

Purdue Weed Science

Effectiveness of PRE + POST and One Pass Early POST Programs

Trial ID: 18S-TPAC-CORN-05 Location: TPAC Trial Year: 2018
 Protocol ID: 18S-TPAC-CORN-05 Investigator: Dr. Bill Johnson
 Project ID: Anthem Maxx Study Director: Dustin Johnson
 Sponsor Contact: N. Hustedde - FMC

General Trial Information

Study Director: Dustin Johnson **Title:** Research Associate
Investigator: Dr. Bill Johnson **Title:** Professor

Discipline: H herbicide

Trial Location

City: Lafayette **Country:** USA United States
State/Prov.: Indiana
Postal Code: 47909

Latitude of LL Corner °: 40.29174 N
Longitude of LL Corner °: 86.9068 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:** wgj@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
Depth, Unit: 1.5 IN
Row Spacing, Unit: 30 IN

Planting Date: Apr-27-2018
Planting Method: PLANTD planted
Planting Equipment: PP plot planter
Emergence Date: May-7-2018

Harvested Width, Unit: 5 FT
Harvested Length, Unit: 25 FT
% Standard Moisture: 15.5

Soil Temperature, Unit: 61 F
Soil Moisture: DRY dry

Pest Description

Pest 1 Type: W **Code:** AMBTR Ambrosia trifida
Common Name: Giant ragweed

Pest 2 Type: W **Code:** SETFA Setaria faberi
Common Name: Giant foxtail

Site and Design

Treated Plot Width: 10 FT **Site Type:** FIELD field
Treated Plot Length: 30 FT **Experimental Unit:** 1 PLOT plot
Treated Plot Area: 300 FT² **Treatments:** 9 **Tillage Type:** CONTIL conventional-till
Replications: 4 **Study Design:** RACOB� Randomized Complete Block (RCB)

Field Prep./Maintenance:

4/26/18-Farm Applied 180 lbs of N applied as UAN 28-0-0.

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Soil Description

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

Application Description

| | A | B | C |
|--------------------------------|-------------|-------------|-------------|
| Application Date: | Apr-27-2018 | May-18-2018 | May-25-2018 |
| Appl. Start Time: | 3:15 PM | 4:00 PM | 2:50 PM |
| Appl. Stop Time: | 3:35 PM | 4:15 PM | 2:55 PM |
| Application Method: | SPRAY | SPRAY | SPRAY |
| Application Timing: | PREPRE | POSPOS | POSPOS |
| Application Placement: | BROADC | BROADC | BROADC |
| Applied By: | T. CAMPBELL | D. JOHNSON | D. JOHNSON |
| Air Temperature, Unit: | 67 F | 82 F | 88 F |
| % Relative Humidity: | 22 | 34 | 35 |
| Wind Velocity, Unit: | 10 MPH | 10 MPH | 6 MPH |
| Wind Direction: | WNW | ENE | SW |
| Dew Presence (Y/N): | N no | N no | N no |
| Soil Temperature, Unit: | 61 F | 74 F | 72 F |
| Soil Moisture: | DRY | DRY | DRY |
| % Cloud Cover: | 0 | 80 | 20 |

Crop Stage At Each Application

| | A | B | C |
|---------------------------------|------------|------------|------------|
| Crop 1 Code, BBCH Scale: | ZEAMX BCOR | ZEAMX BCOR | ZEAMX BCOR |
| Stage Scale Used: | BBCH | BBCH | BBCH |
| Stage Majority, Percent: | 00 | 12 | 14 |
| Stage Minimum, Percent: | 00 | 12 | 14 |
| Stage Maximum, Percent: | 00 | 13 | 14 |
| Height, Unit: | | 4 IN | 9.5 IN |
| Height Minimum, Maximum: | | 3 5 | 5 11 |

Pest Stage At Each Application

| | A | B | C |
|----------------------------------|---------|---------|---------|
| Pest 1 Code, Type, Scale: | AMBTR W | AMBTR W | AMBTR W |
| Stage Majority, Percent: | | 14 | 14 |
| Stage Minimum, Percent: | | 09 | 10 |
| Stage Maximum, Percent: | | 19 | 19 |
| Height, Unit: | | 2 IN | 3.5 IN |
| Height Minimum, Maximum: | | 0.25 5 | 0.25 10 |
| Density, Unit: | | 8 FT2 | 12 FT2 |
| Pest 2 Code, Type, Scale: | SETFA W | SETFA W | SETFA W |
| Stage Majority, Percent: | | 12 | 12 |
| Stage Minimum, Percent: | | 09 | 10 |
| Stage Maximum, Percent: | | 13 | 13 |
| Height, Unit: | | 2 IN | 1 IN |
| Height Minimum, Maximum: | | 0.5 3 | 0.25 3 |
| Density, Unit: | | 2 FT2 | 1 FT2 |

