

Purdue Weed Science

| Harness Max PRE Application Timing | |
|---------------------------------------|---------------------------------|
| Trial ID: 18S-TPAC-CORN-01 | Location: TPAC Trial Year: 2018 |
| Protocol ID: 18S-TPAC-CORN-01 | Investigator: Dr. Bill Johnson |
| Project ID: 2018-01-24-10 | Study Director: Dustin Johnson |
| Sponsor Contact: D. Childs - Monsanto | |

| General Trial Information | |
|---|-----------------------------------|
| Study Director: Dustin Johnson | Title: Research Associate |
| Investigator: Dr. Bill Johnson | Title: Professor |
| Trial Location | |
| City: Lafayette | Country: USA United States |
| State/Prov.: Indiana | |
| Postal Code: 47909 | |
| Latitude of LL Corner °: 40.29175 N | |
| Longitude of LL Corner °: 86.90805 W | |
| Conducted Under GLP: No | |
| Conducted Under GEP: No | |

| Contacts | |
|--|------------------------------------|
| Study Director: Dustin Johnson | Title: Research Associate |
| Organization: Purdue University | |
| Address: 915 W. State Street | |
| City+State/Prov: West Lafayette, IN | |
| Postal Code: 47907 | E-mail: john1357@purdue.edu |
| Country: USA | United States |
| Investigator: Dr. Bill Johnson | Title: Professor |
| Organization: Purdue University | |
| Address: 915 W. State Street | |
| City+State/Prov: West Lafayette, IN | |
| Postal Code: 47907 | E-mail: wji@purdue.edu |
| Country: USA | United States |
| Cooperator/Landowner | |
| Cooperator: Jay Young | Role: Superintendent |
| Organization: Purdue University | |
| Address 1: 8343 US 231 S | |
| City: Lafayette | Phone No.: 765-538-3422 |
| State/Prov: IN | Fax No.: 765-538-3423 |
| Postal Code: 47909 | |
| Country: USA United States | E-mail: jayyoung@purdue.edu |

| Crop Description | |
|---------------------------------------|--|
| Crop 1: ZEAMX | Zea mays Corn |
| Variety: DKC62-52RIB | |
| Description: RR/LL Stacked | |
| Planting Rate, Unit: 32000 S/A | Planting Date: Apr-27-2018 |
| Depth, Unit: 1.5 IN | Planting Method: PLANTD planted |
| Row Spacing, Unit: 30 IN | Planting Equipment: PP plot planter |
| Soil Temperature, Unit: 61 F | Emergence Date: May-7-2018 |
| Soil Moisture: DRY dry | |

| Site and Design | |
|---|---|
| Treated Plot Width: 6.67 FT | Site Type: FIELD field |
| Treated Plot Length: 30 FT | Experimental Unit: 1 PLOT plot |
| Treated Plot Area: 200.1 FT ² | Tillage Type: CONTIL conventional-till |
| Replications: 4 | Study Design: RACOB� Randomized Complete Block (RCB) |
| Treatments: 18 | |

| |
|---|
| Field Prep./Maintenance: 4/26/18-Farm Applied 180 lbs of N applied as UAN 28-0-0. |
|---|

| Soil Description | |
|--|-------------------------------------|
| Description Name: TPAC-Field 4A | |
| % OM: 3.1 | Texture: SIL silt loam |
| pH: 6 | Soil Name: Toronto-Millbrook |
| CEC: 11.1 | |

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Application Description

| | A |
|-------------------------|-------------|
| Application Date: | Apr-27-2018 |
| Appl. Start Time: | 1:10 PM |
| Appl. Stop Time: | 1:55 PM |
| Application Method: | SPRAY |
| Application Timing: | PREPRE |
| Application Placement: | BROADC |
| Applied By: | T. CAMPBELL |
| Air Temperature, Unit: | 61 F |
| % Relative Humidity: | 39 |
| Wind Velocity, Unit: | 10 MPH |
| Wind Direction: | WNW |
| Dew Presence (Y/N): | N no |
| Soil Temperature, Unit: | 61 F |
| Soil Moisture: | DRY |
| % Cloud Cover: | 5 |

