

Ohio State University
Horticulture and Crop Science

POST GLYPHOSATE TIMING IN ROUNDUP READY CORN

Trial ID: 08RRCTIME2 Study Dir.: Anthony F. Dobbels
Location: WESTERN BRANCH F-7 Investigator: Dr. Mark M. Loux

GENERAL TRIAL INFORMATION

Study Director: Anthony F. Dobbels
Affiliation: OSU
Investigator: Dr. Mark M. Loux
Affiliation: OSU

TRIAL LOCATION

State/Prov.: Ohio Trial Status: yield
Country: USA Initiation Date: Apr/01/2007
Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

| Weed Code | Common Name | Scientific Name |
|-----------|------------------------|--------------------------------|
| 1. SETFA | Giant foxtail | Setaria faberi |
| 2. IPOHE | Ivyleaf morningglory | Ipomoea hederacea |
| 3. ABUTH | Velvetleaf | Abutilon theophrasti |
| 4. POLPY | Pennsylvania smartweed | Polygonum pensylvanicum |
| 5. AMBTR | Giant ragweed | Ambrosia trifida |
| 6. CHEAL | Common lambsquarters | Chenopodium album |
| 7. AMBEL | Common ragweed | Ambrosia artemisiifolia elatio |
| 8. AMARE | Redroot pigweed | Amaranthus retroflexus |

Crop 1: ZEAMX CORN, FIELD Variety: PIONEER 33N12
Planting Date: Apr/24/2008 Planting Method: JOHN DEERE 7200
Rate: 32097 SEED/A Depth: 1.5 IN
Row Spacing: 30 IN Seed Bed: CONVENTIONAL

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 40 FT Reps: 4
Tillage Type: CONVENTIONAL Study Design: RANDOMIZED COMPLETE BLOCK

SOIL DESCRIPTION

% OM: 3 Texture: SILTY CLAY LOAM
pH: 6.7 Soil Name: KOKOMO
CEC: 24.6 Fert. Level: GOOD

Overall Moisture Conditions: POOR

APPLICATION DESCRIPTION

| | A | B | C | D |
|----------------------|-------------|-------------|-------------|-------------|
| Application Date: | Apr/24/2008 | Jun/02/2008 | Jun/08/2008 | Jun/17/2008 |
| Time of Day: | 11:00 A.M. | 9:30 A.M. | 7:30 A.M. | 9:00 A.M. |
| Application Method: | SPRAY | SPRAY | SPRAY | SPRAY |
| Application Timing: | PRE | PRE | POST | LPO |
| Applic. Placement: | BROADCAST | BROADCAST | BROADCAST | BROADCAST |
| Air Temp., Unit: | 62 F | 73 F | 73 F | 60 F |
| % Relative Humidity: | 39 | 67 | 81 | 50 |
| Wind Velocity, Unit: | 8 E | 5 SE | 7 SW | 8 WNW |
| Soil Temp., Unit: | 54 F | 65 F | 69 F | 60 F |
| Soil Moisture: | DRY/MOIST | DRY/MOIST | MOIST/WET | DRY/MOIST |
| % Cloud Cover: | 2 | 2 | 7 | 35 |

CROP STAGE AT EACH APPLICATION

| | A | B | C | D |
|---------------------|-------|----------|----------|----------|
| Crop 1 Code, Stage: | ZEAMX | ZEAMX V4 | ZEAMX V6 | ZEAMX V8 |
| Stage Scale: | DESC | DESC | DESC | DESC |
| Height, Unit: | 10 IN | 23 IN | 40 IN | IN |

