

University of Georgia

Watermelon and weed response to Sandea applied PPI under narrow plastic.

Trial ID: Veg20-03
Location: Ponder farm

Study Dir.:
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: TyTy **Trial Status:** completed
State/Prov.: Ga **Trial Reliability:** good
Postal Code: 31794 **Initiation Date:** Mar-26-03
Country: U.S.A

Conducted Under GLP (Y/N): N

Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

| Weed | Code | Common Name | Scientific Name |
|------|-------|-----------------|-----------------|
| 1. | DTTAE | crowfootgrass | |
| 2. | CYPES | yellow nutsedge | |

Crop 1: CITLA watermelon **Variety:** Margaritia
Planting Date: Mar-28-03 **Planting Method:** transplant
Rate: 1 per 4' **Depth:** 1 in
Row Spacing: 6 feet **Spacing Within Row:** 4 feet **Seed Bed:** bedded
Soil Temperature: 67 F **Soil Moisture:** drip

SITE AND DESIGN

Plot Width, Unit: 6 FT **Plot Length, Unit:** 25 FT **Reps:** 4
Site Type: research station
Tillage Type: plastic **Study Design:** RANDOMIZED COMPLETE BLOCK

SOIL DESCRIPTION

% Sand: 94 **% OM:** 1.1 **Texture:** sand
% Silt: 2 **pH:** 5.9 **Soil Name:** Tifton sandy loam
% Clay: 4

APPLICATION DESCRIPTION

| | A |
|-----------------------------|-----------|
| Application Date: | Mar-28-03 |
| Time of Day: | 9:00am |
| Application Method: | Broadcast |
| Application Timing: | PRE orPPI |
| Applic. Placement: | underplas |
| Air Temp., Unit: | 70 F |
| % Relative Humidity: | 47 |
| Wind Velocity, Unit: | 2 mph |
| Dew Presence (Y/N): | N |
| Soil Temp., Unit: | 67 F |
| Soil Moisture: | perfect |
| % Cloud Cover: | 70 |

CROP STAGE AT EACH APPLICATION

| | A |
|----------------------------|---------------|
| Crop 1 Code, Stage: | CITLA PPI/PRE |
| Stage Scale: | . |
| Height, Unit: | 0. . |

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WEED STAGE AT EACH APPLICATION

| A | |
|---------------------|---------------|
| Weed 1 Code, Stage: | DTTAE PPI/PRE |
| Stage Scale: | . |
| Density, Unit: | . . |
| Weed 2 Code, Stage: | CYPES PPI/PRE |
| Stage Scale: | .. |
| Density, Unit: | . . |

APPLICATION EQUIPMENT

| A | |
|-----------------------|----------|
| Appl. Equipment: | backpack |
| Operating Pressure: | 22 |
| Nozzle Type: | flat fan |
| Nozzle Size: | 11002 |
| Nozzle Spacing, Unit: | 18 inch |
| Nozzles/Row: | 4 |
| Boom Length, Unit: | 4.5 feet |
| Boom Height, Unit: | 15 inch |
| Ground Speed, Unit: | 3 mph |
| Carrier: | water |
| Spray Volume, Unit: | 14.8 GPA |
| Propellant: | CO2 |
| Tank Mix (Y/N): | Y |

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Watermelon and weed response to Sandea applied PPI under narrow plastic.

Trial ID: Veg20-03

Study Dir.:

Location: Ponder farm

Investigator: Stanley Culpepper

| Weed Code | CITLA | CITLA | CITLA | Plant 1 | Plant 2 | Plant 3 | Plant 4 | Plant 5 | | | |
|--------------------|----------------|-----------|-----------|-------------|-------------|-------------|-------------|-------------|--------|-------|-------|
| Crop Code | CITLA | CITLA | CITLA | CITLA | CITLA | CITLA | CITLA | CITLA | | | |
| Rating Data Type | injury | injury | injury | vine length | vine length | vine length | vine length | vine length | | | |
| Rating Unit | percent | percent | percent | cm | cm | cm | cm | cm | | | |
| Rating Date | Apr-21-03 | May-05-03 | May-30-03 | May-06-03 | May-06-03 | May-06-03 | May-06-03 | May-06-03 | | | |
| Trt-Eval Interval | 26 DA-A | 40 DA-A | 40 DA-A | 41 DA-A | 41 DA-A | 41 DA-A | 41 DA-A | 41 DA-A | | | |
| ARM Action Codes | | | | | | | | | | | |
| Trt No. | Treatment Name | Rate | Rate Unit | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Non-treated | | | 0.0 | 0.0 | 0.0 | 82.8 | 90.8 | 95.8 | 80.0 | 77.5 |
| 2 | Sandea | 0.5 | oz/a | 0.0 | 7.5 | 0.0 | 82.0 | 70.8 | 79.3 | 69.8 | 78.8 |
| 3 | Sandea | 0.75 | oz/a | 4.5 | 18.0 | 0.0 | 70.3 | 65.5 | 64.5 | 54.8 | 75.3 |
| 4 | Sandea | 1.0 | oz/a | 5.8 | 23.8 | 0.0 | 58.5 | 58.5 | 51.3 | 51.5 | 68.5 |
| 5 | Sandea | 0.75 | oz/a | 10.8 | 25.0 | 0.0 | 60.5 | 75.3 | 68.0 | 50.0 | 56.8 |
| LSD (P=.05) | | | | 4.62 | 9.27 | 0.00 | 22.63 | 16.15 | 21.20 | 20.33 | 22.37 |
| Standard Deviation | | | | 3.00 | 6.02 | 0.00 | 14.69 | 10.48 | 13.76 | 13.19 | 14.52 |
| CV | | | | 71.46 | 40.52 | 0.0 | 20.75 | 14.52 | 19.18 | 21.56 | 20.34 |
| Bartlett's X2 | | | | 6.383 | 4.936 | 0.0 | 3.259 | 10.111 | 9.663 | 1.815 | 1.794 |
| P(Bartlett's X2) | | | | 0.041* | 0.177 | . | 0.516 | 0.039* | 0.046* | 0.77 | 0.774 |

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

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| Weed Code | Plant 6 | AVERAGE | CYPES | DTTAE | in. melo | in. melo | TOTAL | TOTAL | | | |
|--------------------|----------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|--------|--------|--------|
| Crop Code | CITLA | CITLA | | | CITLA | CITLA | CITLA | CITLA | | | |
| Rating Data Type | vine length | vine length | control | control | < 10 lb | < 10 lb | < 10 lb | < 10 lb | | | |
| Rating Unit | cm | cm | percent | percent | wt/lbs | wt/lbs | number | wt/lbs | | | |
| Rating Date | May-06-03 | May-06-03 | May-30-03 | May-30-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | | | |
| Trt-Eval Interval | 41 DA-A | 1223 DA- | 1247 DA- | 1247 DA- | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | | | |
| ARM Action Codes | | T1 | | | | | | | | | |
| Trt No. | Treatment Name | Rate | Unit | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 1 | Non-treated | | | 67.8 | 82.4 | 0.0 | 0.0 | 4.3 | 1.8 | 0.8 | 6.0 |
| 2 | Sandea | 0.5 oz/a | | 66.0 | 74.4 | 96.8 | 88.3 | 4.9 | 0.0 | 0.5 | 4.9 |
| 3 | Sandea | 0.75 oz/a | | 74.5 | 67.5 | 97.8 | 87.3 | 3.0 | 0.0 | 0.5 | 3.0 |
| 4 | Sandea | 1.0 oz/a | | 75.5 | 60.6 | 96.8 | 89.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5 | Sandea | 0.75 oz/a | | 69.5 | 63.3 | 84.5 | 46.3 | 6.1 | 1.4 | 1.0 | 7.5 |
| LSD (P=.05) | | | | 29.72 | 13.06 | 8.81 | 25.65 | 6.59 | 2.69 | 0.99 | 7.95 |
| Standard Deviation | | | | 19.29 | 8.47 | 5.72 | 16.65 | 4.28 | 1.74 | 0.65 | 5.16 |
| CV | | | | 27.3 | 12.17 | 7.61 | 26.72 | 117.51 | 276.66 | 117.36 | 120.81 |
| Bartlett's X2 | | | | 6.335 | 6.112 | 6.638 | 5.661 | 0.775 | 0.143 | 1.075 | 1.676 |
| P(Bartlett's X2) | | | | 0.175 | 0.191 | 0.084 | 0.129 | 0.855 | 0.705 | 0.783 | 0.642 |