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Application Equipment

| | A | B | C |
|----------------------------------|--------------|--------------|--------------|
| Appl. Equipment: | CO2 BACKPACK | CO2 BACKPACK | CO2 BACKPACK |
| Equipment Type: | BACSPR | BACSPR | BACSPR |
| Operation Pressure, Unit: | 29 PSI | 29 PSI | 18 PSI |
| Nozzle Type: | TTI | TTI | FLAFXR |
| Nozzle Size: | 110015 | 110015 | XR11002 |
| Nozzle Spacing, Unit: | 15 IN | 15 IN | 15 IN |
| Nozzles/Row: | 8 | 8 | 8 |
| Boom Length, Unit: | 10 FT | 10 FT | 10 FT |
| Boom Height, Unit: | 17 IN | 17 IN | 17 IN |
| Ground Speed, Unit: | 3 MPH | 3 MPH | 3 MPH |
| Carrier: | WATER | WATER | WATER |
| Spray Volume, Unit: | 15 GAL/AC | 15 GAL/AC | 15 GAL/AC |
| Mix Size, Unit: | | 1.8 L | 1.8 L |
| Propellant: | | | COMCO2 |

Date By Notes

May-25-2018 D. JOHNSON Untreat check 603 may have been sprayed.

Jun-8-2018 D. JOHNSON Evening storm brought hail and slight damage to crop occurred.

Purdue Weed Science

Effectiveness of PRE + POST and One Pass Early POST Programs

Trial ID: 18S-TPAC-CORN-05
 Protocol ID: 18S-TPAC-CORN-05
 Project ID: Anthem Maxx

Location: TPAC Trial Year: 2018
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: N. Hustedde - FMC

| Pest Type | | W Weed | W Weed | | W Weed | W Weed |
|-------------------------------|-------------|---------------|---------------|-------------|---------------|---------------|
| Pest Code | | AMBTR | SETFA | | AMBTR | SETFA |
| Pest Name | | Giant ragweed | Giant foxtail | | Giant ragweed | Giant foxtail |
| 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-17-2018 | May-17-2018 | May-17-2018 | May-25-2018 | May-25-2018 | May-25-2018 |
| Rating Type | PHYGEN | CONTROL | CONTROL | PHYGEN | 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 | A2 | A2 | A2 |
| Days After First/Last Applic. | 20 20 | 20 20 | 20 20 | 28 7 | 28 7 | 28 7 |
| Trt-Eval Interval | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A |
| Days After Emergence | 10 DE-1 | 10 DE-1 | 10 DE-1 | 18 DE-1 | 18 DE-1 | 18 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 |
| 1 UNTREATED CHECK | | | 0 | 0 | 0 | 0 |
| 2 ANTHEM MAXX | 4 oz/a | A | 0 - | 54 - | 78 bc | 0 c |
| AATREX | 2 pt/a | A | | | | |
| CALLISTO | 3 fl oz/a | C | | | | |
| AATREX | 2 pt/a | C | | | | |
| ROUNDUP POWERMAX | 32 fl oz/a | C | | | | |
| N-PAK AMS | 2.5 % v/v | C | | | | |
| 3 ANTHEM MAXX | 4 oz/a | A | 0 - | 69 - | 71 c | 0 c |
| CALLISTO | 5 fl oz/a | A | | | | |
| AATREX | 2 pt/a | A | | | | |
| STATUS | 3 oz/a | C | | | | |
| AATREX | 2 pt/a | C | | | | |
| ROUNDUP POWERMAX | 32 fl oz/a | C | | | | |
| COC | 1 % v/v | C | | | | |
| N-PAK AMS | 2.5 % v/v | C | | | | |
| 4 ANTHEM MAXX | 4 oz/a | A | 0 - | 70 - | 85 ab | 0 c |
| CALLISTO | 6 fl oz/a | A | | | | |
| AATREX | 4 pt/a | A | | | | |
| 5 ACURON | 3 qt/a | A | 0 - | 80 - | 91 a | 0 c |
| 6 RESICORE | 2.75 qt/a | A | 0 - | 71 - | 94 a | 0 c |
| 7 ANTHEM MAXX | 4 oz/a | B | | | | 2 b |
| CALLISTO | 3 fl oz/a | B | | | | |
| AATREX | 2 pt/a | B | | | | |
| ROUNDUP POWERMAX | 32 fl oz/a | B | | | | |
| N-PAK AMS | 2.5 % v/v | B | | | | |
| 8 HALEX GT | 3.6 pt/a | B | | | | 0 c |
| AATREX | 2 pt/a | B | | | | |
| ACTIVATOR 90 NIS | 0.25 % v/v | B | | | | |
| N-PAK AMS | 2.5 % v/v | B | | | | |

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.

Untreated treatment(s) 1 excluded from analysis.