Ohio State University
Horticulture and Crop Science

WEED STAGE AT EACH APPLICATION

| | A | B | C | D |
|---------------------|-------|-------|-------------|-------|
| Weed 1 Code, Stage: | SETFA | SETFA | SETFA 1-6" | SETFA |
| Stage Scale: | | | 1-6 LVS | |
| Weed 2 Code, Stage: | IPOHE | IPOHE | IPOHE 1-6" | IPOHE |
| Stage Scale: | | | 2-6 LVS | |
| Weed 3 Code, Stage: | ABUTH | ABUTH | ABUTH 1-6" | ABUTH |
| Stage Scale: | | | 2-4 LVS | |
| Weed 4 Code, Stage: | POLPY | POLPY | POLPY 1-6" | POLPY |
| Stage Scale: | | | 2-4 LVS | |
| Weed 5 Code, Stage: | AMBTR | AMBTR | AMBTR 1-24" | AMBTR |
| Stage Scale: | | | 2->12 LVS | |
| Weed 6 Code, Stage: | CHEAL | CHEAL | CHEAL 1-6" | CHEAL |
| Stage Scale: | | | 2-10 LVS | |
| Weed 7 Code, Stage: | AMBEL | AMBEL | AMBEL 1-6" | AMBEL |
| Stage Scale: | | | 2-4 LVS | |
| Weed 8 Code, Stage: | AMARE | AMARE | AMARE 1-6" | AMARE |
| Stage Scale: | | | 2-4 LVS | |

APPLICATION EQUIPMENT

| | A | | B | | C | | D | |
|-----------------------|----------|-----|----------|-----|----------|-----|----------|-----|
| Appl. Equipment: | BACKPACK | | BACKPACK | | BACKPACK | | BACKPACK | |
| Operating Pressure: | 53 | | 53 | | 53 | | 53 | |
| Nozzle Type: | DG | | DG | | DG | | DG | |
| Nozzle Size: | 11002 | | 11002 | | 11002 | | 11002 | |
| Nozzle Spacing, Unit: | 18 | IN | 18 | IN | 18 | IN | 18 | IN |
| Ground Speed, Unit: | 3 | MPH | 3 | MPH | 3 | MPH | 3 | MPH |
| Carrier: | WATER | | WATER | | WATER | | WATER | |
| Spray Volume, Unit: | 20 | GPA | 20 | GPA | 20 | GPA | 20 | GPA |
| Propellant: | CO2 | | CO2 | | CO2 | | CO2 | |

Ohio State University
Horticulture and Crop Science

POST GLYPHOSATE TIMING IN ROUNDUP READY CORN

Trial ID: 08RRCTIME2 Study Dir.: Anthony F. Dobbels
Location: WESTERN BRANCH F-7 Investigator: Dr. Mark M. Loux

