

Balance PRO Cleanstart in Corn.

02-11B-E90

OBJECTIVE: Evaluate the utility of Balance PRO prior to corn planting.

SUMMARY: In no-till, Balance PRO alone applied 14 days early preplant (14 EPP) controlled at least 93% of Carolina foxtail, common cocklebur and giant ragweed at 14 days after treatment. Adding Define and Aatrex to Balance PRO increased horseweed (marestalk) control from 78 to 100%. In plots that were tilled at planting, Balance PRO alone applied 30 EPP controlled 100% of giant ragweed, 88% of common cocklebur, and 83% of horseweed on May 17 (29 days after treatment). Adding Option and Aatrex to Balance PRO did not increase control of common cocklebur or horseweed. Balance PRO treatments applied 14 EPP controlled at least 93% of all weeds evaluated at 14 days after treatment which was similar to the control provided by Bicep II Magnum. Control of giant foxtail, common cocklebur, ivyleaf morningglory, and velvetleaf on July 29 was less than 50% in plots that received only a 14 EPP treatment. Preplant incorporated (PPI) and preemergence (PRE) treatments that included Balance PRO or Degree Extra controlled at least 87% of giant foxtail on July 29. There were no significant differences in common cocklebur or velvetleaf control between PPI and PRE Balance PRO treatments. However, Balance PRO plus Define and Aatrex PPI controlled significantly less ivyleaf morningglory than the same treatment applied PRE.

HERBICIDES/TILLAGES

AATREX 90 WG
 BALANCE PRO 4 SC
 BICEP II MAGNUM 5.5 L
 CALLISTO 4 SC
 DEFINE 60 WG
 DEGREE EXTRA 4 L
 LIBERTY 1.67 EC
 OPTION 35 WG
 ROUNDUP ULTRA MAX 3.7 SL
 NO-TILL
 TILLAGE AT PLANTING

WEEDS

bittercress, smallflowered
 chickweed, mouseear
 cocklebur, common
 foxtail, Carolina
 foxtail, giant
 horseweed
 morningglory, ivyleaf
 ragweed, giant
 velvetleaf

CROP

corn, field

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Balance Pro Cleanstart in Corn.

Project Code: 02-11B-E90 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
 Trial Status: Final Updated: 10-23-02

Objective:

Evaluate the utility of Balance Pro prior to corn planting.

| Weed Code | Common Name | Scientific Name |
|-----------|----------------------------|-------------------------------|
| 1. ALOCA | foxtail, Carolina | Alopecurus carolinianus Walt. |
| 2. CARPA | bittercress, smallflowered | Cardamine parviflora L. |
| 3. CERVU | chickweed, mouseear | Cerastium vulgatum L. |
| 4. AMBTR | ragweed, giant | Ambrosia trifida L. |
| 5. XANST | cocklebur, common | Xanthium strumarium L. |
| 6. ERICA | horseweed | Conyza canadensis (L.) Crong. |
| 7. SETFA | foxtail, giant | Setaria faberi Herrm. |
| 8. IPOHE | morningglory, ivyleaf | Ipomoea hederacea (L.) Jacq. |
| 9. ABUTH | velvetleaf | Abutilon theophrasti Medicus |

Crop 1: ZEAMX corn, field Variety: Pioneer 33P69LL
 Planting Method: Seeded Planting Date: 5-31-02
 Rate: 28000 S/A Depth: 1.5 IN
 Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 26 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: Ebbert % OM: 1.5 pH: 6.5 CEC: 13
 Texture: Silt loam Fert. Level: P1: 96 LB/A, K: 265 LB/A

APPLICATION DESCRIPTION

| | A | B | C | D | E | F |
|----------------------|---------|--------|---------|---------|---------|---------|
| Application Date: | 4-18-02 | 5-3-02 | 5-3-02 | 5-31-02 | 6-1-02 | 6-6-02 |
| Time of Day: | 10:00 | 11:00 | 11:00 | 8:45 | 9:00 | 9:00 |
| Application Method: | Spray | Spray | Spray | Spray | Spray | Spray |
| Application Timing: | 30EPP | 14EPP | 14EPPBD | PPI | PRE | 3-4"W |
| Applic. Placement: | BROFOL | BROFOL | BROFOL | BROSOI | BROSOI | BROFOL |
| Air Temp., Unit: | 82 F | 64 F | 64 F | 74 F | 76 F | 64 F |
| % Relative Humidity: | 62 | 34 | 34 | 74 | 74 | 80 |
| Wind Velocity, Unit: | 3 MPH | 3 MPH | 3 MPH | 3-5 MPH | 0-5 MPH | 0-5 MPH |
| Soil Moisture: | ABONOR | ABONOR | ABONOR | NORMAL | NORMAL | NORMAL |
| % Cloud Cover: | | | | | | 85 |

