

The Ohio State University

24 Long-term cover crop seedbank study

Trial ID: 24_LT_CC-Bayron
 Protocol ID: 24LTCC-Bayron Location: South Charleston, OH Trial Year: 2024
 Study Director: Sponsor Contact:
 Investigator:

Crop Description

Crop 1: C SECCE Secale cereale Rye BBCH Scale: BCER
 Entry Date: Apr-19-2024 Stage Scale: BBCH
 Variety: Hazlet
 Planting Date: Oct-19-2023 Planting Rate: 60 LB/A
 Depth: 1 IN
 Rows per Plot: 15 Planting Method: DRILLE drilled
 Row Spacing: 7.5 IN Planting Equipment: FE field equipment
 Seed Bed: MEDIUM medium
 Soil Moisture: DRY dry
 Emergence Date: Nov-6-2023

Crop 2: C ZEAMD Zea mays indentata Dent corn BBCH Scale: BCOR
 Entry Date: Apr-30-2024 Stage Scale: BBCH
 Variety: SC1122Q
 Attributes: AgrisureRW, Grome, Lumigen
 Seed Size: 1591 S/LB
 Planting Date: Apr-29-2024 Planting Rate: 32000 S/A
 Depth: 1.75 IN
 Rows per Plot: 4 Planting Method: PLANTD planted
 Row Spacing: 30 IN Planting Equipment: FPP finger pickup planter
 Seed Bed: MEDTRA medium/trashy
 Soil Temperature: 70 F Soil Moisture: SLIDRY slightly dry
 Emergence Date: May-6-2024

Pest Description

Pest 1 Type: W Code: AMATU Amaranthus tuberculatus Entry Date: Jun-5-2024
 Common Name: tall waterhemp Stage Scale: BBCH

Pest 2 Type: W Code: AMBTR Ambrosia trifida Entry Date: Jun-5-2024
 Common Name: Giant ragweed Stage Scale: BBCH

Pest 3 Type: W Code: SETFA Setaria faberi Entry Date: Jun-5-2024
 Common Name: Giant foxtail Stage Scale: BBCH

Site and Design

Treated Plot Width: 10 FT
 Treated Plot Length: 30 FT
 Treated Plot Area: 300.0 FT²
 Replications: 4 Treatments: 16 Plots: 64 Study Design: SPLPLO Split-Plot
 Distance between Blocks: 1 FT
 Distance between 'Plot' Experimental Units: 0.5 FT