| Weed Code | Rating Data Type | Rating Unit | Rating Date | Trt-Eval Interval | # Subsamples, Dec. | SETFA CONTROL PERCENT | AMBTR CONTROL PERCENT | AMBEL CONTROL PERCENT | CHEAL CONTROL PERCENT | AMARE CONTROL PERCENT | ABUTH CONTROL PERCENT | SETFA CONTROL PERCENT |
|--------------------|------------------------|--------------|-------------------|-------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | | | | | | AT APP 0 | AT APP 0 | AT APP 0 | AT APP 0 | AT APP 0 | AT APP 0 | Jul/07/2008 20 DA-D 0 |
| Trt No. | Treatment Name | Product Rate | Product Rate Unit | Grow Stg | Appl Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | EPO | B | 0 d | 0 d | 0 c | 0 c | 0 c | 0 b | 59 cd |
| 2 | ATRAZINE | 1 qt/a | | PRE | A | 58 b | 93 a | 95 a | 81 b | 99 a | 100 a | 53 d |
| 2 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | EPO | B | | | | | | | |
| 3 | BICEP II MAGNUM | 1.2 qt/a | | PRE | A | 88 a | 96 a | 97 a | 94 a | 100 a | 100 a | 65 c |
| 3 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | EPO | B | | | | | | | |
| 4 | LEXAR | 3 qt/a | | PRE | A | 98 a | 100 a | 100 a | 100 a | 100 a | 100 a | 73 b |
| 4 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | EPO | B | | | | | | | |
| 5 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | MPO | C | 0 d | 0 d | 0 c | 0 c | 0 c | 0 b | 76 b |
| 6 | ATRAZINE | 1 qt/a | | PRE | A | 49 bc | 55 b | 78 ab | 100 a | 90 a | 100 a | 77 b |
| 6 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | MPO | C | | | | | | | |
| 7 | BICEP II MAGNUM | 1.2 qt/a | | PRE | A | 84 a | 66 b | 65 b | 98 a | 100 a | 100 a | 75 b |
| 7 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | MPO | C | | | | | | | |
| 8 | LEXAR | 3 qt/a | | PRE | A | 92 a | 95 a | 99 a | 100 a | 100 a | 100 a | 79 b |
| 8 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | MPO | C | | | | | | | |
| 9 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | LPO | D | 0 d | 0 d | 0 c | 0 c | 0 c | 0 b | 98 a |
| 10 | ATRAZINE | 1 qt/a | | PRE | A | 33 c | 28 c | 80 ab | 96 a | 71 b | 93 a | 99 a |
| 10 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | LPO | D | | | | | | | |
| 11 | BICEP II MAGNUM | 1.2 qt/a | | PRE | A | 81 a | 69 b | 70 b | 98 a | 84 ab | 94 a | 99 a |
| 11 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | LPO | D | | | | | | | |
| 12 | LEXAR | 3 qt/a | | PRE | A | 91 a | 91 a | 100 a | 100 a | 85 ab | 98 a | 100 a |
| 12 | ROUNDUP WEATHERMAX AMS | 21.3 oz/a | 4 qt/a | LPO | D | | | | | | | |
| LSD (P=.05) | | | | | | 17.9 | 14.0 | 17.6 | 8.0 | 11.7 | 5.2 | 6.5 |
| Standard Deviation | | | | | | 12.4 | 9.7 | 12.2 | 5.6 | 8.1 | 3.6 | 4.5 |
| CV | | | | | | 22.07 | 16.8 | 18.66 | 7.72 | 11.73 | 4.92 | 5.67 |
| Bartlett's X2 | | | | | | 30.893 | 15.162 | 39.047 | 6.848 | 14.718 | 4.974 | 15.686 |
| P(Bartlett's X2) | | | | | | 0.001* | 0.034* | 0.001* | 0.144 | 0.005* | 0.083 | 0.109 |
| Replicate F | | | | | | 3.045 | 4.134 | 5.552 | 2.475 | 0.202 | 0.619 | 4.138 |
| Replicate Prob(F) | | | | | | 0.0424 | 0.0136 | 0.0034 | 0.0787 | 0.8943 | 0.6075 | 0.0135 |
| Treatment F | | | | | | 39.727 | 70.002 | 45.581 | 247.306 | 110.406 | 603.418 | 53.323 |
| Treatment Prob(F) | | | | | | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |

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.