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

Column 10: T1 = @AVG([C4].[C9])

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| Weed Code | in. melo | in. melo | in. melo | in. melo | in. melo | in. melo | in. melo | in. melo | | | |
|--------------------|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|--------|--------|
| Crop Code | CITLA | CITLA | CITLA | CITLA | CITLA | CITLA | CITLA | CITLA | | | |
| Rating Data Type | 10-20lbs | 10-20lbs | 10-20lbs | 10-20lbs | 10-20lbs | 10-20lbs | 10-20lbs | 10-20lbs | | | |
| Rating Unit | wt/lbs | wt/lbs | wt/lbs | wt/lbs | wt/lbs | wt/lbs | wt/lbs | wt/lbs | | | |
| Rating Date | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | | | |
| Trt-Eval Interval | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | | | |
| ARM Action Codes | | | | | | | | | | | |
| Trt No. | Treatment Name | Rate | Unit | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 1 | Non-treated | | | 15.9 | 15.7 | 6.3 | 7.7 | 4.7 | 3.2 | 2.8 | 0.0 |
| 2 | Sandea | 0.5 | oz/a | 16.2 | 14.5 | 11.3 | 7.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3 | Sandea | 0.75 | oz/a | 17.5 | 16.3 | 8.3 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4 | Sandea | 1.0 | oz/a | 17.0 | 15.7 | 15.6 | 11.4 | 12.1 | 10.7 | 2.9 | 4.0 |
| 5 | Sandea | 0.75 | oz/a | 16.3 | 6.6 | 2.8 | 3.9 | 3.0 | 0.0 | 0.0 | 0.0 |
| LSD (P=.05) | | | | 4.19 | 5.64 | 10.49 | 10.31 | 9.29 | 6.43 | 5.68 | 5.51 |
| Standard Deviation | | | | 2.72 | 3.66 | 6.81 | 6.69 | 6.03 | 4.18 | 3.69 | 3.58 |
| CV | | | | 16.44 | 26.64 | 77.0 | 85.9 | 152.25 | 150.21 | 329.18 | 447.21 |
| Bartlett's X2 | | | | 3.705 | 9.515 | 4.661 | 0.279 | 0.557 | 0.091 | 0.004 | 0.0 |
| P(Bartlett's X2) | | | | 0.447 | 0.049* | 0.324 | 0.991 | 0.757 | 0.763 | 0.951 | . |

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

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| Weed Code | TOTAL CITLA | TOTAL CITLA | in. melo CITLA | in. melo CITLA | in. melo CITLA | in. melo CITLA | in. melo CITLA | in. melo CITLA | TOTAL CITLA | | |
|--------------------|----------------|----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------|--------|-------|
| Crop Code | 10-20lbs | 10-20lbs | >20lbs | >20lbs | >20lbs | >20lbs | >20lbs | >20lbs | >20lbs | | |
| Rating Data Type | number | wt/lbs | wt/lbs | wt/lbs | wt/lbs | wt/lbs | wt/lbs | wt/lbs | number | | |
| Rating Unit | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | Jun-27-03 | | |
| Rating Date | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | 1275 DA- | | |
| Trt-Eval Interval | | T2 | | | | | | | | | |
| ARM Action Codes | | | | | | | | | | | |
| Trt No. | Treatment Name | Rate | Unit | 26 | 27 | 29 | 30 | 31 | 32 | 33 | 34 |
| 1 | Non-treated | | | 3.8 | 56.1 | 18.0 | 12.5 | 13.6 | 11.0 | 0.0 | 2.3 |
| 2 | Sandea | 0.5 | oz/a | 3.3 | 49.3 | 17.3 | 11.3 | 5.1 | 0.0 | 0.0 | 1.5 |
| 3 | Sandea | 0.75 | oz/a | 3.0 | 50.7 | 18.2 | 17.9 | 5.9 | 0.0 | 0.0 | 1.8 |
| 4 | Sandea | 1.0 | oz/a | 5.8 | 89.3 | 23.8 | 23.5 | 17.8 | 6.2 | 0.0 | 3.0 |
| 5 | Sandea | 0.75 | oz/a | 2.3 | 32.5 | 12.5 | 6.6 | 5.6 | 5.3 | 6.2 | 1.5 |
| LSD (P=.05) | | | | 2.44 | 33.69 | 17.98 | 19.77 | 18.52 | 14.46 | 8.48 | 2.59 |
| Standard Deviation | | | | 1.59 | 21.86 | 11.67 | 12.83 | 12.02 | 9.39 | 5.50 | 1.68 |
| CV | | | | 44.07 | 39.36 | 65.09 | 89.44 | 125.57 | 209.04 | 447.21 | 84.04 |
| Bartlett's X2 | | | | 2.892 | 1.916 | 4.452 | 4.736 | 0.625 | 0.102 | 0.0 | 3.637 |
| P(Bartlett's X2) | | | | 0.576 | 0.751 | 0.348 | 0.315 | 0.96 | 0.95 | . | 0.457 |