Missing data estimates are included in columns: Yates=12,15,18,20,21,22,23

Could not calculate LSD (% mean diff) for columns 1,11 because error mean square = 0.

Purdue Weed Science

| Pest Type | | W Weed AMBTR | W Weed SETFA | | W Weed AMBTR | W Weed SETFA |
|-------------------------------|-------------------|-----------------|-----------------|-------------|-----------------|-----------------|
| Pest Code | | Giant ragweed | Giant foxtail | | Giant ragweed | Giant foxtail |
| Pest Name | | | | | | |
| 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-17-2018 | May-17-2018 | May-17-2018 | May-25-2018 | May-25-2018 | May-25-2018 |
| Rating Type | PHYGEN | CONTROL | CONTROL | PHYGEN | 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 | A2 | A2 | A2 |
| Days After First/Last Applic. | 20 20 | 20 20 | 20 20 | 28 7 | 28 7 | 28 7 |
| Trt-Eval Interval | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A |
| Days After Emergence | 10 DE-1 | 10 DE-1 | 10 DE-1 | 18 DE-1 | 18 DE-1 | 18 DE-1 |
| ARM Action Codes | P | P | P | P | P | P |
| Number of Decimals | 0 | 0 | 0 | 0 | 0 | 0 |
| Trt Treatment No. Name | Rate Rate Unit | Appl Code | | | | |
| | | | 1 | 2 | 3 | 4 |
| | | | | | | 4 a |
| | | | | | | 93 a |
| | | | | | | 100 a |
| 9 ACURON FLEXI | 2 qt/a B | | | | | |
| ROUNDUP POWERMAX | 32 fl oz/a B | | | | | |
| N-PAK AMS | 2.5 % v/v B | | | | | |
| LSD P=.05 | . | 17.5 | 11.3 | 1.3 | 11.4 | 15.8 |
| Standard Deviation | 0.0 | 11.3 | 7.3 | 0.9 | 7.8 | 10.8 |
| CV | 0.0 | 16.49 | 8.77 | 123.91 | 10.44 | 12.59 |
| Levene's F | 0.00 | 1.803 | 1.469 | 5.825 | 1.287 | 2.614 |
| Levene's Prob(F) | 0.00* | 0.181 | 0.261 | 0.001* | 0.298 | 0.037* |
| Skewness | . | -1.0532* | -0.78 | 2.1514* | -0.6091 | -0.9068* |
| Kurtosis | . | 0.3624 | -0.7399 | 3.4236* | -0.7336 | 0.0203 |
| Replicate F | 0.000 | 0.943 | 4.842 | 1.720 | 2.799 | 2.164 |
| Replicate Prob(F) | 1.0000 | 0.4503 | 0.0197 | 0.1934 | 0.0651 | 0.1225 |
| Treatment F | 0.000 | 2.796 | 6.544 | 10.036 | 26.140 | 6.145 |
| Treatment Prob(F) | 1.0000 | 0.0749 | 0.0049 | 0.0001 | 0.0001 | 0.0005 |

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Could not calculate LSD (% mean diff) for columns 1,11 because error mean square = 0.

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| Trt No. | Treatment Name | Rate | Appl Unit | Code | 7 | 8 | 9 | 10 | 11 | 12 |
|---------|------------------|------------|-----------|------|-----|------|-------|-------|-----|-------|
| 1 | UNTREATED CHECK | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | ANTHEM MAXX | 4 oz/a | A | | 0 b | 95 a | 99 a | 97 - | 0 - | 97 a |
| | AATREX | 2 pt/a | A | | | | | | | |
| | CALLISTO | 3 fl oz/a | C | | | | | | | |
| | AATREX | 2 pt/a | C | | | | | | | |
| | ROUNDUP POWERMAX | 32 fl oz/a | C | | | | | | | |
| | N-PAK AMS | 2.5 % v/v | C | | | | | | | |
| 3 | ANTHEM MAXX | 4 oz/a | A | | 0 b | 97 a | 97 a | 91 - | 0 - | 98 a |
| | CALLISTO | 5 fl oz/a | A | | | | | | | |
| | AATREX | 2 pt/a | A | | | | | | | |
| | STATUS | 3 oz/a | C | | | | | | | |
| | AATREX | 2 pt/a | C | | | | | | | |
| | ROUNDUP POWERMAX | 32 fl oz/a | C | | | | | | | |
| | COC | 1 % v/v | C | | | | | | | |
| | N-PAK AMS | 2.5 % v/v | C | | | | | | | |
| 4 | ANTHEM MAXX | 4 oz/a | A | | 0 b | 60 b | 66 c | 86 - | 0 - | 60 b |
| | CALLISTO | 6 fl oz/a | A | | | | | | | |
| | AATREX | 4 pt/a | A | | | | | | | |
| 5 | ACURON | 3 qt/a | A | | 0 b | 60 b | 66 c | 90 - | 0 - | 51 bc |
| 6 | RESICORE | 2.75 qt/a | A | | 0 b | 60 b | 85 b | 91 - | 0 - | 43 c |
| 7 | ANTHEM MAXX | 4 oz/a | B | | 0 b | 95 a | 100 a | 100 - | 0 - | 92 a |
| | CALLISTO | 3 fl oz/a | B | | | | | | | |
| | AATREX | 2 pt/a | B | | | | | | | |
| | ROUNDUP POWERMAX | 32 fl oz/a | B | | | | | | | |
| | N-PAK AMS | 2.5 % v/v | B | | | | | | | |
| 8 | HALEX GT | 3.6 pt/a | B | | 0 b | 96 a | 100 a | 100 - | 0 - | 90 a |
| | AATREX | 2 pt/a | B | | | | | | | |
| | ACTIVATOR 90 NIS | 0.25 % v/v | B | | | | | | | |
| | N-PAK AMS | 2.5 % v/v | B | | | | | | | |