Ohio State University
Horticulture and Crop Science

| Weed Code | | | | | AMBTR | AMBEL | CHEAL | AMARE | ABUTH | |
|--------------------|--------------------|--------------|-------------------|----------|-------------|-------------|-------------|-------------|-------------|--------|
| Rating Data Type | | | | | CONTROL | CONTROL | CONTROL | CONTROL | CONTROL | |
| Rating Unit | | | | | PERCENT | PERCENT | PERCENT | PERCENT | PERCENT | |
| Rating Date | | | | | Jul/07/2008 | Jul/07/2008 | Jul/07/2008 | Jul/07/2008 | Jul/07/2008 | |
| Trt-Eval Interval | | | | | 20 DA-D | 20 DA-D | 20 DA-D | 20 DA-D | 20 DA-D | |
| # Subsamples, Dec. | | | | | 0 | 0 | 0 | 0 | 0 | |
| Trt No. | Treatment Name | Product Rate | Product Rate Unit | Grow Stg | Appl Code | 8 | 9 | 10 | 11 | 12 |
| 1 | ROUNDUP WEATHERMAX | 21.3 | oz/a | EPO | B | 68 c | 91 a | 94 a | 48 e | 70 cd |
| 1 | AMS | 4 | qt/a | EPO | | | | | | |
| 2 | ATRAZINE | 1 | qt/a | PRE | A | 88 abc | 90 a | 95 a | 50 de | 68 d |
| 2 | ROUNDUP WEATHERMAX | 21.3 | oz/a | EPO | B | | | | | |
| 2 | AMS | 4 | qt/a | EPO | | | | | | |
| 3 | BICEP II MAGNUM | 1.2 | qt/a | PRE | A | 76 abc | 89 a | 98 a | 55 cde | 80 bcd |
| 3 | ROUNDUP WEATHERMAX | 21.3 | oz/a | EPO | B | | | | | |
| 3 | AMS | 4 | qt/a | EPO | | | | | | |
| 4 | LEXAR | 3 | qt/a | PRE | A | 76 abc | 99 a | 88 a | 64 bc | 79 bcd |
| 4 | ROUNDUP WEATHERMAX | 21.3 | oz/a | EPO | B | | | | | |
| 4 | AMS | 4 | qt/a | EPO | | | | | | |
| 5 | ROUNDUP WEATHERMAX | 21.3 | oz/a | MPO | C | 73 bc | 92 a | 95 a | 60 bcd | 79 bcd |
| 5 | AMS | 4 | qt/a | MPO | | | | | | |
| 6 | ATRAZINE | 1 | qt/a | PRE | A | 78 abc | 91 a | 100 a | 66 bc | 85 abc |
| 6 | ROUNDUP WEATHERMAX | 21.3 | oz/a | MPO | C | | | | | |
| 6 | AMS | 4 | qt/a | MPO | | | | | | |
| 7 | BICEP II MAGNUM | 1.2 | qt/a | PRE | A | 81 abc | 87 a | 94 a | 69 b | 68 d |
| 7 | ROUNDUP WEATHERMAX | 21.3 | oz/a | MPO | C | | | | | |
| 7 | AMS | 4 | qt/a | MPO | | | | | | |
| 8 | LEXAR | 3 | qt/a | PRE | A | 82 abc | 91 a | 98 a | 69 b | 89 ab |
| 8 | ROUNDUP WEATHERMAX | 21.3 | oz/a | MPO | C | | | | | |
| 8 | AMS | 4 | qt/a | MPO | | | | | | |
| 9 | ROUNDUP WEATHERMAX | 21.3 | oz/a | LPO | D | 91 abc | 93 a | 100 a | 100 a | 99 a |
| 9 | AMS | 4 | qt/a | LPO | | | | | | |
| 10 | ATRAZINE | 1 | qt/a | PRE | A | 94 ab | 96 a | 100 a | 100 a | 100 a |
| 10 | ROUNDUP WEATHERMAX | 21.3 | oz/a | LPO | D | | | | | |
| 10 | AMS | 4 | qt/a | LPO | | | | | | |
| 11 | BICEP II MAGNUM | 1.2 | qt/a | PRE | A | 93 ab | 93 a | 100 a | 100 a | 100 a |
| 11 | ROUNDUP WEATHERMAX | 21.3 | oz/a | LPO | D | | | | | |
| 11 | AMS | 4 | qt/a | LPO | | | | | | |
| 12 | LEXAR | 3 | qt/a | PRE | A | 100 a | 100 a | 100 a | 99 a | 100 a |
| 12 | ROUNDUP WEATHERMAX | 21.3 | oz/a | LPO | D | | | | | |
| 12 | AMS | 4 | qt/a | LPO | | | | | | |
| LSD (P=.05) | | | | | | 14.7 | 11.8 | 9.1 | 9.0 | 11.1 |
| Standard Deviation | | | | | | 10.2 | 8.2 | 6.3 | 6.2 | 7.7 |
| CV | | | | | | 12.26 | 8.84 | 6.52 | 8.5 | 9.05 |
| Bartlett's X2 | | | | | | 12.25 | 7.885 | 11.671 | 12.438 | 13.28 |
| P(Bartlett's X2) | | | | | | 0.269 | 0.64 | 0.112 | 0.087 | 0.066 |
| Replicate F | | | | | | 0.456 | 9.881 | 0.037 | 3.238 | 1.691 |
| Replicate Prob(F) | | | | | | 0.7149 | 0.0001 | 0.9903 | 0.0345 | 0.1879 |
| Treatment F | | | | | | 3.663 | 0.902 | 1.468 | 44.154 | 11.324 |
| Treatment Prob(F) | | | | | | 0.0018 | 0.5485 | 0.1904 | 0.0001 | 0.0001 |

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.