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

Column 26: T2 = [C18]+[C19]+[C20]+[C21]+[C22]+[C23]+[C24]+[C25]

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| Weed Code | TOTAL | TOTAL | TOTAL |
|--------------------|-----------|-----------|-----------|
| Crop Code | CITLA | CITLA | CITLA |
| Rating Data Type | >20lbs | ALL | ALL |
| Rating Unit | wt/lbs | number | wt/lbs |
| Rating Date | Jun-27-03 | Jun-27-03 | Jun-27-03 |
| Trt-Eval Interval | 1275 DA- | 1275 DA- | 1275 DA- |
| ARM Action Codes | T3 | T4 | T5 |
| Trt Treatment Rate | | | |
| No. Name Rate Unit | 35 | 36 | 38 |
| 1 Non-treated | 55.0 | 6.8 | 117.1 |
| 2 Sandea 0.5 oz/a | 33.7 | 5.3 | 87.9 |
| 3 Sandea 0.75 oz/a | 42.0 | 5.3 | 95.6 |
| 4 Sandea 1.0 oz/a | 71.2 | 8.8 | 160.5 |
| 5 Sandea 0.75 oz/a | 36.1 | 4.8 | 76.0 |
| LSD (P=.05) | 62.57 | 3.59 | 72.06 |
| Standard Deviation | 40.61 | 2.33 | 46.77 |
| CV | 85.37 | 37.9 | 43.55 |
| Bartlett's X2 | 5.151 | 6.459 | 2.743 |
| P(Bartlett's X2) | 0.272 | 0.167 | 0.602 |

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

Column 33: T3 = [29]+[30]+[31]+[32]+[33]

Column 34: T4 = [15]+[26]+[34]

Column 35: T5 = [16]+[27]+[35]

Trial Comments

GENERAL COMMENTS: Trial area was fumigated with Telone C35. Treatments were applied, plastic laid immediately, and plants transplanted within 48 hours simulating a worst case scenero.

VISUAL INJURY:

- 1) At 4 WAT, plant stunting was being starting to be detected with the greatest stunting noted with the PRE treatment.
- 2) At 6 WAT, significant plant stunting was noted with Sandea PPI at 0.75 and 1 oz/A and with Sandea PRE.
- 3) By 9 WAT, no visual injury was detectable.

WEED CONTROL:

- 1) The trail was weed free for 4 to 5 weeks then nutsedge and crowfootgrass begin to emerge. Huge differences in plots were noted thus the trial was not weeded.
- 2) Sandea PPI was 14% more effective than when applied PRE on nutsedge at at 9 WAT.
- 3) Sandea PPI was 41% more effective than when applied PRE on crowfootgrass at 9 WAT.

VINE GROWTH:

- 1) Averaged over seven plants per plot, Sandea applied PPI at 0.75 and 1 oz/A and Sandea applied PRE reduced vine growth by 18 to 26% compared to the non-treated control.

YIELD:

- 1) Herbicide treatments did not affect the number or weight of melons less than 10lbs, between 10 and 20 lbs, or greater than 20 lbs.
- 2) Herbicide treatments did not affect total number or weight of all melons.