

Liberty and Callisto Total Postemergence Programs.

02-6C-E95

OBJECTIVE: Determine Benefits of Liberty plus Callisto tankmixtures for initial and residual weed control.

SUMMARY: No crop injury was observed with any treatment at any timing. Increasing the rate of Liberty tended to increase control of giant foxtail, particularly at the 32 oz/A rate. Liberty plus Callisto applied in combination with Prime Oil COC and AMS provided the least control of giant foxtail at all timings. At 42 DAT, control of common cocklebur was at least 85% for all treatments and no treatment provided less than 95% control of common ragweed at any timing. Control of velvetleaf at 42 DAT was 99% for all treatments containing Callisto, while control for other treatment combinations ranged from 72 to 95%. Control of common waterhemp was variable at 42 DAT, with levels of control ranging from 77 to 99%, however, at least 96% control of common waterhemp was observed for all treatments containing Aatrex. Corn yield ranged from 7 bu/A in nontreated plots to 144 bu/A. There were no significant differences in corn yield among herbicide treated plots.

HERBICIDES

AATREX 90 WG
CALLISTO 4 SC
DISTINCT 70 WG
LIBERTY 1.67 EC

WEEDS

cocklebur, common
foxtail, giant
ragweed, common
velvetleaf
waterhemp, common

CROP

corn, field

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Liberty and Callisto Total Postemergence Programs.

Project Code: 02-6C-E95 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

| | | |
|-------------------------|------------|--------------|
| City State Zip Country: | Belleville | IL 62221 USA |
| Trial Status: Final | Updated: | 10-24-02 |

Objective:

Determine Benefits of Liberty plus Callisto tankmixtures for initial and residual weed control.

| Weed Code | Common Name | Scientific Name |
|-----------|-------------------|------------------------------|
| 1. SETFA | foxtail, giant | Setaria faberi Herrm. |
| 2. XANST | cocklebur, common | Xanthium strumarium L. |
| 3. ABUTH | velvetleaf | Abutilon theophrasti Medicus |
| 4. AMBEL | ragweed, common | Ambrosia artemisiifolia L. |
| 5. AMATA | waterhemp, common | Amaranthus rudis Sauer |

| | | | | |
|------------------|--------|-------------|----------------|-----------------|
| Crop 1: | ZEAMX | corn, field | Variety: | Pioneer 33P69LL |
| Planting Method: | Seeded | | Planting Date: | 5-29-02 |
| Rate: | 28000 | S/A | Depth: | 1.5 IN |
| Row Spacing: | 30 | IN | | |

| | | | | | | | |
|----------------------|--------------|----|--------------------|---------------------------|----|-------|---|
| Plot Width, Unit: | 10 | FT | Plot Length, Unit: | 30 | FT | Reps: | 3 |
| Tillage Type: | Reduced-Till | | Study Design: | Randomized complete block | | | |
| Previous Crop, Year: | GLXMA, 2001 | | | | | | |

Field Prep./Maintenance: N 150 LB/A, P2O5 50 LB/A, K2O 150 LB/A

| | | | | | | | |
|------------|-----------|--------------|--------------|-----|----------|------|---|
| Soil Name: | Stoy | % OM: | 1.6 | pH: | 6.6 | CEC: | 8 |
| Texture: | Silt loam | Fert. Level: | P1: 91 LB/A, | K: | 296 LB/A | | |

APPLICATION DESCRIPTION

| | | A |
|----------------------|---------|-----|
| Application Date: | 6-17-02 | |
| Time of Day: | 13:00 | |
| Application Method: | Spray | |
| Application Timing: | 6-10"W | |
| Applic. Placement: | BROFOL | |
| Air Temp., Unit: | 78 | F |
| % Relative Humidity: | 36 | |
| Wind Velocity, Unit: | 0-3 | MPH |
| Soil Moisture: | NORMAL | |
| % Cloud Cover: | 10 | |

CROP STAGE AT EACH APPLICATION

| | | A |
|---------------------|-------|----|
| Crop 1 Code, Stage: | ZEAMX | V5 |
| Height, Unit: | 14 | IN |

WEED STAGE AT EACH APPLICATION

| | | A |
|-----------------|--------|---|
| Weed 1 Code: | SETFA | |
| Stage(leaves): | 6-8 | |
| Height(inches): | 6-10 | |
| Density: | Medium | |
| Weed 2 Code: | XANST | |
| Stage(leaves): | 6-8 | |
| Height(inches): | 8-10 | |
| Density: | High | |
| Weed 3 Code: | ABUTH | |
| Stage(leaves): | 6-8 | |
| Height(inches): | 6-8 | |
| Density: | Low | |

Weed 4 Code: AMBEL
Stage(leaves): 4-6
Height(inches): 4-6
Density: Low

Weed 5 Code: AMATA
Stage(leaves): 10-14
Height(inches): 6-10
Density: High

APPLICATION EQUIPMENT

A

Appl. Equipment: CO2 sprayer
Operating Pressure: 40 PSI
Nozzle Type: Flat fan
Nozzle Size: 8002
Boom Length, Unit: 7.5 FT
Spray Volume, Unit: 20 GPA

NOTES:

Harvested Oct-15-02, (2) 30 inch rows by 27 ft.