Application Description

| | A | B | C | D |
|---------------------------------|---------------|---------------|---------------|---------------|
| Date | Apr-15-2024 | Apr-22-2024 | Apr-29-2024 | Jun-3-2024 |
| Start Time | 5:34 PM | 7:35 PM | 4:00 PM | 1:10 PM |
| Stop Time | 5:50 PM | 7:50 PM | 4:30 PM | 1:45 PM |
| Interval to Prev. Appl. | | 7 DAYS | 7 DAYS | 35 DAYS |
| Method | SPRAY | SPRAY | SPRAY | SPRAY |
| Timing | 14 DBP | 7DBP | PREEM | POST |
| Placement | BROFOL | BROFOL | BROSOI | BROFOL |
| Mixed/Prepared By | Colin Barclay | Colin Barclay | Colin Barclay | Ella Poling |
| Applied By | Tony Dobbels | Colin Barclay | Colin Barclay | Colin Barclay |
| Entry Date | Apr-19-2024 | Apr-24-2024 | Apr-30-2024 | Jun-5-2024 |
| Air Temperature Start, Stop | 76, 76 F | 56, 56 F | 79, 79 F | 78, 78 F |
| % Relative Humidity Start, Stop | 47.3, 47.3 | 39.2, 39.2 | 51, 52 | 62, 62 |
| Wind Velocity+Dir. Start | 6 MPH, W | 6 MPH, SSW | 16 MPH, SSW | 3 MPH, S |
| Wind Velocity+Dir. Stop | | | 9 MPH, SSW | 3 MPH, S |
| Wind Velocity+Dir. Max | | | 16 MPH, SSW | 3 MPH, S |
| Wet Leaves (Y/N) | N, no | N, no | N, no | N, no |
| Soil Temperature | 66 F | 59 F | 70 F | 78 F |
| Soil Temperature Depth | 6 IN | 6 IN | 6 IN | 6 IN |
| Soil Moisture | SLIWET | SLIDRY | DRY | DRY |
| Soil Surface Condition | MEDTRA | MEDTRA | MEDTRA | MEDTRA |
| % Cloud Cover | 5 | 10 | 25 | 50 |
| First Moisture Occurred On | Apr-17-2024 | Apr-29-2024 | Apr-29-2024 | Jun-4-2024 |
| Time to First Moisture | 2.0 DAY | 1.0 WK | 1.0 DAY | 1.0 DAY |
| Amount of First Moisture | 0.04 IN | 0.06 IN | 0.32 mm | 0.01 IN |
| Moisture 1 Week Before Appl. | 0.18 IN | 0.04 IN | 0.04 IN | 0.61 IN |
| Moisture 6 Hours After Appl. | 0 IN | 0 IN | 0 IN | 0 IN |
| Moisture 24 Hours After Appl. | 0 IN | 0 IN | 0.32 IN | 0 IN |
| Moisture 1 Week After Appl. | 0.07 IN | 0.06 IN | 0.7 IN | |
| Problems with Application? | N, no | N, no | N, no | N, no |

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Crop Stage At Each Application

| | A | B | C | D |
|-------------------------|-------------|-------------|-------------|-------------|
| Crop 1 Code, BBCH Scale | SECCE, BCER | SECCE, BCER | SECCE, BCER | SECCE, BCER |
| Days after Emergence | 161 | 168 | 175 | 210 |
| Stage Scale Used | BBCH | BBCH | BBCH | BBCH |
| Crop 2 Code, BBCH Scale | ZEAMD, BCOR | ZEAMD, BCOR | ZEAMD, BCOR | ZEAMD, BCOR |
| Days after Emergence | -21 | -14 | -7 | 28 |
| Stage Scale Used | BBCH | BBCH | BBCH | BBCH |
| Stage Majority, Percent | | | | 16, 75 |
| Stage Minimum, Percent | | | | 15, 25 |
| Stage Maximum, Percent | | | | 16, 75 |
| Height Average | | | | 18 FT |
| Height Minimum, Maximum | | | | 18, 20 |

Pest Stage At Each Application

| | A | B | C | D |
|--------------------------|----------------|----------------|----------------|----------------|
| Pest 1 Code, Type, Scale | AMATU, W, BBCH | AMATU, W, BBCH | AMATU, W, BBCH | AMATU, W, BBCH |
| Stage Majority, Percent | | | | 14, 75 |
| Stage Minimum, Percent | | | | 14, 75 |
| Stage Maximum, Percent | | | | 19, 25 |
| Height Average | | | | 1 IN |
| Height Minimum, Maximum | | | | 0.5, 6 |
| Relative Density | MEDIUM | | | |
| Density Average | 3.99 m2 | | | |
| Density Minimum, Maximum | 0, 8 | | | |
| Pest 2 Code, Type, Scale | AMBTR, W, BBCH | AMBTR, W, BBCH | AMBTR, W, BBCH | AMBTR, W, BBCH |
| Stage Majority, Percent | | | | 16, 60 |
| Stage Minimum, Percent | | | | 14, 20 |
| Stage Maximum, Percent | | | | 19, 20 |
| Height Average | | | | 4 IN |
| Height Minimum, Maximum | | | | 2, 20 |
| Relative Density | MEDIUM | | | |
| Density Average | 2.66 m2 | | | |
| Density Minimum, Maximum | 0, 8 | | | |
| Pest 3 Code, Type, Scale | SETFA, W, BBCH | SETFA, W, BBCH | SETFA, W, BBCH | SETFA, W, BBCH |
| Stage Majority, Percent | | | | 14, 75 |
| Stage Minimum, Percent | | | | 14, 75 |
| Stage Maximum, Percent | | | | 16, 25 |
| Height Average | | | | 3 IN |
| Height Minimum, Maximum | | | | 2, 4 |
| Relative Density | HIGH | | | |
| Density Average | 67.83 m2 | | | |
| Density Minimum, Maximum | 28, 120 | | | |