CROP STAGE AT EACH APPLICATION

| | A | B | C | D | E | F |
|---------------------|----------|----------|----------|----------|----------|----------|
| Crop 1 Code, Stage: | ZEAMX NA | ZEAMX NA | ZEAMX NA | ZEAMX NA | ZEAMX NA | ZEAMX V1 |
| Height, Unit: | NA NA | NA NA | NA NA | NA NA | NA NA | 1-3 IN |

WEED STAGE AT EACH APPLICATION

| | A | B | C | D | E | F |
|-----------------|--------|-------|-------|---|---|---|
| Weed 1 Code: | ALOCA | ALOCA | ALOCA | | | |
| Stage(leaves): | 5-6 | 5-6 | 5-6 | | | |
| Height(inches): | 4-6 | 4-8 | 4-8 | | | |
| Density: | High | High | High | | | |
| Weed 2 Code: | CARPA | | | | | |
| Stage(leaves): | 10+ | | | | | |
| Height(inches): | 4-6 | | | | | |
| Density: | Medium | | | | | |
| Weed 3 Code: | CERVU | CERVU | CERVU | | | |
| Stage(leaves): | 10+ | 10+ | 10+ | | | |
| Height(inches): | 4-6 | 4-6 | 4-6 | | | |
| Density: | High | High | High | | | |

| | | | | |
|---------------------|-------|--------|--------|--------|
| Weed 4 Code: | | AMBTR | AMBTR | AMBTR |
| Stage (leaves): | | 5-6 | 5-6 | 0-2 |
| Height (inches): | | 3-5 | 3-5 | 0-2 |
| Density: | | Medium | Medium | Low |
| Weed 5 Code: | XANST | XANST | XANST | XANST |
| Stage (leaves): | 0-2 | 3-4 | 3-4 | 0-2 |
| Height (inches): | 0-2 | 1-2 | 1-2 | 1-3 |
| Density: | Low | Low | Low | Low |
| Weed 6 Code: | | ERICA | ERICA | ERICA |
| Stage (leaves): | | 10+ | 10+ | 15-30 |
| Height (inches): | | 3-4 | 3-4 | 8-14 |
| Density: | | Medium | Medium | Medium |
| Weed 7 Code: | | SETFA | SETFA | SETFA |
| Stage (leaves): | | 1-2 | 1-2 | 0-2 |
| Height (inches): | | 1-2 | 1-2 | 0-1 |
| Density: | | Medium | Medium | Low |
| Weed 8 Code: | | | | IPOHE |
| Stage (leaves): | | | | 2-6 |
| Height (inches): | | | | 1-5 |
| Density: | | | | Low |
| Weed 9 Code: | | | | ABUTH |
| Stage (leaves): | | | | 0-2 |
| Height (inches): | | | | 0-1 |
| Density: | | | | Low |

APPLICATION EQUIPMENT

| | A | B | C | D | E | F |
|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Appl. Equipment: | CO2 sprayer | CO2 sprayer | CO2 sprayer | CO2 sprayer | CO2 sprayer | CO2 sprayer |
| Operating Pressure: | 40 PSI | 40 PSI | 40 PSI | 40 PSI | 40 PSI | 40 PSI |
| Nozzle Type: | Flat fan | Flat fan | Flat fan | Flat fan | Flat fan | Flat fan |
| Nozzle Size: | 8003 | 8003 | 8003 | 8003 | 8003 | 8002 |
| Boom Length, Unit: | 7.5 FT | 7.5 FT | 7.5 FT | 7.5 FT | 7.5 FT | 7.5 FT |
| Incorporation Equip.: | | | | | FC2X+CM | |
| Hours to Incorp.: | | | | | 1.0 | |
| Spray Volume, Unit: | 20 GPA | 20 GPA | 20 GPA | 20 GPA | 20 GPA | 20 GPA |

NOTES:

Tillages are no-till and tillage at planting, see treatment list.

FC2X+CM = 2 passes with a field cultivator plus 1 pass with a cultmulcher.

This study was not harvested.

Balance Pro Cleanstart in Corn.

