# University of Georgia

**Controlling glyphosate-resistant Palmer amaranth in conventional and strip tillage cotton.**

Trial ID: C34-06 Study Dir.: Kichler, Culpepper
Location: Macon (house field) Investigator: Stanley Culpepper

Reps: 4 Plots: 12 by 45 feet
Spray vol: 14.8 gal/ac Mix size: 3 liters (min 2.778)

| Trt No. | Treatment Name | Form Conc | Form Unit | Form Type | Rate | Rate Unit | Grow Stg | Appl Code | Amt Product to Measure | Plot No. By Rep 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Strip Till (Wheat Cover) | | | | | | | | | 101 | 204 | 310 | 413 |
| | No in crop herbicide | | | | | | | A | | | | | |
| 2 | Conventional | | | | | | | | | 102 | 207 | 314 | 411 |
| | Strip Till (Wheat Cover) | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Dual Magnum | 7.62 | | L | 16 | OZ/A | 3-5 leaf | B | 25.34 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |
| 3 | Strip Till (Wheat Cover) | | | | | | | | | 103 | 202 | 313 | 410 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Reflex | 2 | 2 | L | 16 | OZ/A | PRE | A | 25.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Dual Magnum | 7.62 | | L | 16 | OZ/A | 3-5 leaf | B | 25.34 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |
| 4 | Strip Till (Wheat Cover) | | | | | | | | | 104 | 203 | 315 | 412 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Cotoran | 4 | 2 | L | 40 | OZ/A | PRE | A | 63.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Dual Magnum | 7.62 | | L | 16 | OZ/A | 3-5 leaf | B | 25.34 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |
| 5 | Strip Till (Wheat Cover) | | | | | | | | | 105 | 208 | 309 | 416 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Staple | 3.2 | 2 | L | 1.7 | OZ/A | PRE | A | 2.692 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Dual Magnum | 7.62 | | L | 16 | OZ/A | 3-5 leaf | B | 25.34 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |
| 6 | Strip Till (Wheat Cover) | | | | | | | | | 106 | 206 | 316 | 415 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Staple | 3.2 | | L | 1.7 | OZ/A | 3-5 leaf | B | 2.692 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |
| 7 | Strip Till (Wheat Cover) | | | | | | | | | 107 | 205 | 311 | 414 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Reflex | 2 | 2 | L | 16 | OZ/A | PRE | A | 25.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Staple | 3.2 | | L | 1.7 | OZ/A | 3-5 leaf | B | 2.692 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |

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Reps: 4 Plots: 12 by 45 feet
Spray vol: 14.8 gal/ac Mix size: 3 liters (min 2.778)

| Trt No. | Treatment Name | Form Conc | Form Unit | Form Type | Rate | Rate Unit | Grow Stg | Appl Code | Amt Product to Measure | Plot No. By Rep 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | Strip Till (Wheat Cover) | | | | | | | | | 108 | 201 | 312 | 409 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Cotoran | 4 | 2 | L | 40 | OZ/A | PRE | A | 63.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Staple | 3.2 | | L | 1.7 | OZ/A | 3-5 leaf | B | 2.692 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |
| 9 | Conventional | | | | | | | | | 109 | 209 | 302 | 405 |
| | No in crop herbicide | | | | | | | A | | | | | |
| 10 | Strip Till (Wheat Cover) | | | | | | | | | 110 | 213 | 301 | 403 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Dual Magnum | 7.62 | | L | 16 | OZ/A | 3-5 leaf | B | 25.34 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |
| 11 | Conventional | | | | | | | | | 111 | 215 | 303 | 408 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Reflex | 2 | 2 | L | 16 | OZ/A | PRE | A | 25.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Dual Magnum | 7.62 | | L | 16 | OZ/A | 3-5 leaf | B | 25.34 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |
| 12 | Conventional | | | | | | | | | 112 | 216 | 307 | 407 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Cotoran | 4 | 2 | L | 40 | OZ/A | PRE | A | 63.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Dual Magnum | 7.62 | | L | 16 | OZ/A | 3-5 leaf | B | 25.34 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |
| 13 | Conventional | | | | | | | | | 113 | 211 | 305 | 401 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Staple | 3.2 | 2 | L | 1.7 | OZ/A | PRE | A | 2.692 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Dual Magnum | 7.62 | | L | 16 | OZ/A | 3-5 leaf | B | 25.34 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |
| 14 | Conventional | | | | | | | | | 114 | 212 | 308 | 404 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Staple | 3.2 | | L | 1.7 | OZ/A | 3-5 leaf | B | 2.692 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |
| 15 | Conventional | | | | | | | | | 115 | 210 | 304 | 402 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Reflex | 2 | 2 | L | 16 | OZ/A | PRE | A | 25.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Staple | 3.2 | | L | 1.7 | OZ/A | 3-5 leaf | B | 2.692 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |

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Reps: 4 Plots: 12 by 45 feet
Spray vol: 14.8 gal/ac Mix size: 3 liters (min 2.778)

| Trt No. | Treatment Name | Form Conc | Form Unit | Form Type | Rate | Rate Unit | Grow Stg | Appl Code | Amt Product to Measure | Plot No. By Rep 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | Conventional | | | | | | | | | 116 | 214 | 306 | 406 |
| | Prowl H20 | 3.8 | | L | 2.5 | PT/A | PRE | A | 63.34 ml/mx | | | | |
| | Cotoran | 4 | 2 | L | 40 | OZ/A | PRE | A | 63.34 ml/mx | | | | |
| | Roundup WeatherMax | 4.5 | | L | 22 | OZ/A | 3-5 leaf | B | 34.84 ml/mx | | | | |
| | Staple | 3.2 | | L | 1.7 | OZ/A | 3-5 leaf | B | 2.692 ml/mx | | | | |
| | Direx | 4 | | L | 32 | OZ/A | layby | C | 50.68 ml/mx | | | | |
| | MSMA | 6 | | L | 2 | LB A/A | layby | C | 67.56 ml/mx | | | | |
| | NIS | | | L | 0.25 | % V/V | layby | C | 7.499 ml/mx | | | | |

Sort Order: Treatment

Product quantities required for listed treatments and applications in one trial:

| Amount* | Unit | Treatment Name | Form Conc | Form Type | Lot Code |
|---|---|---|---|---|---|
| 79.172 | ml | Strip Till (Wheat Cover) | 3.8 | L | |
| 609.693 | ml | Roundup WeatherMax | 4.5 | L | |
| 253.379 | ml | Dual Magnum | 7.62 | L | |
| 886.826 | ml | Direx | 4 | L | |
| 1,182.308 | ml | MSMA | 6 | L | |
| 131.236 | ml | NIS | | L | |
| 1,029.241 | ml | Prowl H20 | 3.8 | L | |
| 126.689 | ml | Reflex | 2 | L | L |
| 316.724 | ml | Cotoran | 4 | L | L |
| 6.730 | ml | Staple | 3.2 | L | L |
| 20.191 | ml | Staple | 3.2 | L | |

* 'Per area' calculations based on spray volume= 14.8 gal/ac, mix size= 3 liters (mix size basis).
* Product amount calculations increased 25 % for overage adjustment.
* 'Per volume' calculations use spray volume= 14.8 gal/ac, mix size= 3 liters.

## Trial Comments

OBJECTIVE: Determine the effect of tillage on the control of Palmer amaranth by herbicide systems.

VISUAL COTTON INJURY:
1. Injury from early POST herbicide options was generally greater in strip till cotton likely from cooler soils making the crop more sensitive to stunting.
2. Roundup + Dual (necrosis) injured cotton 8 to 11% in strip till cotton and 4 to 8% in conventional cotton.
3. Roundup + Staple (chlorosis) injured cotton 10 to 15% in strip till cotton and 6 to 9% in conventional cotton.
4. Cotton recovered very quickly from all injury.

PALMER AMARANTH CONTROL:
1. The cover crop was wheat; however, the wheat had been grazed thus very little cover was present at planting.
2. Cover crop had no impact on weed control.
3. The most effective systems late in the season were Prowl + Reflex fb Roundup + Dual or Roundup + Staple fb Direx plus MSMA at layby.