| Trt No. | Treatment Name | Form Conc | Form Unit | Form Type | Rate | Other Rate | Other Unit | Appl Code | Appl Timing | Rep | | | | Notes |
|---------|----------------------------------------------------------------|-------------------------------------------------------------|-----------|-------------------------|-----------------------------------------------------------|--------------|------------|-----------------------|---------------------------|-----|-----|-----|-----|-------|
| | | | | | | | | | | 1 | 2 | 3 | 4 | |
| 1 | Rye Acuron 14 DBP | 3.44 LBA/GAL | | ZC | 3 qt/a | 2.58 lb ae/a | | A | PREEM | 101 | 210 | 311 | 414 | |
| 2 | Rye Acuron 7 DBP | 3.44 LBA/GAL | | ZC | 3 qt/a | 2.58 lb ae/a | | A | PREEM | 102 | 215 | 304 | 406 | |
| 10 | None Acuron 7 DBP | 3.44 LBA/GAL | | ZC | 3 qt/a | 2.58 lb ae/a | | A | PREEM | 103 | 214 | 302 | 407 | |
| 13 | None Acuron Halex GT AAtrex AMSOL NIS 14 DBP | 3.44 LBA/GAL 4.38 LBA/GAL 4 LBA/GAL 100 % 100 % | | ZC L F L SL | 1.5 qt/a 3.6 pt/a 1 pt/a 2.5 % v/v 0.25 % v/v | 1.29 lb ae/a | | A B B B B | PREEM EAPOWE EAPOWE | 104 | 212 | 308 | 410 | |
| 9 | None Acuron 14 DBP | 3.44 LBA/GAL | | ZC | 3 qt/a | 2.58 lb ae/a | | A | PREEM | 105 | 211 | 307 | 415 | |
| 14 | None Acuron Halex GT AAtrex AMSOL | 3.44 LBA/GAL 4.38 LBA/GAL 4 LBA/GAL 100 % | | ZC L F L | 1.5 qt/a 3.6 pt/a 1 pt/a 2.5 % v/v | 1.29 lb ae/a | | A B B B | PREEM EAPOWE EAPOWE | 106 | 205 | 301 | 409 | |