Crop Stage At Each Application

| | A |
|--------------------------|------------|
| Crop 1 Code, BBCH Scale: | ZEAMX BCOR |
| Stage Scale Used: | BBCH |
| Stage Majority, Percent: | 00 |
| Stage Minimum, Percent: | 00 |
| Stage Maximum, Percent: | 00 |

Application Equipment

| | A |
|---------------------------|--------------|
| Appl. Equipment: | CO2 BACKPACK |
| Equipment Type: | BACSPR |
| Operation Pressure, Unit: | 43 PSI |
| Nozzle Type: | TTI |
| Nozzle Size: | 110015 |
| Nozzle Spacing, Unit: | 20 IN |
| Nozzles/Row: | 4 |
| Boom Length, Unit: | 6.7 FT |
| Boom Height, Unit: | 17 IN |
| Ground Speed, Unit: | 3 MPH |
| Carrier: | WATER |
| Spray Volume, Unit: | 15 GAL/AC |
| Mix Size, Unit: | 1119 mL |
| Propellant: | COMCO2 |

| Date | By | Notes |
|-------------|------------|---|
| Jun-11-2018 | D. JOHNSON | Evening storm brought hail and damage to crop occurred. |
| Jun-22-2018 | D. JOHNSON | Did not rate ECHSS & SETFA do to size and density of AMBTR. |

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Reps: 4 Plots: 6.67 by 30 feet
 Spray vol: 15 GAL/AC Mix Size: 1119 mL (total for 4 plots; minimum=1043.3 mL)

| Trt No. | Treatment Name | Form Conc | Form Unit | Form Type | Rate | Rate Unit | Appl Code | Appl Description | Amt Product to Measure | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---------|-----------------------|-------------------------|-----------|-----------|--------------------------|-----------|-----------|----------------------------|----------------------------|-------|-------|-------|-------|
| 2 | HARNESS XTRA | 6 LB/GAL | SE | | 2.6 qt/a | | A | AT PLANTING | 48.49 mL/mx | 102 | 301 | 603 | 801 |
| 3 | RESICORE | 3.29 LB/GAL | L | | 3 qt/a | | A | AT PLANTING | 55.95 mL/mx | 103 | 401 | 503 | 803 |
| 4 | ACURON | 3.44 LB/GAL | ZC | | 3 qt/a | | A | AT PLANTING | 55.95 mL/mx | 201 | 403 | 501 | 703 |
| 5 | HARNESS MAX | 3.85 LB/GAL | SE | | 75 fl oz/a | | A | AT PLANTING | 43.71 mL/mx | 202 | 402 | 602 | 701 |
| 6 | HARNESS MAX AATREX | 3.85 LB/GAL 4 LB/GAL | SE L | | 75 fl oz/a 32 fl oz/a | | A A | AT PLANTING AT PLANTING | 43.71 mL/mx 18.65 mL/mx | 203 | 302 | 601 | 802 |
| 8 | HARNESS XTRA | 6 LB/GAL | SE | | 2.2 qt/a | | A | AT PLANTING | 41.03 mL/mx | 105 | 304 | 605 | 805 |
| 9 | RESICORE | 3.29 LB/GAL | L | | 2.375 qt/a | | A | AT PLANTING | 44.29 mL/mx | 106 | 405 | 504 | 705 |
| 10 | ACURON | 3.44 LB/GAL | ZC | | 2.75 qt/a | | A | AT PLANTING | 51.29 mL/mx | 204 | 306 | 506 | 706 |
| 11 | HARNESS MAX | 3.85 LB/GAL | SE | | 64 fl oz/a | | A | AT PLANTING | 37.3 mL/mx | 205 | 406 | 606 | 704 |
| 12 | HARNESS MAX AATREX | 3.85 LB/GAL 4 LB/GAL | SE L | | 64 fl oz/a 32 fl oz/a | | A A | AT PLANTING AT PLANTING | 37.3 mL/mx 18.65 mL/mx | 206 | 404 | 505 | 804 |
| 14 | HARNESS XTRA | 6 LB/GAL | SE | | 1.8 qt/a | | A | AT PLANTING | 33.57 mL/mx | 108 | 308 | 609 | 707 |
| 15 | RESICORE | 3.29 LB/GAL | L | | 2.25 qt/a | | A | AT PLANTING | 41.96 mL/mx | 109 | 409 | 608 | 807 |
| 16 | ACURON | 3.44 LB/GAL | ZC | | 2.5 qt/a | | A | AT PLANTING | 46.62 mL/mx | 207 | 408 | 607 | 708 |
| 17 | HARNESS MAX | 3.85 LB/GAL | SE | | 55 fl oz/a | | A | AT PLANTING | 32.05 mL/mx | 208 | 407 | 509 | 808 |
| 18 | HARNESS MAX AATREX | 3.85 LB/GAL 4 LB/GAL | SE L | | 55 fl oz/a 32 fl oz/a | | A A | AT PLANTING AT PLANTING | 32.05 mL/mx 18.65 mL/mx | 209 | 307 | 507 | 809 |