# University of Georgia

**Controlling glyphosate-resistant Palmer amaranth in conventional and strip tillage cotton.**

Trial ID: C34-06 Study Dir.: Kichler, Culpepper
Location: Macon (house field) Investigator: Stanley Culpepper

| Trt No. | Treatment Name | Rate | Rate Unit | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|---|
| Weed Code | | | | | | AMAPA | AMAPA | AMAPA | AMAPA | AMAPA |
| Crop Code | | | | GOSHI | GOSHI | GOSHI | GOSHI | GOSHI | GOSHI | GOSHI |
| Rating Data Type | | | | injury | injury | control | control | control | control | control |
| Rating Unit | | | | % | % | % | % | % | % | % |
| Rating Date | | | | Jun-01-06 | Jun-09-06 | Jun-01-06 | Jun-09-06 | Jun-20-06 | Jun-29-06 | Jul-09-06 |
| Assessed By | | | | SC | SC | SC | SC | SC | SC | SC |
| Trt-Eval Interval | | | | 4 DA-B | 12 DA-B | 4 DA-B | 12 DA-B | 0 DA-C | 9 DA-C | 19 DA-C |
| 1 | Strip Till (Wheat Cover) | | | 0 c | 0 a | 0 f | 0 e | 0 g | 0 e | 0 g |
| | No in crop herbicide | | | | | | | | | |
| 2 | Conventional | | | 11 ab | 0 a | 68 d | 67 c | 52 e | 56 d | 54 f |
| | Strip Till (Wheat Cover) | 2.5 | PT/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Dual Magnum | 16 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| 3 | Strip Till (Wheat Cover) | | | 11 ab | 0 a | 88 abc | 90 a | 79 abc | 83 abc | 88 a-d |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Reflex | 16 | OZ/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Dual Magnum | 16 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| 4 | Strip Till (Wheat Cover) | | | 9 abc | 0 a | 78 bcd | 73 bc | 59 de | 57 d | 54 f |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Cotoran | 40 | OZ/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Dual Magnum | 16 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| 5 | Strip Till (Wheat Cover) | | | 15 a | 0 a | 90 ab | 87 ab | 75 a-d | 86 ab | 80 cd |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Staple | 1.7 | OZ/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Dual Magnum | 16 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| 6 | Strip Till (Wheat Cover) | | | 15 a | 0 a | 75 cd | 90 a | 82 ab | 85 ab | 82 bcd |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Staple | 1.7 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |

# University of Georgia

| Weed Code | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Crop Code | | | | GOSHI | GOSHI | AMAPA GOSHI | AMAPA GOSHI | AMAPA GOSHI | AMAPA GOSHI | AMAPA GOSHI |
| Rating Data Type | | | | injury | injury | control | control | control | control | control |
| Rating Unit | | | | % | % | % | % | % | % | % |
| Rating Date | | | | Jun-01-06 | Jun-09-06 | Jun-01-06 | Jun-09-06 | Jun-20-06 | Jun-29-06 | Jul-09-06 |
| Assessed By | | | | SC | SC | SC | SC | SC | SC | SC |
| Trt-Eval Interval | | | | 4 DA-B | 12 DA-B | 4 DA-B | 12 DA-B | 0 DA-C | 9 DA-C | 19 DA-C |
| Trt No. | Treatment Name | Rate | Rate Unit | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7 | Strip Till (Wheat Cover) | | | 11 ab | 0 a | 92 ab | 97 a | 87 ab | 93 ab | 94 ab |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Reflex | 16 | OZ/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Staple | 1.7 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| 8 | Strip Till (Wheat Cover) | | | 10 ab | 0 a | 75 cd | 84 ab | 71 bcd | 79 abc | 81 cd |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Cotoran | 40 | OZ/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Staple | 1.7 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| 9 | Conventional | | | 0 c | 0 a | 0 f | 0 e | 0 g | 0 e | 0 g |
| | No in crop herbicide | | | | | | | | | |
| 10 | Strip Till (Wheat Cover) | | | 4 bc | 0 a | 49 e | 51 d | 34 f | 56 d | 53 f |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Dual Magnum | 16 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| 11 | Conventional | | | 8 abc | 0 a | 93 a | 94 a | 85 ab | 86 ab | 92 abc |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Reflex | 16 | OZ/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Dual Magnum | 16 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| 12 | Conventional | | | 4 bc | 0 a | 69 d | 73 bc | 54 e | 68 cd | 67 e |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Cotoran | 40 | OZ/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Dual Magnum | 16 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| 13 | Conventional | | | 5 bc | 0 a | 84 abc | 83 ab | 76 a-d | 77 bc | 81 bcd |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Staple | 1.7 | OZ/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Dual Magnum | 16 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |

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| Weed Code | | | | | AMAPA | AMAPA | AMAPA | AMAPA | AMAPA |
|---|---|---|---|---|---|---|---|---|---|
| Crop Code | | | GOSHI | GOSHI | GOSHI | GOSHI | GOSHI | GOSHI | GOSHI |
| Rating Data Type | | | injury | injury | control | control | control | control | control |
| Rating Unit | | | % | % | % | % | % | % | % |
| Rating Date | | | Jun-01-06 | Jun-09-06 | Jun-01-06 | Jun-09-06 | Jun-20-06 | Jun-29-06 | Jul-09-06 |
| Assessed By | | | SC | SC | SC | SC | SC | SC | SC |
| Trt-Eval Interval | | | 4 DA-B | 12 DA-B | 4 DA-B | 12 DA-B | 0 DA-C | 9 DA-C | 19 DA-C |
| Trt No. | Treatment Name | Rate | Rate Unit | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14 | Conventional | | | 6 abc | 0 a | 50 e | 83 ab | 62 cde | 77 bc | 76 de |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Staple | 1.7 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| 15 | Conventional | | | 8 abc | 0 a | 91 ab | 98 a | 90 a | 96 a | 97 a |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Reflex | 16 | OZ/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Staple | 1.7 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| 16 | Conventional | | | 9 abc | 0 a | 73 cd | 89 a | 78 abc | 88 ab | 87 a-d |
| | Prowl H20 | 2.5 | PT/A | | | | | | | |
| | Cotoran | 40 | OZ/A | | | | | | | |
| | Roundup WeatherMax | 22 | OZ/A | | | | | | | |
| | Staple | 1.7 | OZ/A | | | | | | | |
| | Direx | 32 | OZ/A | | | | | | | |
| | MSMA | 2 | LB A/A | | | | | | | |
| | NIS | 0.25 | % V/V | | | | | | | |
| LSD (P=.05) | | | | 7.8 | 0.0 | 12.9 | 13.5 | 15.5 | 14.8 | 11.8 |
| Standard Deviation | | | | 5.5 | 0.0 | 9.1 | 9.4 | 10.8 | 10.4 | 8.3 |
| CV | | | | 70.15 | 0.0 | 13.51 | 13.02 | 17.63 | 15.31 | 12.21 |
| Bartlett's X2 | | | | 11.302 | 0.0 | 26.246 | 44.597 | 14.618 | 12.828 | 13.464 |
| P(Bartlett's X2) | | | | 0.503 | . | 0.016* | 0.001* | 0.332 | 0.461 | 0.413 |

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

# University of Georgia

**Controlling glyphosate-resistant Palmer amaranth in conventional and strip tillage cotton.**

Trial ID: C34-06 Study Dir.: Kichler, Culpepper
Location: Macon (house field) Investigator: Stanley Culpepper

## GENERAL TRIAL INFORMATION

**Study Director:** Stanley Culpepper **Title:** Ext. Weed Science
**Affiliation:** University of Georgia
**Postal Code:** 31794

**Investigator:** Stanley Culpepper **Title:** Ext. Weed Science
**Affiliation:** University of Georgia
**Postal Code:** 31794

## TRIAL LOCATION

**City:** Macon Co. **Trial Status:** completed
**State/Prov.:** GA **Trial Reliability:** excellent
**Postal Code:** _____ **Initiation Date:** May-03-06
**Country:** USA **Planned Completion Date:** _____
**E-Longitude of LL Corner °:** _____ **N-Latitude of LL Corner °:** _____
**Altitude of LL Corner:** _____ **Unit:** _____ **Angle y-axis to North °:** _____
**Directions:**

## COOPERATOR/LANDOWNER

**Cooperator:** _____ **Country:** _____
**Org:** _____ **Phone No:** _____
**Address 1:** _____ **Fax No:** _____
**Address 2:** _____
**City:** _____
**State/Prov:** _____
**Postal Code:** _____

**Conducted Under GLP (Y/N):** N **Conducted Under GEP (Y/N):** N
**Guidelines:** _____ **Guideline Description:** _____

**Objective:**

**Conclusions:**

## CROP AND WEED DESCRIPTION

| Weed | Code | Common Name | Scientific Name |
|---|---|---|---|
| 1. | AMAPA | Amaranth, Palmer | Amaranthus palmeri |

**Crop 1:** GOSHI COTTON, SHORT STAPLE **Variety:** ST 6565 BRR
**Planting Date:** May-03-06 **Planting Method:** hill drop
**Rate:** 2 8 in **Depth:** 0.5 in **Perennial Age:** ____ _____
**Row Spacing:** 36 inch **Spacing Within Row:** ____ _____ **Seed Bed:** flat
**Soil Temperature:** 86 F **Soil Moisture:** fair **Emergence Date:** May-08-06