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| Trt No. | Treatment Name | Form Conc | Form Unit | Form Type | Rate | Rate Unit | Other Rate | Other Rate Unit | Appl Code | Appl Timing | Rep | | | | Notes | |
|---------|-------------------------------------------------------------------|-------------------------------------------------------------|-----------|-------------------------|-----------------------------------------------------------|-----------|-----------------------------------------------|-----------------|-----------------------|---------------------------|-----|-----|-----|-----|-------|--|
| | | | | | | | | | | | 1 | 2 | 3 | 4 | | |
| | NIS 7 DBP | 100 % | | SL | 0.25 % | v/v | | | B | | | | | | | |
| 7 | Rye none 14 DBP Roundup Powermax 3 AMSOL | 4.79 LBAE/GAL 100 % | | SL L | 30 oz/a 2.5 % v/v | | 1.12 lb ae/a | | B B | | | 107 | 209 | 313 | 411 | |
| 8 | Rye none 7 DBP Roundup Powermax 3 AMSOL | 4.79 LBAE/GAL 100 % | | SL L | 30 oz/a 2.5 % v/v | | 1.12 lb ae/a | | B B | | | 108 | 201 | 314 | 403 | |
| 6 | Rye Acuron Halex GT AAtrex AMSOL NIS 7 DBP | 3.44 LBA/GAL 4.38 LBA/GAL 4 LBA/GAL 100 % 100 % | | ZC L F L SL | 1.5 qt/a 3.6 pt/a 1 pt/a 2.5 % v/v 0.25 % v/v | | 1.29 lb ae/a | | A B B B B | PREEM EAPOWE EAPOWE | | 109 | 216 | 312 | 413 | |
| 4 | Rye Acuron Roundup Powermax 3 Status AMSOL 7 DBP | 3.44 LBA/GAL 4.79 LBAE/GAL 56 LBA/GAL 100 % | | ZC SL WG L | 3 qt/a 30 oz/a 5 oz/a 2.5 % v/v | | 2.58 lb ae/a 1.12 lb ae/a 0.175 lb ae/a | | A B B B | | | 110 | 207 | 306 | 412 | |
| 12 | None Acuron Roundup Powermax 3 Status AMSOL 7 DBP | 3.44 LBA/GAL 4.79 LBAE/GAL 56 LBA/GAL 100 % | | ZC SL WG L | 3 qt/a 30 oz/a 5 oz/a 2.5 % v/v | | 2.58 lb ae/a 1.12 lb ae/a 0.175 lb ae/a | | A B B B | | | 111 | 213 | 310 | 401 | |
| 16 | None none 7 DBP Roundup Powermax 3 AMSOL | 4.79 LBAE/GAL 100 % | | SL L | 30 oz/a 2.5 % v/v | | 1.12 lb ae/a | | B B | | | 112 | 204 | 315 | 402 | |
| 11 | None Acuron Roundup Powermax 3 Status AMSOL 14 DBP | 3.44 LBA/GAL 4.79 LBAE/GAL 56 LBA/GAL 100 % | | ZC SL WG L | 3 qt/a 30 oz/a 5 oz/a 2.5 % v/v | | 2.58 lb ae/a 1.12 lb ae/a 0.175 lb ae/a | | A B B B | | | 113 | 203 | 309 | 408 | |
| 15 | None none 14 DBP Roundup Powermax 3 AMSOL | 4.79 LBAE/GAL 100 % | | SL L | 30 oz/a 2.5 % v/v | | 1.12 lb ae/a | | B B | | | 114 | 206 | 316 | 416 | |
| 3 | Rye Acuron Roundup Powermax 3 Status AMSOL 14 DBP | 3.44 LBA/GAL 4.79 LBAE/GAL 56 LBA/GAL 100 % | | ZC SL WG L | 3 qt/a 30 oz/a 5 oz/a 2.5 % v/v | | 2.58 lb ae/a 1.12 lb ae/a 0.175 lb ae/a | | A B B B | | | 115 | 208 | 303 | 404 | |
| 5 | Rye Acuron Halex GT AAtrex AMSOL NIS | 3.44 LBA/GAL 4.38 LBA/GAL 4 LBA/GAL 100 % 100 % | | ZC L F L SL | 1.5 qt/a 3.6 pt/a 1 pt/a 2.5 % v/v 0.25 % v/v | | 1.29 lb ae/a | | A B B B B | PREEM EAPOWE EAPOWE | | 116 | 202 | 305 | 405 | |

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| Trt No. | Treatment Name | Form Conc | Form Unit | Form Type | Rate Rate | Unit Unit | Other Rate | Other Rate | Unit Unit | Appl Code | Appl Timing | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Notes |
|---------|----------------|-----------|-----------|-----------|-----------|-----------|------------|------------|-----------|-----------|-------------|-------|-------|-------|-------|-------|
| 14 | DBP | | | | | | | | | | | | | | | |

Sort Order: Replicate 1