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Untreated treatment(s) 1 excluded from analysis.

Missing data estimates are included in columns: Yates=12,15,18,20,21,22,23

Could not calculate LSD (% mean diff) for columns 1,11 because error mean square = 0.

Purdue Weed Science

| Pest Type | | W Weed | W Weed | W Weed | | W Weed | |
|-------------------------------|----------------|---------------|---------------|---------------|------------|---------------|------|
| Pest Code | | AMBTR | SETFA | ECHSS | | AMBTR | |
| Pest Name | | 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-31-2018 | May-31-2018 | May-31-2018 | May-31-2018 | Jun-5-2018 | Jun-5-2018 | |
| Rating Type | PHYGEN | CONTROL | CONTROL | CONTROL | PHYGEN | 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 | A3 | A3 | A3 | A3 | A4 | A4 | |
| Days After First/Last Applic. | 34 6 | 34 6 | 34 6 | 34 6 | 39 11 | 39 11 | |
| Trt-Eval Interval | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | |
| Days After Emergence | 24 DE-1 | 24 DE-1 | 24 DE-1 | 24 DE-1 | 29 DE-1 | 29 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 | 7 | 8 | 9 | 10 | 11 | 12 |
| 9 ACURON FLEXI | 2 qt/a B | 3 a | 94 a | 100 a | 100 - | 0 - | 91 a |
| ROUNDUP POWERMAX | 32 fl oz/a B | | | | | | |
| N-PAK AMS | 2.5 % v/v B | | | | | | |
| LSD P=.05 | 1.5 | 14.5 | 10.8 | 11.5 | . | 9.9 | |
| Standard Deviation | 1.0 | 9.8 | 7.4 | 7.8 | 0.0 | 6.7 | |
| CV | 326.6 | 12.01 | 8.26 | 8.26 | 0.0 | 8.62 | |
| Levene's F | | 3.206 | 7.806 | 1.447 | 0.00 | 2.208 | |
| Levene's Prob(F) | | 0.015* | 0.001* | 0.233 | 0.00* | 0.072 | |
| Skewness | 3.795* | -1.1174* | -1.1447* | -1.7414* | . | -1.0104* | |
| Kurtosis | 13.2267* | 0.1556 | -0.0739 | 1.9941* | . | -0.2921 | |
| Replicate F | 1.000 | 2.137 | 0.535 | 2.553 | 0.000 | 5.358 | |
| Replicate Prob(F) | 0.4123 | 0.1259 | 0.6634 | 0.0829 | 1.0000 | 0.0071 | |
| Treatment F | 3.000 | 13.662 | 16.503 | 1.918 | 0.000 | 44.509 | |
| Treatment Prob(F) | 0.0239 | 0.0001 | 0.0001 | 0.1173 | 1.0000 | 0.0001 | |

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Missing data estimates are included in columns: Yates=12,15,18,20,21,22,23

Could not calculate LSD (% mean diff) for columns 1,11 because error mean square = 0.