Liberty and Callisto Total Postemergence Programs.

Project Code: 02-6C-E95 Location: Belleville Research Center

| Weed Code | | SETFA SETFA SETFA XANST XANST XANST ABUTH ABUTH ABUTH | | | | | | | | | | | | | | | | | | | | |
|-------------------|----------------|---|-----------|---------|---------|-----------------------------|-----------|----------|-----------------------------|---------|---------|-----------------------------|---------|---------|---------|----|----|----|----|----|----|----|
| Crop Code | | ZEAMX ZEAMX ZEAMX ZEAMX | | | | Control Control Control | | | Control Control Control | | | Control Control Control | | | | | | | | | | |
| Rating Data Type | | Yield | Injury | Injury | Injury | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | | | | | | | |
| Rating Unit | | bu/A | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | | | | | | | |
| Rating Date | | 10-15-02 | 7-1-02 | 7-15-02 | 7-29-02 | 7-1-02 | 7-15-02 | 7-29-02 | 7-1-02 | 7-15-02 | 7-29-02 | 7-1-02 | 7-15-02 | 7-29-02 | 7-29-02 | | | | | | | |
| Trt-Eval Interval | | 14 DA-A | 28 DA-A | 42 DA-A | 14 DA-A | 28 DA-A | 42 DA-A | 14 DA-A | 28 DA-A | 42 DA-A | 14 DA-A | 28 DA-A | 42 DA-A | 14 DA-A | 28 DA-A | | | | | | | |
| Trt No. | Treatment Name | Form Conc | Form Type | Rate | Unit | Prod Rate | Prod Unit | Grow Stg | Appl Code | | | | | | | | | | | | | |
| 1 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 131 | 0 | 0 | 0 | 78 | 75 | 68 | 93 | 89 | 85 | 82 | 77 | 75 |
| 1 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 2 | LIBERTY | 1.67 | EC | 0.365 | LB A/A | 28 | OZ/A | 6-10"W | A | 140 | 0 | 0 | 0 | 87 | 87 | 84 | 96 | 94 | 88 | 83 | 79 | 76 |
| 2 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 3 | LIBERTY | 1.67 | EC | 0.418 | LB A/A | 32 | OZ/A | 6-10"W | A | 141 | 0 | 0 | 0 | 96 | 96 | 94 | 94 | 94 | 92 | 91 | 84 | 82 |
| 3 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 4 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 128 | 0 | 0 | 0 | 78 | 80 | 77 | 91 | 92 | 89 | 98 | 99 | 99 |
| 4 | CALLISTO | 4 | SC | 0.0313 | LB A/A | 1 | OZ/A | 6-10"W | A | | | | | | | | | | | | | |
| 4 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 5 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 129 | 0 | 0 | 0 | 68 | 70 | 67 | 92 | 90 | 88 | 98 | 99 | 99 |
| 5 | CALLISTO | 4 | SC | 0.0469 | LB A/A | 1.5 | OZ/A | 6-10"W | A | | | | | | | | | | | | | |
| 5 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 6 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 133 | 0 | 0 | 0 | 81 | 79 | 72 | 96 | 91 | 93 | 99 | 99 | 99 |
| 6 | CALLISTO | 4 | SC | 0.0626 | LB A/A | 2 | OZ/A | 6-10"W | A | | | | | | | | | | | | | |
| 6 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 7 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 129 | 0 | 0 | 0 | 88 | 86 | 81 | 99 | 99 | 99 | 96 | 94 | 91 |
| 7 | AATREX | 90 | WG | 1.0 | LB A/A | 1.11 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 7 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 8 | LIBERTY | 1.67 | EC | 0.365 | LB A/A | 28 | OZ/A | 6-10"W | A | 144 | 0 | 0 | 0 | 89 | 87 | 85 | 99 | 99 | 99 | 98 | 96 | 95 |
| 8 | AATREX | 90 | WG | 1.25 | LB A/A | 1.39 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 8 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 9 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 121 | 0 | 0 | 0 | 81 | 82 | 76 | 94 | 98 | 99 | 86 | 82 | 72 |
| 9 | DISTINCT | 70 | WG | 0.0875 | LB A/A | 2 | OZ/A | 6-10"W | A | | | | | | | | | | | | | |
| 9 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 10 | LIBERTY | 1.67 | EC | 0.209 | LB A/A | 16 | OZ/A | 6-10"W | A | 123 | 0 | 0 | 0 | 48 | 53 | 47 | 99 | 99 | 99 | 99 | 99 | 99 |
| 10 | CALLISTO | 4 | SC | 0.094 | LB A/A | 3 | OZ/A | 6-10"W | A | | | | | | | | | | | | | |
| 10 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 10 | PRIME OIL COC | 100 | LIQ | 1.0 | % V/V | 1 | %V/V | 6-10"W | A | | | | | | | | | | | | | |
| 11 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 134 | 0 | 0 | 0 | 84 | 82 | 76 | 99 | 99 | 99 | 99 | 99 | 99 |
| 11 | CALLISTO | 4 | SC | 0.0469 | LB A/A | 1.5 | OZ/A | 6-10"W | A | | | | | | | | | | | | | |
| 11 | AATREX | 90 | WG | 1.0 | LB A/A | 1.11 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 11 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | | | | | | | | |
| 11 | PRIME OIL COC | 100 | LIQ | 1.0 | % V/V | 1 | %V/V | 6-10"W | A | | | | | | | | | | | | | |