Project Code: 02-11B-E90 Location: Belleville Research Center

| Weed Code | | ALOCA CARPA CERVU AMBTR XANST ERICA SETFA XANST IPOHE ABUTH | | | | | | | | | | | | | | | | | | |
|-------------------|---------------------|--|-----------|-----------|-----------|-----------|-----------|----------|-----------|---|-----|-----|-----|-----|----|-----|----|----|----|----|
| Crop Code | | ZEAMX | | | | | | | | | | | | | | | | | | |
| Rating Data Type | | Injury Control Control Control Control Control Control Control Control Control Control Control Control | | | | | | | | | | | | | | | | | | |
| Rating Unit | | Percent Percent Percent Percent Percent Percent Percent Percent Percent Percent Percent Percent | | | | | | | | | | | | | | | | | | |
| Rating Date | | 7-29-02 5-17-02 5-17-02 5-17-02 5-17-02 5-17-02 5-17-02 5-17-02 7-29-02 7-29-02 7-29-02 7-29-02 | | | | | | | | | | | | | | | | | | |
| Trt-Eval Interval | | 53 DA-F 53 DA-F 53 DA-F 53 DA-F | | | | | | | | | | | | | | | | | | |
| Trt No. | Treatment Name | Form Conc | Form Type | Rate Rate | Unit Unit | Prod Rate | Prod Unit | Grow Stg | Appl Code | | | | | | | | | | | |
| 1 | TILLAGE AT PLANTING | | | | | | | | | 0 | 0 | 100 | 100 | 100 | 82 | 85 | 52 | 70 | 82 | 88 |
| 1 | BALANCE PRO | 4 | SC | 0.094 | LB A/A | 3 | OZ/A | 30EPP | A | | | | | | | | | | | |
| 1 | OPTION | 35 | WG | 0.0328 | LB A/A | 1.5 | OZ/A | 3-4"W | F | | | | | | | | | | | |
| 1 | AATREX | 90 | WG | 1.0 | LB A/A | 17.8 | OZ/A | 3-4"W | F | | | | | | | | | | | |
| 1 | DESTINY MSO | 100 | LIQ | 1.5 | PT/A | 1.5 | PT/A | 3-4"W | F | | | | | | | | | | | |
| 1 | 28% UAN | 100 | LIQ | 3.0 | PT/A | 3 | PT/A | 3-4"W | F | | | | | | | | | | | |
| 2 | TILLAGE AT PLANTING | | | | | | | | | 0 | 0 | 100 | 100 | 100 | 88 | 83 | 65 | 72 | 85 | 83 |
| 2 | BALANCE PRO | 4 | SC | 0.094 | LB A/A | 3 | OZ/A | 30EPP | A | | | | | | | | | | | |
| 2 | LIBERTY | 1.67 | EC | 0.313 | LB A/A | 24 | OZ/A | 3-4"W | F | | | | | | | | | | | |
| 2 | AATREX | 90 | WG | 0.75 | LB A/A | 13.3 | OZ/A | 3-4"W | F | | | | | | | | | | | |
| 2 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 3-4"W | F | | | | | | | | | | | |
| 3 | TILLAGE AT PLANTING | | | | | | | | | 0 | 100 | 100 | 100 | 100 | 30 | 100 | 27 | 83 | 88 | 96 |
| 3 | BICEP II MAGNUM | 5.5 | L | 2.89 | LB A/A | 2.1 | QT/A | 30EPP | A | | | | | | | | | | | |
| 3 | CALLISTO | 4 | SC | 0.094 | LB A/A | 3 | OZ/A | 3-4"W | F | | | | | | | | | | | |
| 3 | PRIME OIL COC | 100 | LIQ | 2.0 | PT/A | 2 | PT/A | 3-4"W | F | | | | | | | | | | | |
| 3 | AMS | 100 | DRY | 3.0 | LB/A | 3 | LB/A | 3-4"W | F | | | | | | | | | | | |
| 4 | TILLAGE AT PLANTING | | | | | | | | | 0 | 100 | 100 | 100 | 100 | 95 | 90 | 10 | 0 | 0 | 0 |
| 4 | BALANCE PRO | 4 | SC | 0.094 | LB A/A | 3 | OZ/A | 14EPP | B | | | | | | | | | | | |
| 4 | DEFINE | 60 | WG | 0.375 | LB A/A | 10 | OZ/A | 14EPP | B | | | | | | | | | | | |
| 4 | AATREX | 90 | WG | 1.5 | LB A/A | 26.7 | OZ/A | 14EPP | B | | | | | | | | | | | |
| 5 | TILLAGE AT PLANTING | | | | | | | | | 0 | 100 | 100 | 100 | 100 | 93 | 97 | 7 | 17 | 17 | 17 |
| 5 | BALANCE PRO | 4 | SC | 0.094 | LB A/A | 3 | OZ/A | 14EPP | B | | | | | | | | | | | |
| 5 | AATREX | 90 | WG | 1.5 | LB A/A | 26.7 | OZ/A | 14EPP | B | | | | | | | | | | | |
| 6 | TILLAGE AT PLANTING | | | | | | | | | 0 | 100 | 100 | 100 | 100 | 97 | 90 | 0 | 0 | 0 | 0 |
| 6 | BICEP II MAGNUM | 5.5 | L | 3.3 | LB A/A | 2.4 | QT/A | 14EPP | B | | | | | | | | | | | |
| 7 | TILLAGE AT PLANTING | | | | | | | | | 0 | 0 | 90 | 100 | 47 | 47 | 17 | 0 | 0 | 0 | 0 |
| 7 | NONTREATED | | | | | | | | | | | | | | | | | | | |
| 8 | NO-TILL | | | | | | | | | 0 | 100 | 100 | 100 | 100 | 97 | 78 | 68 | 67 | 73 | 78 |
| 8 | BALANCE PRO | 4 | SC | 0.094 | LB A/A | 3 | OZ/A | 14EPPBD | C | | | | | | | | | | | |
| 8 | PRIME OIL COC | 100 | LIQ | 2.0 | PT/A | 2 | PT/A | 14EPPBD | C | | | | | | | | | | | |
| 8 | OPTION | 35 | WG | 0.0328 | LB A/A | 1.5 | OZ/A | 3-4"W | F | | | | | | | | | | | |
| 8 | AATREX | 90 | WG | 1.0 | LB A/A | 17.8 | OZ/A | 3-4"W | F | | | | | | | | | | | |
| 8 | DESTINY MSO | 100 | LIQ | 1.5 | PT/A | 1.5 | PT/A | 3-4"W | F | | | | | | | | | | | |
| 8 | 28% UAN | 100 | LIQ | 3.0 | PT/A | 3 | PT/A | 3-4"W | F | | | | | | | | | | | |