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| Pest Type Pest Code Pest Name | W Weed SETFA Giant foxtail | W Weed ECHSS Barnyardgrass | W Weed AMBTR Giant ragweed | W Weed SETFA Giant foxtail | W Weed ECHSS Barnyardgrass | W Weed AMBTR Giant ragweed | | |
|---|---|--|---|---|---|---|-------|------|
| Crop Code Crop Name Part Rated Rating Date Rating Type Rating Unit Number of Subsamples Assessed By | ZEAMX Corn PLOT - Jun-5-2018 CONTROL % 1 D. JOHNSON | ZEAMX Corn PLOT - Jun-5-2018 CONTROL % 1 D. JOHNSON | ZEAMX Corn PLOT - Jun-13-2018 CONTROL % 1 D. JOHNSON | ZEAMX Corn PLOT - Jun-13-2018 CONTROL % 1 D. JOHNSON | ZEAMX Corn PLOT - Jun-13-2018 CONTROL % 1 D. JOHNSON | ZEAMX Corn PLOT - Jun-22-2018 CONTROL % 1 D. JOHNSON | | |
| Rating Timing Days After First/Last Applic. Trt-Eval Interval Days After Emergence ARM Action Codes Number of Decimals | A4 39 11 14 DA-A 29 DE-1 P 0 | A4 39 11 14 DA-A 29 DE-1 P 0 | A5 47 19 14 DA-A 37 DE-1 P 0 | A5 47 19 14 DA-A 37 DE-1 P 0 | A5 47 19 14 DA-A 37 DE-1 P 0 | A6 56 28 14 DA-A 46 DE-1 P 0 | | |
| Trt Treatment No. Name | Rate Rate Unit | Appl Code | 13 | 14 | 15 | 16 | 17 | 18 |
| 1 UNTREATED CHECK | | | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 ANTHEM MAXX AATREX CALLISTO AATREX ROUNDUP POWERMAX N-PAK AMS | 4 oz/a A 2 pt/a A 3 fl oz/a C 2 pt/a C 32 fl oz/a C 2.5 % v/v C | | 100 a | 100 a | 90 ab | 100 a | 100 - | 80 a |
| 3 ANTHEM MAXX CALLISTO AATREX STATUS AATREX ROUNDUP POWERMAX COC N-PAK AMS | 4 oz/a A 5 fl oz/a A 2 pt/a A 3 oz/a C 2 pt/a C 32 fl oz/a C 1 % v/v C 2.5 % v/v C | | 100 a | 100 a | 94 a | 100 a | 100 - | 88 a |
| 4 ANTHEM MAXX CALLISTO AATREX | 4 oz/a A 6 fl oz/a A 4 pt/a A | | 66 c | 91 b | 53 c | 58 c | 91 - | 43 c |
| 5 ACURON | 3 qt/a A | | 63 c | 98 ab | 41 cd | 49 c | 100 - | 39 c |
| 6 RESICORE | 2.75 qt/a A | | 84 b | 91 b | 30 d | 80 b | 95 - | 20 d |
| 7 ANTHEM MAXX CALLISTO AATREX ROUNDUP POWERMAX N-PAK AMS | 4 oz/a B 3 fl oz/a B 2 pt/a B 32 fl oz/a B 2.5 % v/v B | | 100 a | 100 a | 85 ab | 100 a | 100 - | 76 a |
| 8 HALEX GT AATREX ACTIVATOR 90 NIS N-PAK AMS | 3.6 pt/a B 2 pt/a B 0.25 % v/v B 2.5 % v/v B | | 100 a | 100 a | 77 b | 100 a | 100 - | 60 b |

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Untreated treatment(s) 1 excluded from analysis.

Missing data estimates are included in columns: Yates=12,15,18,20,21,22,23

Could not calculate LSD (% mean diff) for columns 1,11 because error mean square = 0.

Purdue Weed Science

| Pest Type | W Weed | W Weed | W Weed | W Weed | W Weed | W Weed | | |
|-------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|-------|------|
| Pest Code | SETFA | ECHSS | AMBTR | SETFA | ECHSS | AMBTR | | |
| Pest Name | Giant foxtail | Barnyardgrass | 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 | Jun-5-2018 | Jun-5-2018 | Jun-13-2018 | Jun-13-2018 | Jun-13-2018 | Jun-22-2018 | | |
| Rating Type | CONTROL | 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 | A4 | A4 | A5 | A5 | A5 | A6 | | |
| Days After First/Last Applic. | 39 11 | 39 11 | 47 19 | 47 19 | 47 19 | 56 28 | | |
| Trt-Eval Interval | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | | |
| Days After Emergence | 29 DE-1 | 29 DE-1 | 37 DE-1 | 37 DE-1 | 37 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 | 13 | 14 | 15 | 16 | 17 | 18 |
| 9 ACURON FLEXI | 2 qt/a B | | 100 a | 100 a | 87 ab | 100 a | 100 - | 82 a |
| ROUNDUP POWERMAX | 32 fl oz/a B | | | | | | | |
| N-PAK AMS | 2.5 % v/v B | | | | | | | |
| LSD P=.05 | 10.8 | 6.3 | 13.6 | 15.8 | 8.6 | 14.3 | | |
| Standard Deviation | 7.3 | 4.3 | 9.2 | 10.8 | 5.8 | 9.7 | | |
| CV | 8.26 | 4.41 | 13.26 | 12.55 | 5.92 | 15.95 | | |
| Levene's F | 11.559 | 8.816 | 0.662 | 12.94 | 1.966 | 2.291 | | |
| Levene's Prob(F) | 0.001* | 0.001* | 0.701 | 0.001* | 0.103 | 0.065 | | |
| Skewness | -1.1168* | -2.2467* | -0.9849* | -1.2817* | -4.1624* | -0.6817 | | |
| Kurtosis | -0.3595 | 4.3354* | -0.2499 | 0.2145 | 18.3238* | -0.8028 | | |
| Replicate F | 0.487 | 0.452 | 3.306 | 0.887 | 0.578 | 3.845 | | |
| Replicate Prob(F) | 0.6953 | 0.7188 | 0.0412 | 0.4639 | 0.6362 | 0.0263 | | |
| Treatment F | 19.537 | 3.387 | 28.055 | 15.845 | 1.317 | 25.984 | | |
| Treatment Prob(F) | 0.0001 | 0.0140 | 0.0001 | 0.0001 | 0.2910 | 0.0001 | | |