## SITE AND DESIGN

**Plot Width, Unit:** 12 FT **Plot Length, Unit:** 45 FT **Reps:** 4
**Site Type:** on farm
**Tillage Type:** see plot plan **Study Design:** SPLIT-PLOT

**Trial Initiation Comments:**

| | Previous Crops | Previous Pesticides | Year |
|---|---|---|---|
| 1. | | | |

## MAINTENANCE

**Field Prep./Maintenance:**

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| No. | Date | Maintenance Treatment Name | Form Conc | Form Unit | Form Type | Rate | Rate Unit |
|---|---|---|---|---|---|---|---|
| 1. | | | | | | | |

**SOIL DESCRIPTION**

**% Sand:** 82 **% OM:** 2.0 **Texture:** Loamy sand
**% Silt:** 14 **pH:** 6.3 **Soil Name:** _____
**% Clay:** 4 **CEC:** _____ **Fert. Level:** _____

**ADDITIONAL MEASURED ELEMENTS**

| Element | Quantity | Unit |
|---|---|---|
| | | |

**MOISTURE CONDITIONS**

| | Date | Time | Amount | Unit | Type | Interval | Unit |
|---|---|---|---|---|---|---|---|
| 1. | | | | | | | |

**Overall Moisture Conditions:** _____
**Closest Weather Station:** _____ **Distance:** _____ **Unit:** __

**APPLICATION DESCRIPTION**

| | A | B | C |
|---|---|---|---|
| **Application Date:** | May-04-06 | May-28-06 | Jun-20-06 |
| **Time of Day:** | 9 am | 11 am | 7 pm |
| **Application Method:** | broadcast | broadcast | broadcast |
| **Application Timing:** | PRE | POST | Layby |
| **Applic. Placement:** | soil/cove | overtop | directed |
| **Air Temp., Unit:** | 89 F | 92 F | 90 F |
| **% Relative Humidity:** | 40 | 45 | 59 |
| **Wind Velocity, Unit:** | 3 mph | 2 mph | 2 mph |
| **Dew Presence (Y/N):** | n | n | n |
| **Water Hardness:** | | | |
| **Soil Temp., Unit:** | 86 F | 105 F | 94 F |
| **Soil Moisture:** | fair | fair | fair |
| **% Cloud Cover:** | 20 | 5 | 95 |

**CROP STAGE AT EACH APPLICATION**

| | A | B | C |
|---|---|---|---|
| **Crop 1 Code, Stage:** | GOSHI PRE | GOSHI POST | GOSHI layby |
| **Stage Scale:** | not up | 3-5 leaf | 10 leaf |
| **Height, Unit:** | 0 inch | 4 inch | 9 inch |

**WEED STAGE AT EACH APPLICATION**

| | A | B | C |
|---|---|---|---|
| **Weed 1 Code, Stage:** | AMAPA PRE | AMAPA POST | AMAPA layby |
| **Stage Scale:** | not up | 3 inch | up to 15" |
| **Density, Unit:** | 45 ydsq | 45 ydsq | 45 ydsq |

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**APPLICATION EQUIPMENT**

| | A | B | C |
|---|---|---|---|
| **Appl. Equipment:** | backpack | backpack | backpack |
| **Operating Pressure:** | 23 | 23 | 19 |
| **Nozzle Type:** | flat fan | flat fan | flat fan |
| **Nozzle Size:** | 11002 | 11002 | 11002 |
| **Nozzle Spacing, Unit:** | 18 inch | 18 inch | 12 inch |
| **Nozzles/Row:** | 2 | 2 | 3 |
| **Band Width, Unit:** | | | |
| **Boom Length, Unit:** | 4.5 feet | 4.5 feet | 2 feet |
| **Boom Height, Unit:** | 15 inch | 15 inch | 12 inch |
| **Ground Speed, Unit:** | 3 mph | 3 mph | 3 mph |
| **Incorporation Equip.:** | | | |
| **Hours to Incorp.:** | | | |
| **Incorp. Depth, Unit:** | | | |
| **Carrier:** | water | water | water |
| **Spray Volume, Unit:** | 14.8 GPA | 14.8 GPA | 14.8 GPA |
| **Spray pH:** | | | |
| **Propellant:** | CO2 | CO2 | CO2 |
| **Tank Mix (Y/N):** | Y | Y | Y |

| Trt No | Treatment Application Comment |
|---|---|
| | |