Sort Order: Treatment

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| Pest Type | | W Weed | W Weed | W Weed | W Weed | W Weed | | | |
|-------------------------------|--------------------------|---------------|---------------|---------------|---------------|---------------|----------|---------|---------|
| Pest Code | | AMBTR | AMBTR | SETFA | ECHSS | AMBTR | | | |
| Pest Name | | Giant ragweed | Giant ragweed | Giant foxtail | Barnyardgrass | Giant ragweed | | | |
| Crop Code | ZEAMX | ZEAMX | ZEAMX | ZEAMX | ZEAMX | ZEAMX | | | |
| Crop Name | Corn | Corn | Corn | Corn | Corn | Corn | | | |
| Part Rated | PLOT - | PLOT - | PLOT - | PLOT - | PLOT - | PLOT - | | | |
| Rating Date | May-18-2018 | May-18-2018 | Jun-1-2018 | Jun-1-2018 | Jun-1-2018 | Jun-22-2018 | | | |
| Rating Type | PHYGEN | CONTROL | CONTROL | CONTROL | CONTROL | CONTROL | | | |
| Rating Unit | % | % | % | % | % | % | | | |
| Number of Subsamples | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| Assessed By | D. JOHNSON | D. JOHNSON | D. JOHNSON | D. JOHNSON | D. JOHNSON | D. JOHNSON | | | |
| Rating Timing | A1 | A1 | A1 | A1 | A1 | A1 | | | |
| Days After First/Last Applic. | 21 21 | 21 21 | 35 35 | 35 35 | 35 35 | 56 56 | | | |
| Trt-Eval Interval | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | | | |
| Days After Emergence | 11 DE-1 | 11 DE-1 | 25 DE-1 | 25 DE-1 | 25 DE-1 | 46 DE-1 | | | |
| ARM Action Codes | P | P | P | P | P | P | | | |
| Number of Decimals | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Trt Treatment | Rate | Appl | | | | | | | |
| No. Name | Rate | Unit | Code | 1 | 2 | 3 | 4 | 5 | 6 |
| 2 HARNESX XTRA | 2.6 qt/a | A | | 0 - | 69 - | 33 de | 99 - | 99 - | 3 de |
| 3 RESICORE | 3 qt/a | A | | 0 - | 75 - | 71 a | 86 - | 96 - | 50 a |
| 4 ACURON | 3 qt/a | A | | 0 - | 69 - | 48 bcd | 90 - | 74 - | 31 b |
| 5 HARNESX MAX | 75 fl oz/a | A | | 0 - | 56 - | 29 de | 89 - | 98 - | 18 c |
| 6 HARNESX MAX AATREX | 75 fl oz/a 32 fl oz/a | A | | 0 - | 69 - | 34 de | 88 - | 90 - | 16 c |
| 8 HARNESX XTRA | 2.2 qt/a | A | | 0 - | 64 - | 18 e | 100 - | 100 - | 0 e |
| 9 RESICORE | 2.375 qt/a | A | | 0 - | 71 - | 55 abc | 90 - | 93 - | 30 b |
| 10 ACURON | 2.75 qt/a | A | | 0 - | 68 - | 43 bcd | 92 - | 91 - | 29 b |