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.

Untreated treatment(s) 1 excluded from analysis.

Missing data estimates are included in columns: Yates=12,15,18,20,21,22,23

Could not calculate LSD (% mean diff) for columns 1,11 because error mean square = 0.

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| Pest Type Pest Code Pest Name | W Weed SETFA Giant foxtail | W Weed ECHSS Barnyardgrass | W Weed AMBTR Giant ragweed | W Weed SETFA Giant foxtail | W Weed ECHSS Barnyardgrass | | | |
|---|---|---|---|---|---|--|-------|----------|
| Crop Code Crop Name Part Rated Rating Date Rating Type Rating Unit Number of Subsamples Assessed By | ZEAMX Corn PLOT - Jun-22-2018 CONTROL % 1 D. JOHNSON | ZEAMX Corn PLOT - Jun-22-2018 CONTROL % 1 D. JOHNSON | ZEAMX Corn PLOT - Jul-19-2018 CONTROL % 1 D. JOHNSON | ZEAMX Corn PLOT - Jul-19-2018 CONTROL % 1 D. JOHNSON | ZEAMX Corn PLOT - Jul-19-2018 CONTROL % 1 D. JOHNSON | ZEAMX Corn PLOT - Oct-9-2018 YIELD lb/plot 1 D. JOHNSON | | |
| Rating Timing Days After First/Last Applic. Trt-Eval Interval Days After Emergence ARM Action Codes Number of Decimals | A6 56 28 14 DA-A 46 DE-1 P 0 | A6 56 28 14 DA-A 46 DE-1 P 0 | A7 83 55 14 DA-A 73 DE-1 P 0 | A7 83 55 14 DA-A 73 DE-1 P 0 | A7 83 55 14 DA-A 73 DE-1 P 0 | 165 137 123 DA-A 155 DE-1 P 1 | | |
| Trt Treatment No. Name | Rate Rate Unit | Appl Code | 19 | 20 | 21 | 22 | 23 | 24 |
| 1 UNTREATED CHECK | | | 0 | 0 | 0 | 0 | 0 | 3.8 |
| 2 ANTHEM MAXX AATREX CALLISTO AATREX ROUNDUP POWERMAX N-PAK AMS | 4 oz/a A 2 pt/a A 3 fl oz/a C 2 pt/a C 32 fl oz/a C 2.5 % v/v C | A | 100 a | 100 - | 71 b | 99 a | 99 - | 38.0 bcd |
| 3 ANTHEM MAXX CALLISTO AATREX STATUS AATREX ROUNDUP POWERMAX COC N-PAK AMS | 4 oz/a A 5 fl oz/a A 2 pt/a A 3 oz/a C 2 pt/a C 32 fl oz/a C 1 % v/v C 2.5 % v/v C | A | 100 a | 100 - | 89 a | 100 a | 100 - | 42.8 a |
| 4 ANTHEM MAXX CALLISTO AATREX | 4 oz/a A 6 fl oz/a A 4 pt/a A | A | 48 b | 99 - | 30 cd | 40 b | 97 - | 34.6 d |
| 5 ACURON | 3 qt/a A | A | 31 b | 100 - | 35 cd | 28 b | 100 - | 35.1 d |
| 6 RESICORE | 2.75 qt/a A | A | 44 b | 91 - | 22 d | 40 b | 90 - | 36.0 cd |
| 7 ANTHEM MAXX CALLISTO AATREX ROUNDUP POWERMAX N-PAK AMS | 4 oz/a B 3 fl oz/a B 2 pt/a B 32 fl oz/a B 2.5 % v/v B | B | 100 a | 100 - | 73 b | 98 a | 98 - | 41.8 ab |
| 8 HALEX GT AATREX ACTIVATOR 90 NIS N-PAK AMS | 3.6 pt/a B 2 pt/a B 0.25 % v/v B 2.5 % v/v B | B | 100 a | 100 - | 43 c | 98 a | 98 - | 38.4 a-d |

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.

Untreated treatment(s) 1 excluded from analysis.

