

Acuron for Control of Palmer Amaranth.

Trial ID: 16-COL-Syngenta-Cor3 Location: Collinsville, IL Trial Year: 2016
Investigator: Karla L. Gage, Ph.D.

| | |
|---|-----------------------|
| Trial Status: F one-year/final Initiation Date: 5-22-16 Completion Date: 7-28-16 | Trial Location |
| City: Collinsville Country: USA State/Prov.: Illinois IL Postal Code: 62234 | |

| |
|---|
| Objectives: Demonstrate the weed control and crop safety of Acuron programs in corn for control of Palmer amaranth. |
|---|

| | |
|--|-----------------|
| Study Director: Karla Gage, Ph.D. Title: Assistant Professor of Weed Science Organization: Southern Illinois University Carbondale Address: 1205 Lincoln Drive MC 4415 Phone No.: 618-453-7679 City+State/Prov: Carbondale, IL Postal Code: 62901 E-mail: kgage@siu.edu Country: USA | Contacts |
|--|-----------------|

| | |
|--|-------------------------|
| Crop 1: ZEAMD Zea mays indentata Dent corn Variety: DKC 63-33 BBCH Scale: BCOR Description: SS RIB Planting Rate, Unit: 32000 S/A Planting Date: 5-22-16 Depth, Unit: 1.5 IN Planting Method: SEEDED Row Spacing, Unit: 30 IN | Crop Description |
|--|-------------------------|

| | |
|--|-------------------------|
| Pest 1 Type: W Code: AMAPA Amaranthus palmeri S.Wats. Common Name: amaranth, Palmer Description: glyphosate-resistant Palmer amaranth | Pest Description |
|--|-------------------------|

| | |
|--|--|
| Treated Plot Width: 6.67 FT Total Plot Width: 10 FT Treated Plot Length: 25 FT Total Plot Length: 25 FT Replications: 3 Untreated Arrangement: INCLUDED single control randomized in each block | Site and Design Site Type: FIELD Experimental Unit: 1 PLOT Tillage Type: REDTIL reduced-till Study Design: RACOB� Randomized Complete Block (RCB) |
|--|--|

| No. | Previous Crop | Year |
|-----|---------------|------|
| 1. | GLXMA | 2015 |

| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">No.</th> <th style="width: 95%;">Maintenance Product Name</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td>N 0 LB/A, P2O5 0 LB/A, K2O 0 LB/A</td> </tr> </tbody> </table> | No. | Maintenance Product Name | 1. | N 0 LB/A, P2O5 0 LB/A, K2O 0 LB/A | Maintenance |
|--|-----------------------------------|--------------------------|----|-----------------------------------|--------------------|
| No. | Maintenance Product Name | | | | |
| 1. | N 0 LB/A, P2O5 0 LB/A, K2O 0 LB/A | | | | |

| | |
|--|-------------------------|
| Description Name: Collinsville IL 2015 % Sand: 63.54 % OM: 2.17 Texture: SIL silt loam % Silt: 28.4 pH: 7.7 Soil Name: Littleton/Haymond/Orion % Clay: 8.06 CEC: 11.6 | Soil Description |
|--|-------------------------|

| Element | Quantity | Unit |
|---------|----------|------|
| P1 | 204 | lb/A |
| K | 476 | lb/A |

| | |
|--|--|
| Overall Moisture Conditions: NORMAL Closest Weather Station: CLIMATE CORP Distance, Unit: 1 MI | Moisture and Weather Conditions |
|--|--|

Acuron for Control of Palmer Amaranth.

Trial ID: 16-COL-Syngenta-Cor3 Location: Collinsville, IL Trial Year: 2016
Investigator: Karla L. Gage, Ph.D.