| Weed Code | ZEAMX | | | | SETFA | | | XANST | | ABUTH | | |
|-------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Crop Code | Yield | Injury | Injury | Injury | Control | Control | Control | Control | Control | Control | Control | Control |
| Rating Data Type | bu/A | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| Rating Unit | 10-15-02 | 7-1-02 | 7-15-02 | 7-29-02 | 7-1-02 | 7-15-02 | 7-29-02 | 7-1-02 | 7-15-02 | 7-29-02 | 7-1-02 | 7-15-02 |
| Rating Date | 14 DA-A | 28 DA-A | 42 DA-A | 14 DA-A | 28 DA-A | 42 DA-A | 14 DA-A | 28 DA-A | 42 DA-A | 14 DA-A | 28 DA-A | 42 DA-A |
| Trt-Eval Interval | | | | | | | | | | | | |

| Trt No. | Treatment Name | Form Conc | Form Type | Rate | Prod Rate | Prod Unit | Grow Stg | Appl Code | | | | | | |
|---------|-------------------|-----------|-----------|------|-----------|-----------|----------|-----------|--------|--------|--------|--------|--------|--------|
| 12 | NONTREATED | | | | | | | | 7 | 0 | 0 | 0 | 0 | 0 |
| | LSD (P=.05) | | | | | | | | 25.2 | 0.0 | 0.0 | 0.0 | 14.4 | 14.8 |
| | Replicate F | | | | | | | | 0.547 | 0.000 | 0.000 | 0.000 | 3.791 | 3.498 |
| | Replicate Prob(F) | | | | | | | | 0.5864 | 1.0000 | 1.0000 | 1.0000 | 0.0385 | 0.0480 |
| | Treatment F | | | | | | | | 18.368 | 0.000 | 0.000 | 0.000 | 27.915 | 25.272 |
| | Treatment Prob(F) | | | | | | | | 0.0001 | 1.0000 | 1.0000 | 1.0000 | 0.0001 | 0.0001 |

| | | | | | | |
|-------------------|---------|---------|---------|---------|---------|---------|
| Weed Code | AMBEL | AMBEL | AMBEL | AMATA | AMATA | AMATA |
| Crop Code | | | | | | |
| Rating Data Type | Control | Control | Control | Control | Control | Control |
| Rating Unit | Percent | Percent | Percent | Percent | Percent | Percent |
| Rating Date | 7-1-02 | 7-15-02 | 7-29-02 | 7-1-02 | 7-15-02 | 7-29-02 |
| Trt-Eval Interval | 14 DA-A | 28 DA-A | 42 DA-A | 14 DA-A | 28 DA-A | 42 DA-A |

