

## Acuron versus Resicore Crop Safety Trial.

Trial ID: 16-11C-E90 Location: Belleville Res. Center Trial Year: 2016  
Investigator: Karla L. Gage, Ph.D.

**Trial Status:** F one-year/final  
**Initiation Date:** 5-31-16  
**Completion Date:** 9-29-16

**Trial Location**

**City:** Belleville **Country:** USA  
**State/Prov.:** Illinois IL  
**Postal Code:** 62221

**Objectives:**

Evaluate the effect of Acuron or Resicore on corn development and yield.

**Contacts**

**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

**Crop Description**

**Crop 1:** ZEAMD Zea mays indentata **Dent corn**  
**Variety:** DKC 63-33 **BBCH Scale:** BCOR  
**Description:** SS RIB  
**Planting Date:** 5-31-16  
**Planting Rate, Unit:** 32000 S/A **Planting Method:** SEEDED  
**Depth, Unit:** 1.5 IN  
**Row Spacing, Unit:** 30 IN

**Pest Description**

**Pest 1 Type:** W **Code:** NA  
**Common Name:** crop tolerance only

**Site and Design**

**Treated Plot Width:** 7.5 FT **Total Plot Width:** 10 FT  
**Treated Plot Length:** 27 FT **Total Plot Length:** 27 FT **Site Type:** FIELD  
**Experimental Unit:** 1 PLOT  
**Tillage Type:** REDTIL reduced-till  
**Replications:** 3 **Study Design:** RACOB L Randomized Complete Block (RCB)  
**Untreated Arrangement:** NONE control is other than an untreated

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

**Maintenance**

| No. | Maintenance Product Name              |
|-----|---------------------------------------|
| 1.  | N 150 LB/A, P2O5 0 LB/A, K2O 150 LB/A |

**Soil Description**

**Description Name:** 11C\_2013  
**% OM:** 2.9 **Texture:** SIL silt loam  
**pH:** 6.4 **Soil Name:** Bethalto  
**CEC:** 12

**Additional Measured Elements**

| Element | Quantity | Unit |
|---------|----------|------|
| P1      | 57       | lb/A |
| K       | 275      | lb/A |

**Moisture and Weather Conditions**

**Overall Moisture Conditions:** NORMAL  
**Closest Weather Station:** ICN - Belleville IL **Distance, Unit:** 0.5 MI

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| 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  | 0.49   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 3.  | 4-8-16  |        |      |      |                  | 7        | DAY  | 28       | 71       | F         |
| 4.  | 4-10-16 | 0.97   | IN   | RAIN | rain             | 2        | DAY  |          |          |           |
| 5.  | 4-15-16 |        |      |      |                  | 7        | DAY  | 48       | 81       | F         |
| 6.  | 4-20-16 | 0.45   | IN   | RAIN | rain             | 3        | DAY  |          |          |           |
| 7.  | 4-22-16 |        |      |      |                  | 7        | DAY  | 47       | 85       | F         |
| 8.  | 4-26-16 | 1.74   | IN   | RAIN | rain             | 2        | DAY  |          |          |           |
| 9.  | 4-29-16 |        |      |      |                  | 7        | DAY  | 46       | 75       | F         |
| 10. | 4-29-16 | 1.94   | IN   | RAIN | rain             | 2        | DAY  |          |          |           |
| 11. | 5-4-16  | 0.02   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 12. | 5-6-16  |        |      |      |                  | 7        | DAY  | 44       | 87       | F         |
| 13. | 5-7-16  | 0.07   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 14. | 5-9-16  | 2.12   | IN   | RAIN | rain             | 5        | DAY  |          |          |           |
| 15. | 5-13-16 |        |      |      |                  | 7        | DAY  | 41       | 76       | F         |
| 16. | 5-16-16 | 1.06   | IN   | RAIN | rain             | 2        | DAY  |          |          |           |
| 17. | 5-20-16 |        |      |      |                  | 7        | DAY  | 51       | 83       | F         |
| 18. | 5-20-16 | 0.06   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 19. | 5-25-16 | 0.68   | IN   | RAIN | rain             | 3        | DAY  |          |          |           |
| 20. | 5-27-16 |        |      |      |                  | 7        | DAY  | 62       | 88       | F         |
| 21. | 5-31-16 | 0.03   | IN   | RAIN | rain             | 2        | DAY  |          |          |           |
| 22. | 6-3-16  |        |      |      |                  | 7        | DAY  | 55       | 89       | F         |
| 23. | 6-3-16  | 0.01   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 24. | 6-4-16  | 0.72   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 25. | 6-10-16 |        |      |      |                  | 7        | DAY  | 65       | 96       | F         |
| 26. | 6-13-16 | 0.03   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 27. | 6-17-16 |        |      |      |                  | 7        | DAY  | 67       | 97       | F         |
| 28. | 6-21-16 | 0.01   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 29. | 6-24-16 |        |      |      |                  | 7        | DAY  | 57       | 95       | F         |
| 30. | 6-25-16 | 0.02   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 31. | 6-30-16 | 0.03   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 32. | 7-1-16  |        |      |      |                  | 7        | DAY  | 60       | 91       | F         |
| 33. | 7-1-16  | 2.26   | IN   | RAIN | rain             | 4        | DAY  |          |          |           |
| 34. | 7-6-16  | 0.32   | IN   | RAIN | rain             | 3        | DAY  |          |          |           |
| 35. | 7-8-16  |        |      |      |                  | 7        | DAY  | 67       | 93       | F         |
| 36. | 7-13-16 | 0.49   | IN   | RAIN | rain             | 2        | DAY  |          |          |           |
| 37. | 7-15-16 |        |      |      |                  | 7        | DAY  | 68       | 93       | F         |
| 38. | 7-17-16 | 0.02   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 39. | 7-19-16 | 1.47   | IN   | RAIN | rain             | 2        | DAY  |          |          |           |
| 40. | 7-22-16 |        |      |      |                  | 7        | DAY  | 72       | 94       | F         |
| 41. | 7-25-16 | 0.1    | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 42. | 7-29-16 |        |      |      |                  | 7        | DAY  | 69       | 91       | F         |
| 43. | 7-31-16 | 0.52   | IN   | RAIN | rain             | 3        | DAY  |          |          |           |
| 44. | 8-3-16  | 0.75   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 45. | 8-5-16  |        |      |      |                  | 7        | DAY  | 66       | 93       | F         |
| 46. | 8-5-16  | 0.06   | IN   | RAIN | rain             | 1        | DAY  |          |          |           |
| 47. | 8-12-16 |        |      |      |                  | 7        | DAY  | 68       | 91       | F         |
| 48. | 8-12-16 | 4.85   | IN   | RAIN | rain             | 5        | DAY  |          |          |           |
| 49. | 8-19-16 |        |      |      |                  | 7        | DAY  | 57       | 93       | F         |