| No. | Date | Amount | Unit | Type | Type Description | Interval | Unit | Min Temp | Max Temp | Temp Unit |
|-----|---------|--------|------|------|------------------|----------|------|----------|----------|-----------|
| 1. | 4-1-16 | | | | | 7 | DAY | 32 | 75 | F |
| 2. | 4-6-16 | 0.35 | IN | RAIN | rain | 1 | DAY | | | |
| 3. | 4-8-16 | | | | | 7 | DAY | 28 | 71 | F |
| 4. | 4-10-16 | 1.45 | IN | RAIN | rain | 2 | DAY | | | |
| 5. | 4-15-16 | | | | | 7 | DAY | 48 | 81 | F |
| 6. | 4-19-16 | 0.88 | IN | RAIN | rain | 3 | DAY | | | |
| 7. | 4-22-16 | | | | | 7 | DAY | 47 | 85 | F |
| 8. | 4-26-16 | 0.93 | IN | RAIN | rain | 2 | DAY | | | |
| 9. | 4-29-16 | | | | | 7 | DAY | 46 | 75 | F |
| 10. | 4-29-16 | 1.17 | IN | RAIN | rain | 2 | DAY | | | |
| 11. | 5-3-16 | 0.04 | IN | RAIN | rain | 1 | DAY | | | |
| 12. | 5-6-16 | | | | | 7 | DAY | 44 | 87 | F |
| 13. | 5-7-16 | 0.43 | IN | RAIN | rain | 1 | DAY | | | |
| 14. | 5-9-16 | 2.21 | IN | RAIN | rain | 5 | DAY | | | |
| 15. | 5-13-16 | | | | | 7 | DAY | 41 | 76 | F |
| 16. | 5-16-16 | 0.74 | IN | RAIN | rain | 2 | DAY | | | |
| 17. | 5-20-16 | | | | | 7 | DAY | 51 | 83 | F |
| 18. | 5-26-16 | 0.8 | IN | RAIN | rain | 2 | DAY | | | |
| 19. | 5-27-16 | | | | | 7 | DAY | 62 | 88 | F |
| 20. | 5-31-16 | 0.18 | IN | RAIN | rain | 1 | DAY | | | |
| 21. | 6-3-16 | | | | | 7 | DAY | 55 | 89 | F |
| 22. | 6-3-16 | 0.28 | IN | RAIN | rain | 1 | DAY | | | |
| 23. | 6-4-16 | 0.27 | IN | RAIN | rain | 1 | DAY | | | |
| 24. | 6-10-16 | | | | | 7 | DAY | 65 | 96 | F |
| 25. | 6-13-16 | 1 | IN | RAIN | rain | 1 | DAY | | | |
| 26. | 6-17-16 | | | | | 7 | DAY | 67 | 97 | F |
| 27. | 6-24-16 | | | | | 7 | DAY | 57 | 95 | F |
| 28. | 6-25-16 | 1.42 | IN | RAIN | rain | 2 | DAY | | | |
| 29. | 6-30-16 | 0.66 | IN | RAIN | rain | 1 | DAY | | | |
| 30. | 7-1-16 | | | | | 7 | DAY | 60 | 91 | F |
| 31. | 7-1-16 | 1.31 | IN | RAIN | rain | 4 | DAY | | | |
| 32. | 7-6-16 | 0.85 | IN | RAIN | rain | 2 | DAY | | | |
| 33. | 7-8-16 | | | | | 7 | DAY | 67 | 93 | F |
| 34. | 7-12-16 | 1.07 | IN | RAIN | rain | 3 | DAY | | | |
| 35. | 7-15-16 | | | | | 7 | DAY | 68 | 93 | F |
| 36. | 7-19-16 | 2.11 | IN | RAIN | rain | 2 | DAY | | | |
| 37. | 7-22-16 | | | | | 7 | DAY | 72 | 94 | F |
| 38. | 7-22-16 | 0.06 | IN | RAIN | rain | 1 | DAY | | | |
| 39. | 7-24-16 | 0.69 | IN | RAIN | rain | 1 | DAY | | | |
| 40. | 7-25-16 | 0.2 | IN | RAIN | rain | 2 | DAY | | | |
| 41. | 7-27-16 | 0.51 | IN | RAIN | rain | 1 | DAY | | | |
| 42. | 7-29-16 | | | | | 7 | DAY | 69 | 91 | F |
| 43. | 7-29-16 | 0.47 | IN | RAIN | rain | 2 | DAY | | | |

Comment:

The Climate Corporation provided estimates of rainfall at this Collinsville location. Air temperature was recorded at Scott Air Force Base 15 miles SE and provided by NOAA's National Centers for Environmental Information. Air temperatures given are summarized as weekly high and low, detailed weather data is available on request.

Acuron for Control of Palmer Amaranth.

Trial ID: 16-COL-Syngenta-Cor3 Location: Collinsville, IL Trial Year: 2016
Investigator: Karla L. Gage, Ph.D.

Application Description

| | A | B |
|------------------------------|---------|---------|
| Application Date: | 5-22-16 | 6-16-16 |
| Appl. Start Time: | 11:30 | 8:40 |
| Appl. Stop Time: | 12:00 | 8:50 |
| Application Method: | Spray | Spray |
| Application Timing: | PRE | 4-6"PA |
| Application Placement: | BROSOI | BROFOL |
| Applied By: | KNW | KNW |
| Air Temperature, Unit: | 78 F | 87 F |
| % Relative Humidity: | 29 | 66 |
| Wind Velocity, Unit: | 3 MPH | 5 MPH |
| Wind Direction: | NNW | W |
| Dew Presence (Y/N): | N | N |
| Soil Temperature, Unit: | 70 F | 80 F |
| Soil Moisture: | NORMAL | NORMAL |
| % Cloud Cover: | 0 | 0 |
| Next Moisture Occurred On: | 5-26-16 | 6-25-16 |
| Time to Next Moisture, Unit: | 4 DAY | 9 DAY |