Missing data estimates are included in columns: Yates=12,15,18,20,21,22,23

Could not calculate LSD (% mean diff) for columns 1,11 because error mean square = 0.

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| Pest Type | W Weed | W Weed | W Weed | W Weed | W Weed | | | |
|-------------------------------|---------------|---------------|---------------|---------------|---------------|------------|------|----------|
| Pest Code | SETFA | ECHSS | AMBTR | SETFA | ECHSS | | | |
| Pest Name | Giant foxtail | Barnyardgrass | Giant ragweed | Giant foxtail | Barnyardgrass | | | |
| 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 | Jun-22-2018 | Jun-22-2018 | Jul-19-2018 | Jul-19-2018 | Jul-19-2018 | Oct-9-2018 | | |
| Rating Type | CONTROL | CONTROL | CONTROL | CONTROL | CONTROL | YIELD | | |
| Rating Unit | % | % | % | % | % | lb/plot | | |
| 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 | A6 | A6 | A7 | A7 | A7 | | | |
| Days After First/Last Applic. | 56 28 | 56 28 | 83 55 | 83 55 | 83 55 | 165 137 | | |
| Trt-Eval Interval | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 14 DA-A | 123 DA-A | | |
| Days After Emergence | 46 DE-1 | 46 DE-1 | 73 DE-1 | 73 DE-1 | 73 DE-1 | 155 DE-1 | | |
| ARM Action Codes | P | P | P | P | P | P | | |
| Number of Decimals | 0 | 0 | 0 | 0 | 0 | 1 | | |
| Trt Treatment | Rate | Appl | | | | | | |
| No. Name | Rate Unit | Code | 19 | 20 | 21 | 22 | 23 | 24 |
| 9 ACURON FLEXI | 2 qt/a | B | 100 a | 100 - | 86 ab | 99 a | 99 - | 40.5 abc |
| ROUNDUP POWERMAX | 32 fl oz/a | B | | | | | | |
| N-PAK AMS | 2.5 % v/v | B | | | | | | |
| LSD P=.05 | 20.9 | 7.8 | 14.7 | 16.8 | 8.0 | 4.68 | | |
| Standard Deviation | 14.2 | 5.3 | 9.9 | 11.4 | 5.4 | 3.18 | | |
| CV | 18.25 | 5.37 | 17.71 | 15.21 | 5.54 | 8.29 | | |
| Levene's F | 8.651 | 1.78 | 2.71 | 11.621 | 0.948 | 3.161 | | |
| Levene's Prob(F) | 0.001* | 0.14 | 0.035* | 0.001* | 0.49 | 0.016* | | |
| Skewness | -1.0754* | -5.1545* | -0.1799 | -0.9052* | -3.9733* | -1.177* | | |
| Kurtosis | -0.3609 | 27.5462* | -1.3259 | -0.9787 | 18.4317* | 2.4016* | | |
| Replicate F | 2.030 | 0.889 | 4.647 | 0.411 | 1.358 | 2.283 | | |
| Replicate Prob(F) | 0.1404 | 0.4638 | 0.0134 | 0.7465 | 0.2841 | 0.1085 | | |
| Treatment F | 19.012 | 1.333 | 28.503 | 33.041 | 1.375 | 3.752 | | |
| Treatment Prob(F) | 0.0001 | 0.2862 | 0.0001 | 0.0001 | 0.2693 | 0.0086 | | |

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.

Untreated treatment(s) 1 excluded from analysis.

Missing data estimates are included in columns: Yates=12,15,18,20,21,22,23

Could not calculate LSD (% mean diff) for columns 1,11 because error mean square = 0.