**Comment:**

Rainfall was recorded on station and provided by Illinois Climate Network.

Air temperature was recorded at Scott Air Force Base 2.5 miles north 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.

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## Application Description

|                              | A       | B       | C       |
|------------------------------|---------|---------|---------|
| Application Date:            | 5-31-16 | 6-6-16  | 6-17-16 |
| Appl. Start Time:            | 19:00   | 7:00    | 15:10   |
| Appl. Stop Time:             | 19:20   | 7:30    | 15:35   |
| Application Method:          | Spray   | Spray   | Spray   |
| Application Timing:          | PRE     | VE-V1   | 8-10"CN |
| Application Placement:       | BROSOI  | BROFOL  | BROFOL  |
| Applied By:                  | MCG     | KNW     | MCG     |
| Air Temperature, Unit:       | 76 F    | 77 F    | 88 F    |
| % Relative Humidity:         | 74      | 56      | 45      |
| Wind Velocity, Unit:         | 3 MPH   | 5 MPH   | 5 MPH   |
| Wind Direction:              | SE      | WSW     | NNE     |
| Dew Presence (Y/N):          | N       | N       | N       |
| Soil Temperature, Unit:      | 73 F    | 71 F    | 80 F    |
| Soil Moisture:               | NORMAL  | NORMAL  | BELNOR  |
| % Cloud Cover:               | 0       | 0       | 10      |
| Next Moisture Occurred On:   | 6-4-16  | 6-30-16 | 6-30-16 |
| Time to Next Moisture, Unit: | 4 DAY   | 24 DAY  | 13 DAY  |

## Crop Stage At Each Application

|                          | A     | B     | C     |
|--------------------------|-------|-------|-------|
| Crop 1 Code, BBCH Scale: | ZEAMD | ZEAMD | ZEAMD |
| Stage Scale Used:        | DESC  | DESC  | DESC  |
| Stage Majority, Percent: | NA    | VE    | V5    |
| Stage Minimum, Percent:  |       | VE    | V4    |
| Stage Maximum, Percent:  |       | VE    | V5    |
| Height, Unit:            |       | 2 IN  | 10 IN |
| Height Minimum, Maximum: |       | 1 2   | 8 10  |

## Pest Stage At Each Application

|                           | A    | B    | C    |
|---------------------------|------|------|------|
| Pest 1 Code, Type, Scale: | NA W | NA W | NA W |
| Stage Majority, Percent:  | NA   | NA   | NA   |