Crop Stage At Each Application

| | A | B |
|--------------------------|-------|-------|
| Crop 1 Code, BBCH Scale: | ZEAMD | ZEAMD |
| Stage Scale Used: | DESC | DESC |
| Stage Majority, Percent: | NA | V6 |
| Stage Minimum, Percent: | | V5 |
| Stage Maximum, Percent: | | V6 |
| Height, Unit: | | 17 IN |
| Height Minimum, Maximum: | | 15 17 |

Pest Stage At Each Application

| | A | B |
|---------------------------|---------|---------|
| Pest 1 Code, Type, Scale: | AMAPA W | AMAPA W |
| Stage Majority, Percent: | NA | 8 |
| Stage Minimum, Percent: | | 6 |
| Stage Maximum, Percent: | | 10+ |
| Height, Unit: | | 6 IN |
| Height Minimum, Maximum: | | 4 12 |
| Density, Unit: | | 50 FT2 |

Application Equipment

| | A | B |
|---------------------------|-------------|-------------|
| Appl. Equipment: | CO2 sprayer | CO2 sprayer |
| Equipment Type: | BACSPR | BACSPR |
| Operation Pressure, Unit: | 30 PSI | 30 PSI |
| Nozzle Type: | XR | XR |
| Nozzle Size: | 8002 | 8002 |
| Boom Length, Unit: | 6.67 FT | 6.67 FT |
| Spray Volume, Unit: | 15 GPA | 15 GPA |

Acuron for Control of Palmer Amaranth.

Trial ID: 16-COL-Syngenta-Cor3 Location: Collinsville, IL Trial Year: 2016
 Investigator: Karla L. Gage, Ph.D.

| Pest Code | Crop Code | Rating Date | Rating Type | Rating Unit | Rating Timing | Trt-Eval Interval | ZEAMD 6-5-16 Injury Percent | ZEAMD 6-16-16 Injury Percent 25 DA-A | ZEAMD 6-23-16 Injury Percent | ZEAMD 6-30-16 Injury Percent | ZEAMD 7-14-16 Injury Percent | |
|--------------------|--|-----------------------------|----------------------|---|---------------|---|--------------------------------------|--|---------------------------------------|---------------------------------------|---------------------------------------|-----|
| | | | | | | | 14 DA-A | 0 DA-B | 7 DA-B | 14 DA-B | 28 DA-B | |
| Trt No. | Treatment Name | Form Conc | Form Type | Rate | Rate Unit | Other Rate | Other Rate Unit | Growth Stage | Appl Code | | | |
| 1 | NONTREATED | | | | | | | | | 0 | 0 | 0 |
| 2 | ACURON | 3.44 | CS | 2.58 lb ai/a | | 3 qt/a | | PRE | A | 0 a | 0 a | 0 a |
| 3 | ACURON PRINCEP 4L | 3.44 4 | CS SC | 2.58 lb ai/a 1 lb ai/a | | 3 qt/a 1 qt/a | | PRE PRE | A A | 0 a | 0 a | 0 a |
| 4 | ACURON HALEX GT NIS AMS - LIQUID | 3.44 4.389 100 100 | CS CS SL SL | 1.29 lb ai/a 1.98 lb ai/a 0.25 % v/v 2.5 % v/v | | 1.5 qt/a 3.6 pt/a 0.25 % v/v 2.5 % v/v | | PRE 4-6"PA 4-6"PA 4-6"PA | A B B B | 0 a | 0 a | 0 a |
| 5 | ACURON ACURON ROUNDUP POWERMAX AMS - LIQUID | 3.44 3.44 4.5 100 | CS CS SL SL | 1.29 lb ai/a 1.29 lb ai/a 0.78 lb ae/a 2.5 % v/v | | 1.5 qt/a 1.5 qt/a 22.2 fl oz/a 2.5 % v/v | | PRE 4-6"PA 4-6"PA 4-6"PA | A B B B | 0 a | 0 a | 0 a |
| LSD P=.05 | | | | | | | . | . | . | . | . | |
| Standard Deviation | | | | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| CV | | | | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Replicate F | | | | | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| Replicate Prob(F) | | | | | | | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | |
| Treatment F | | | | | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| Treatment Prob(F) | | | | | | | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | |

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 Could not calculate LSD (% mean diff) for columns 5,6,7,8,9,10,11 because error mean square = 0.

Acuron for Control of Palmer Amaranth.