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| | | | |
|-------------------------------|---|---|---------------------|
| Pest Type | | | |
| Pest Code | | | |
| Pest Name | | | |
| Crop Code | ZEAMX | ZEAMX | |
| Crop Name | Corn | Corn | |
| Part Rated | PLOT - | PLOT - | |
| Rating Date | Oct-9-2018 | Oct-9-2018 | |
| Rating Type | MOICON | YIELD | |
| Rating Unit | % | BU | |
| Number of Subsamples | 1 | 1 | |
| Assessed By | D. JOHNSON | D. JOHNSON | |
| Rating Timing | | | |
| Days After First/Last Applic. | 165 137 | 165 137 | |
| Trt-Eval Interval | 123 DA-A | 123 DA-A | |
| Days After Emergence | 155 DE-1 | 155 DE-1 | |
| ARM Action Codes | P | TY1 | |
| Number of Decimals | 1 | 1 | |
| Trt No. | Treatment | Rate | Appl |
| | Name | Rate Unit | Code |
| | | | |
| | | 25 | 26 |
| 1 | UNTREATED CHECK | 15.0 | 23.5 |
| 2 | ANTHEM MAXX AATREX CALLISTO AATREX ROUNDUP POWERMAX N-PAK AMS | 4 oz/a A 2 pt/a A 3 fl oz/a C 2 pt/a C 32 fl oz/a C 2.5 % v/v C | 15.4 - 236.8 abc |
| 3 | ANTHEM MAXX CALLISTO AATREX STATUS AATREX ROUNDUP POWERMAX COC N-PAK AMS | 4 oz/a A 5 fl oz/a A 2 pt/a A 3 oz/a C 2 pt/a C 32 fl oz/a C 1 % v/v C 2.5 % v/v C | 15.8 - 265.4 a |
| 4 | ANTHEM MAXX CALLISTO AATREX | 4 oz/a A 6 fl oz/a A 4 pt/a A | 15.5 - 215.3 c |
| 5 | ACURON | 3 qt/a A | 14.8 - 220.5 c |
| 6 | RESICORE | 2.75 qt/a A | 15.3 - 224.5 bc |
| 7 | ANTHEM MAXX CALLISTO AATREX ROUNDUP POWERMAX N-PAK AMS | 4 oz/a B 3 fl oz/a B 2 pt/a B 32 fl oz/a B 2.5 % v/v B | 15.3 - 260.9 a |
| 8 | HALEX GT AATREX ACTIVATOR 90 NIS N-PAK AMS | 3.6 pt/a B 2 pt/a B 0.25 % v/v B 2.5 % v/v B | 15.5 - 238.7 abc |

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.
 Untreated treatment(s) 1 excluded from analysis.
 Missing data estimates are included in columns: Yates=12,15,18,20,21,22,23
 Could not calculate LSD (% mean diff) for columns 1,11 because error mean square = 0.

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| | | | |
|-------------------------------|--------------|------------|-----------------|
| Pest Type | | | |
| Pest Code | | | |
| Pest Name | | | |
| Crop Code | ZEAMX | ZEAMX | |
| Crop Name | Corn | Corn | |
| Part Rated | PLOT - | PLOT - | |
| Rating Date | Oct-9-2018 | Oct-9-2018 | |
| Rating Type | MOICON | YIELD | |
| Rating Unit | % | BU | |
| Number of Subsamples | 1 | 1 | |
| Assessed By | D. JOHNSON | D. JOHNSON | |
| Rating Timing | | | |
| Days After First/Last Applic. | 165 137 | 165 137 | |
| Trt-Eval Interval | 123 DA-A | 123 DA-A | |
| Days After Emergence | 155 DE-1 | 155 DE-1 | |
| ARM Action Codes | P | TY1 | |
| Number of Decimals | 1 | 1 | |
| Trt Treatment | Rate | Appl | |
| No. Name | Rate Unit | Code | |
| | | | 25 26 |
| 9 ACURON FLEXI | 2 qt/a B | | 15.3 - 252.7 ab |
| ROUNDUP POWERMAX | 32 fl oz/a B | | |
| N-PAK AMS | 2.5 % v/v B | | |
| LSD P=.05 | 0.65 | 29.46 | |
| Standard Deviation | 0.44 | 20.04 | |
| CV | 2.89 | 8.37 | |
| Levene's F | 0.606 | 3.231 | |
| Levene's Prob(F) | 0.745 | 0.015* | |
| Skewness | 1.6334* | -1.1279* | |
| Kurtosis | 5.9559* | 2.1856* | |
| Replicate F | 1.197 | 2.276 | |
| Replicate Prob(F) | 0.3352 | 0.1094 | |
| Treatment F | 1.923 | 3.534 | |
| Treatment Prob(F) | 0.1164 | 0.0115 | |

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
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 Untreated treatment(s) 1 excluded from analysis.
 Missing data estimates are included in columns: Yates=12,15,18,20,21,22,23
 Could not calculate LSD (% mean diff) for columns 1,11 because error mean square = 0.

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Effectiveness of PRE + POST and One Pass Early POST Programs

Trial ID: 18S-TPAC-CORN-05
Protocol ID: 18S-TPAC-CORN-05
Project ID: Anthem Maxx

Location: TPAC Trial Year: 2018
Investigator: Dr. Bill Johnson
Study Director: Dustin Johnson
Sponsor Contact: N. Hustedde - FMC

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

PHYGEN = phytotoxicity - general / injury

YIELD = yield

MOICON = moisture content

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

Rating Timing

A1 = 1st Assessment According to Trial Schedule

A2 = 2nd Assessment According to trial Schedule

A3 = 3rd Assessment According to Trial Schedule

A4 = 4th Assessment According to Trial Schedule

A5 = 5th Assessment According to Trial Schedule

A6 = 6th Assessment according to Trial Schedule

A7 = 7th Assessment According to Trial Schedule

ARM Action Codes

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

TY1 = $6.222857 \cdot [24] \cdot (100 - [25]) / 84.5$