## Application Equipment

|                           | A           | B           | C           |
|---------------------------|-------------|-------------|-------------|
| Appl. Equipment:          | CO2 sprayer | CO2 sprayer | CO2 sprayer |
| Equipment Type:           | BACSPR      | BACSPR      | BACSPR      |
| Operation Pressure, Unit: | 30 PSI      | 30 PSI      | 30 PSI      |
| Nozzle Type:              | XR          | XR          | XR          |
| Nozzle Size:              | 8002        | 8002        | 8002        |
| Boom Length, Unit:        | 7.5 FT      | 7.5 FT      | 7.5 FT      |
| Spray Volume, Unit:       | 15 GPA      | 15 GPA      | 15 GPA      |



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| Pest Code          | Crop Code       | Rating Date | Rating Type | Rating Unit                | Rating Timing        | Trt-Eval Interval  | ZEAMD<br>6-7-16<br>Injury<br>Percent | ZEAMD<br>6-13-16<br>Injury<br>Percent<br>13 DA-A | ZEAMD<br>6-20-16<br>Injury<br>Percent<br>3 DA-C | ZEAMD<br>6-24-16<br>Injury<br>Percent<br>18 DA-B | ZEAMD<br>6-27-16<br>Injury<br>Percent<br>10 DA-C | ZEAMD<br>7-1-16<br>Injury<br>Percent<br>25 DA-B | ZEAMD<br>7-5-16<br>Injury<br>Percent<br>18 DA-C | ZEAMD<br>7-15-16<br>Injury<br>Percent |
|--------------------|-----------------|-------------|-------------|----------------------------|----------------------|--------------------|--------------------------------------|--------------------------------------------------|-------------------------------------------------|--------------------------------------------------|--------------------------------------------------|-------------------------------------------------|-------------------------------------------------|---------------------------------------|
|                    |                 |             |             |                            |                      |                    | 7 DA-A                               | 7 DA-B                                           | 14 DA-B                                         | 7 DA-C                                           | 27 DA-A                                          | 14 DA-C                                         | 29 DA-B                                         | 28 DA-C                               |
| Trt No.            | Treatment Name  | Form Conc   | Form Type   | Rate Rate Unit             | Other Rate Rate Unit | Growth Stage       | Appl Code                            |                                                  |                                                 |                                                  |                                                  |                                                 |                                                 |                                       |
| 1                  | ACURON          | 3.44        | CS          | 2.58 lb ai/a               | 3 qt/a               | PRE                | A                                    | 0 a                                              | 0 a                                             | 0 c                                              | 0 c                                              | 0 a                                             | 0 b                                             | 0 a                                   |
| 2                  | ACURON          | 3.44        | CS          | 5.16 lb ai/a               | 6 qt/a               | PRE                | A                                    | 0 a                                              | 0 a                                             | 0 c                                              | 0 c                                              | 0 a                                             | 0 b                                             | 0 a                                   |
| 3                  | RESICORE        | 3.29        | EC          | 2.47 lb ai/a               | 3 qt/a               | PRE                | A                                    | 0 a                                              | 0 a                                             | 0 c                                              | 0 c                                              | 0 a                                             | 0 b                                             | 0 a                                   |
| 4                  | RESICORE        | 3.29        | EC          | 4.94 lb ai/a               | 6 qt/a               | PRE                | A                                    | 0 a                                              | 0 a                                             | 0 c                                              | 0 c                                              | 0 a                                             | 0 b                                             | 0 a                                   |
| 5                  | ACURON<br>NIS   | 3.44<br>100 | CS<br>SL    | 2.58 lb ai/a<br>0.25 % v/v | 3 qt/a<br>0.25 % v/v | VE-V1<br>VE-V1     | B<br>B                               |                                                  | 4 a                                             | 3 ab                                             | 1 b                                              | 0 a                                             | 0 b                                             | 0 a                                   |
| 6                  | ACURON<br>NIS   | 3.44<br>100 | CS<br>SL    | 5.16 lb ai/a<br>0.25 % v/v | 6 qt/a<br>0.25 % v/v | VE-V1<br>VE-V1     | B<br>B                               |                                                  | 3 a                                             | 2 abc                                            | 1 bc                                             | 1 a                                             | 0 b                                             | 0 a                                   |
| 7                  | RESICORE<br>NIS | 3.29<br>100 | EC<br>SL    | 2.47 lb ai/a<br>0.25 % v/v | 3 qt/a<br>0.25 % v/v | VE-V1<br>VE-V1     | B<br>B                               |                                                  | 2 a                                             | 1 bc                                             | 0 bc                                             | 0 a                                             | 1 b                                             | 0 a                                   |
| 8                  | RESICORE<br>NIS | 3.29<br>100 | EC<br>SL    | 4.94 lb ai/a<br>0.25 % v/v | 6 qt/a<br>0.25 % v/v | VE-V1<br>VE-V1     | B<br>B                               |                                                  | 5 a                                             | 2 abc                                            | 1 bc                                             | 1 a                                             | 1 b                                             | 0 a                                   |