| Trt No. | Treatment Name | Form Conc | Form Type | Rate | Rate Unit | Prod Rate | Prod Unit | Grow Stg | Appl Code | | | | | | |
|-------------|----------------|-----------|-----------|--------|-----------|-----------|-----------|----------|-----------|-----|-----|-----|------|------|-----|
| 1 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 98 | 97 | 95 | 83 | 84 | 82 |
| 1 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | |
| 2 | LIBERTY | 1.67 | EC | 0.365 | LB A/A | 28 | OZ/A | 6-10"W | A | 98 | 98 | 97 | 88 | 83 | 84 |
| 2 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | |
| 3 | LIBERTY | 1.67 | EC | 0.418 | LB A/A | 32 | OZ/A | 6-10"W | A | 99 | 99 | 99 | 97 | 94 | 89 |
| 3 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | |
| 4 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 99 | 99 | 99 | 87 | 86 | 86 |
| 4 | CALLISTO | 4 | SC | 0.0313 | LB A/A | 1 | OZ/A | 6-10"W | A | | | | | | |
| 4 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | |
| 5 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 99 | 99 | 99 | 86 | 87 | 87 |
| 5 | CALLISTO | 4 | SC | 0.0469 | LB A/A | 1.5 | OZ/A | 6-10"W | A | | | | | | |
| 5 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | |
| 6 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 99 | 99 | 99 | 95 | 91 | 88 |
| 6 | CALLISTO | 4 | SC | 0.0626 | LB A/A | 2 | OZ/A | 6-10"W | A | | | | | | |
| 6 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | |
| 7 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 99 | 99 | 99 | 99 | 98 | 96 |
| 7 | AATREX | 90 | WG | 1.0 | LB A/A | 1.11 | LB/A | 6-10"W | A | | | | | | |
| 7 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | |
| 8 | LIBERTY | 1.67 | EC | 0.365 | LB A/A | 28 | OZ/A | 6-10"W | A | 99 | 99 | 99 | 99 | 99 | 98 |
| 8 | AATREX | 90 | WG | 1.25 | LB A/A | 1.39 | LB/A | 6-10"W | A | | | | | | |
| 8 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | |
| 9 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 99 | 99 | 99 | 82 | 82 | 77 |
| 9 | DISTINCT | 70 | WG | 0.0875 | LB A/A | 2 | OZ/A | 6-10"W | A | | | | | | |
| 9 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | |
| 10 | LIBERTY | 1.67 | EC | 0.209 | LB A/A | 16 | OZ/A | 6-10"W | A | 96 | 98 | 98 | 93 | 97 | 97 |
| 10 | CALLISTO | 4 | SC | 0.094 | LB A/A | 3 | OZ/A | 6-10"W | A | | | | | | |
| 10 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | |
| 10 | PRIME OIL COC | 100 | LIQ | 1.0 | % V/V | 1 | %V/V | 6-10"W | A | | | | | | |
| 11 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 6-10"W | A | 99 | 99 | 99 | 99 | 99 | 99 |
| 11 | CALLISTO | 4 | SC | 0.0469 | LB A/A | 1.5 | OZ/A | 6-10"W | A | | | | | | |
| 11 | AATREX | 90 | WG | 1.0 | LB A/A | 1.11 | LB/A | 6-10"W | A | | | | | | |
| 11 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 6-10"W | A | | | | | | |
| 11 | PRIME OIL COC | 100 | LIQ | 1.0 | % V/V | 1 | %V/V | 6-10"W | A | | | | | | |
| 12 | NONTREATED | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| LSD (P=.05) | | | | | | | | | | 2.6 | 1.8 | 2.4 | 10.6 | 10.1 | 9.2 |

| | | | | | | |
|-------------------|---------|---------|---------|---------|---------|---------|
| Weed Code | AMBEL | AMBEL | AMBEL | AMATA | AMATA | AMATA |
| Crop Code | | | | | | |
| Rating Data Type | Control | Control | Control | Control | Control | Control |
| Rating Unit | Percent | Percent | Percent | Percent | Percent | Percent |
| Rating Date | 7-1-02 | 7-15-02 | 7-29-02 | 7-1-02 | 7-15-02 | 7-29-02 |
| Trt-Eval Interval | 14 DA-A | 28 DA-A | 42 DA-A | 14 DA-A | 28 DA-A | 42 DA-A |

| Trt No. | Treatment Name | Form Conc | Form Type | Rate | Prod Rate | Prod Unit | Grow Stg | Appl Code |
|-------------------|----------------|-----------|-----------|----------|-----------|-----------|----------|-----------|
| Replicate F | | | | 1.113 | | | | |
| Replicate Prob(F) | | | | 0.3465 | | | | |
| Treatment F | | | | 1004.082 | 2074.627 | 1165.528 | | |
| Treatment Prob(F) | | | | 0.0001 | 0.0001 | 0.0001 | | |

Liberty and Callisto Total Postemergence Programs.

Project Code: 02-6C-E95

Location: Belleville Research Center

Trial Comments

1. Protocol: Aventis (1-10); SIU (11).
2. DA-A = days after 6-10"W application.