| 11 HARNESX MAX | 64 fl oz/a | A | | 0 - | 65 - | 34 de | 98 - | 98 - | 5 de |
| 12 HARNESX MAX AATREX | 64 fl oz/a 32 fl oz/a | A | | 0 - | 68 - | 39 bcd | 93 - | 94 - | 16 c |
| 14 HARNESX XTRA | 1.8 qt/a | A | | 0 - | 73 - | 36 cde | 96 - | 96 - | 3 de |
| 15 RESICORE | 2.25 qt/a | A | | 0 - | 74 - | 58 ab | 85 - | 84 - | 35 b |
| 16 ACURON | 2.5 qt/a | A | | 0 - | 68 - | 42 bcd | 89 - | 90 - | 11 cd |
| 17 HARNESX MAX | 55 fl oz/a | A | | 0 - | 61 - | 29 de | 88 - | 83 - | 5 de |
| 18 HARNESX MAX AATREX | 55 fl oz/a 32 fl oz/a | A | | 0 - | 71 - | 36 cde | 85 - | 89 - | 9 cde |
| LSD P=.05 | . | | | | 12.2 | 20.5 | 14.2 | 18.2 | 10.8 |
| Standard Deviation | 0.0 | | | | 8.6 | 14.4 | 9.9 | 12.8 | 7.5 |
| CV | 0.0 | | | | 12.62 | 35.81 | 10.88 | 13.96 | 43.5 |
| Levene's F | 0.00 | | | | 0.927 | 0.703 | 3.413 | 1.327 | 0.877 |
| Levene's Prob(F) | 0.00* | | | | 0.539 | 0.759 | 0.001* | 0.23 | 0.587 |
| Skewness | . | | | | -1.8967* | 0.2433 | -0.8455* | -2.347* | 0.7285* |
| Kurtosis | . | | | | 5.8136* | -0.8078 | -0.5753 | 6.5929* | -0.0543 |
| Replicate F | 0.000 | | | | 5.960 | 6.179 | 1.707 | 2.142 | 0.880 |
| Replicate Prob(F) | 1.0000 | | | | 0.0018 | 0.0014 | 0.1806 | 0.1092 | 0.4594 |
| Treatment F | 0.000 | | | | 1.353 | 3.448 | 1.003 | 1.254 | 15.186 |
| Treatment Prob(F) | 1.0000 | | | | 0.2200 | 0.0009 | 0.4688 | 0.2753 | 0.0001 |

Pest Type
 W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop

Pest Code
 AMBTR, Ambrosia trifida, Giant ragweed = US
 SETFA, Setaria faberi, Giant foxtail = US
 ECHSS, Echinochloa sp., Barnyardgrass = US

Crop Code
 ZEAMX, BCOR, Zea mays, Corn = US

Part Rated
 PLOT = plot

Rating Type

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.
 Missing data estimates are included in columns: Yates=2,4
 Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

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PHYGEN = phytotoxicity - general / injury

Rating Unit

% = percent

Rating Timing

A1 = 1st Assessment According to Trial Schedule

ARM Action Codes

P = Rating scale of 0 to 100 (e.g. % control or injury)

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.
Missing data estimates are included in columns: Yates=2,4
Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.