | |
| Rating Unit | | | | /sq. m | |
| Rating Date | | | | 21/Dec/2004 | |
| Weed Stage | | | | emerge | |
| Assessed By | | | | group | |
| Trt-Eval Interval | | | | 197 DA-B | |
| # Subsamples, Dec. | | | | 2 | 0 |
| Trt No. | Treatment Name | Rate | Unit | Grow Stg | |
| 1 | Atrazine | 1.5 | lb ai/a | PRE | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | |
| | AMS | | | 12" corn | |
| 2 | Atrazine | 2 | lb ai/a | PRE | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | |
| | AMS | | | 12" corn | |
| 3 | Atrazine | 1.5 | lb ai/a | PRE | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | |
| | Atrazine | 1 | lb ai/a | 12" corn | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | |
| | AMS | | | 12" corn | |
| 4 | Degree | 1.9 | lb ai/a | PRE | 0 a |
| | Atrazine | 1 | lb ai/a | 12" corn | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | |
| | AMS | | | 12" corn | |
| 5 | Degree | 1.9 | lb ai/a | PRE | 0 a |
| | Princep | 1 | lb ai/a | PRE | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | |
| | AMS | | | 12" corn | |
| 6 | Degree | 1.9 | lb ai/a | PRE | 0 a |
| | Princep | 2 | lb ai/a | PRE | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | |
| | AMS | | | 12" corn | |
| 7 | Hornet | 0.147 | lb ai/a | PRE | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | |
| | AMS | | | 12" corn | |
| 8 | Degree | 1.9 | lb ai/a | PRE | 0 a |
| | Hornet | 0.147 | lb ai/a | 12" corn | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | |
| | AMS | | | 12" corn | |
| 9 | Callisto | 0.187 | lb ai/a | PRE | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | |
| | AMS | | | 12" corn | |
| 10 | Degree | 1.9 | lb ai/a | PRE | 0 a |
| | Callisto | 0.094 | lb ai/a | 12" corn | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | |
| | AMS | | | 12" corn | |
| 11 | Untreated | | | | 0 a |
| | Degree | 1.9 | lb ai/a | PRE | |
| | Roundup Weathermax | 0.77 | lb ae/a | 12" corn | |
| | AMS | | | 12" corn | |
| LSD (P=.05) | | | | | 0.4 |
| Standard Deviation | | | | | 0.3 |
| CV | | | | | 424.35 |
| Grand Mean | | | | | 0.07 |
| Bartlett's X2 | | | | | 3.032 |
| P(Bartlett's X2) | | | | | 0.22 |

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| | |
|--------------------|-------------|
| Weed Code | RANAB |
| Part Rated | PLAEME P |
| Rating Data Type | COUPLA |
| Rating Unit | /sq. m |
| Rating Date | 21/Dec/2004 |
| Weed Stage | emerge |
| Assessed By | group |
| Trt-Eval Interval | 197 DA-B |
| # Subsamples, Dec. | 2 0 |
| Replicate F | 0.452 |
| Replicate Prob(F) | 0.7174 |
| Treatment F | 0.801 |
| Treatment Prob(F) | 0.6290 |

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.