| 9                  | ACURON<br>NIS   | 3.44<br>100 | CS<br>SL    | 2.58 lb ai/a<br>0.25 % v/v | 3 qt/a<br>0.25 % v/v | 8-10"CN<br>8-10"CN | C<br>C                               |                                                  |                                                 | 1 bc                                             | 0 c                                              | 0 a                                             | 1 b                                             | 0 a                                   |
| 10                 | ACURON<br>NIS   | 3.44<br>100 | CS<br>SL    | 5.16 lb ai/a<br>0.25 % v/v | 6 qt/a<br>0.25 % v/v | 8-10"CN<br>8-10"CN | C<br>C                               |                                                  |                                                 | 4 a                                              | 3 a                                              | 2 a                                             | 6 a                                             | 2 a                                   |
| 11                 | RESICORE<br>NIS | 3.29<br>100 | EC<br>SL    | 2.47 lb ai/a<br>0.25 % v/v | 3 qt/a<br>0.25 % v/v | 8-10"CN<br>8-10"CN | C<br>C                               |                                                  |                                                 | 1 abc                                            | 1 bc                                             | 0 a                                             | 1 b                                             | 0 a                                   |
| 12                 | RESICORE<br>NIS | 3.29<br>100 | EC<br>SL    | 4.94 lb ai/a<br>0.25 % v/v | 6 qt/a<br>0.25 % v/v | 8-10"CN<br>8-10"CN | C<br>C                               |                                                  |                                                 | 2 abc                                            | 1 b                                              | 1 a                                             | 8 a                                             | 0 a                                   |
| LSD P=.05          |                 |             |             |                            |                      |                    |                                      | .                                                | 4.0                                             | 2.3                                              | 1.3                                              | 1.6                                             | 2.4                                             | 1.4                                   |
| Standard Deviation |                 |             |             |                            |                      |                    |                                      | 0.0                                              | 2.3                                             | 1.4                                              | 0.8                                              | 0.9                                             | 1.4                                             | 0.8                                   |
| CV                 |                 |             |             |                            |                      |                    |                                      | 0.0                                              | 123.91                                          | 99.81                                            | 116.77                                           | 224.01                                          | 97.09                                           | 500.91                                |
| Replicate F        |                 |             |             |                            |                      |                    |                                      | 0.000                                            | 0.299                                           | 0.101                                            | 0.550                                            | 1.243                                           | 0.095                                           | 1.435                                 |
| Replicate Prob(F)  |                 |             |             |                            |                      |                    |                                      | 1.0000                                           | 0.7464                                          | 0.9042                                           | 0.5847                                           | 0.3079                                          | 0.9096                                          | 0.2596                                |
| Treatment F        |                 |             |             |                            |                      |                    |                                      | 0.000                                            | 2.657                                           | 2.549                                            | 3.300                                            | 1.400                                           | 10.219                                          | 1.000                                 |
| Treatment Prob(F)  |                 |             |             |                            |                      |                    |                                      | 1.0000                                           | 0.0567                                          | 0.0297                                           | 0.0083                                           | 0.2410                                          | 0.0001                                          | 0.4767                                |

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 10,17 because error mean square = 0.

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## Trial Comments

1. Protocol: Syngenta (EHLCor6-2016).
2. Ratings:  
CI at 7, 14, and 28 DA-A+B+C rate all treated plots each time.  
WC not requested.
3. Yield, do not sell grain from plots with 2x rates.
4. Blanket POST glyphosate to control weeds as needed to keep weed free was applied on 6-10-16 and 6-24-16.
5. Photos of any injury.
6. Rainfall following the PRE application A was 0.73 inch over 2 days beginning 4 days later.  
Rainfall following the VE-V1 application B was 2.61 inch over 9 days beginning 24 days later.  
Rainfall following the 8-10"CN application C was 2.61 inch over 9 days beginning 13 days later.
7. Crop injury at 7 and 14 days after the various application timings was chlorosis.  
Crop injury on 7-1-16 was stunting and minor leaf rolling and was confounded by very dry soil conditions.  
At the 7-5-16 rating when soil moisture was again adequate corn plants recovered.
8. Harvested 9-29-16, (2) 30 inch rows by 24 ft.