Trial ID: 16-COL-Syngenta-Cor3 Location: Collinsville, IL Trial Year: 2016
 Investigator: Karla L. Gage, Ph.D.

| Pest Code | | | | | | | | AMAPA-HR | AMAPA-HR | AMAPA-HR | AMAPA-HR | AMAPA-HR | |
|--------------------|---|---|-----------|---|------------|---|--------------|---------------------------------------|----------|----------|----------|----------|--------|
| Crop Code | | | | | | | | 6-5-16 | 6-16-16 | 6-30-16 | 7-14-16 | 7-28-16 | |
| Rating Date | | | | | | | | Control | Control | Control | Control | Control | |
| Rating Type | | | | | | | | Percent | Percent | Percent | Percent | Percent | |
| Rating Unit | | | | | | | | 14 DA-A | 25 DA-A | 14 DA-B | 28 DA-B | 42 DA-B | |
| Rating Timing | | | | | | | | 0 DA-B | 0 DA-B | 0 DA-B | 0 DA-B | 0 DA-B | |
| Trt-Eval Interval | | | | | | | | | | | | | |
| Trt No. | Treatment Name | Form Conc | Form Type | Rate Rate Unit | Other Rate | Other Rate Unit | Growth Stage | Appl Code | | | | | |
| 1 | NONTREATED | | | | | | | | 0 | 0 | 0 | 0 | 0 |
| 2 | ACURON | 3.44 CS | | 2.58 lb ai/a | | 3 qt/a | PRE | A | 99 a | 99 a | 98 a | 98 a | 98 a |
| 3 | ACURON PRINCEP 4L | 3.44 CS 4 SC | | 2.58 lb ai/a 1 lb ai/a | | 3 qt/a 1 qt/a | PRE | A A | 99 a | 99 a | 99 a | 98 a | 98 a |
| 4 | ACURON HALEX GT NIS AMS - LIQUID | 3.44 CS 4.389 CS 100 SL 100 SL | | 1.29 lb ai/a 1.98 lb ai/a 0.25 % v/v 2.5 % v/v | | 1.5 qt/a 3.6 pt/a 0.25 % v/v 2.5 % v/v | PRE | A 4-6"PA B 4-6"PA B 4-6"PA B | 99 a | 99 a | 99 a | 99 a | 99 a |
| 5 | ACURON ACURON ROUNDUP POWERMAX AMS - LIQUID | 3.44 CS 3.44 CS 4.5 SL 100 SL | | 1.29 lb ai/a 1.29 lb ai/a 0.78 lb ae/a 2.5 % v/v | | 1.5 qt/a 1.5 qt/a 22.2 fl oz/a 2.5 % v/v | PRE | A 4-6"PA B 4-6"PA B 4-6"PA B | 99 a | 99 a | 99 a | 99 a | 99 a |
| LSD P=.05 | | | | | | | | | . | . | 0.6 | 0.9 | 1.1 |
| Standard Deviation | | | | | | | | | 0.0 | 0.0 | 0.3 | 0.4 | 0.6 |
| CV | | | | | | | | | 0.0 | 0.0 | 0.29 | 0.45 | 0.56 |
| Replicate F | | | | | | | | | 0.000 | 0.000 | 1.000 | 0.429 | 0.273 |
| Replicate Prob(F) | | | | | | | | | 1.0000 | 1.0000 | 0.4219 | 0.6699 | 0.7703 |
| Treatment F | | | | | | | | | 0.000 | 0.000 | 4.000 | 2.286 | 1.000 |
| Treatment Prob(F) | | | | | | | | | 1.0000 | 1.0000 | 0.0701 | 0.1788 | 0.4547 |

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 Could not calculate LSD (% mean diff) for columns 5,6,7,8,9,10,11 because error mean square = 0.

Acuron for Control of Palmer Amaranth.

Trial ID: 16-COL-Syngenta-Cor3 Location: Collinsville, IL Trial Year: 2016
Investigator: Karla L. Gage, Ph.D.

Trial Comments

1. Protocol: Syngenta (EHLCor3-2016).
2. Ratings:
 CI 14 and 28 DA-A, Prior to POST, 7, 14, and 28 DA-B.
 WC 14 and 28 DA-A, Prior to POST, 14, 28, and 42 DA-B.
3. No yield.
4. Blanket to start clean if needed, was not needed, used tillage.
5. Photos not requested but maybe 14 DA-B?
6. Rainfall following the PRE application A was 0.80 inch over 2 days beginning 4 days later.
 Rainfall following the 4-6"PA application B was 1.42 inch over 2 days beginning 9 days later.
7. AMAPA-HR = Herbicide-resistant Palmer amaranth (glyphosate).
8. Not harvested.