| Weed Code | ALOCA CARPA CERVU AMBTR XANST ERICA SETFA XANST IPOHE ABUTH | | | | | | | | | | | | | | | | | | | |
|-------------------|---|-----------|-----------|---------|-----------|-----------|-----------|----------|-----------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Crop Code | ZEAMX | | | | | | | | | | | | | | | | | | | |
| Rating Data Type | Injury | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | | | | | | | | | |
| Rating Unit | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | | | | | | | | | |
| Rating Date | 7-29-02 | 5-17-02 | 5-17-02 | 5-17-02 | 5-17-02 | 5-17-02 | 5-17-02 | 7-29-02 | 7-29-02 | 7-29-02 | 7-29-02 | | | | | | | | | |
| Trt-Eval Interval | 53 DA-F | 53 DA-F | 53 DA-F | 53 DA-F | 53 DA-F | 53 DA-F | 53 DA-F | 53 DA-F | 53 DA-F | 53 DA-F | 53 DA-F | | | | | | | | | |
| Trt No. | Treatment Name | Form Conc | Form Type | Rate | Rate Unit | Prod Rate | Prod Unit | Grow Stg | Appl Code | | | | | | | | | | | |
| 9 | NO-TILL | | | | | | | | | 0 | 100 | 100 | 100 | 100 | 93 | 100 | 13 | 30 | 18 | 23 |
| 9 | BALANCE PRO | 4 | SC | 0.094 | LB A/A | 3 | OZ/A | 14EPPBD | C | | | | | | | | | | | |
| 9 | DEFINE | 60 | WG | 0.375 | LB A/A | 10 | OZ/A | 14EPPBD | C | | | | | | | | | | | |
| 9 | AATREX | 90 | WG | 1.5 | LB A/A | 26.7 | OZ/A | 14EPPBD | C | | | | | | | | | | | |
| 9 | PRIME OIL COC | 100 | LIQ | 2.0 | PT/A | 2 | PT/A | 14EPPBD | C | | | | | | | | | | | |
| 10 | NO-TILL | | | | | | | | | 0 | 100 | 100 | 100 | 100 | 97 | 97 | 42 | 35 | 33 | 35 |
| 10 | DEGREE EXTRA | 4 | L | 3.5 | LB A/A | 3.5 | QT/A | 14EPPBD | C | | | | | | | | | | | |
| 10 | ROUNDUP ULTRA MAX | 3.7 | SL | 0.75 | LB AE/A | 26 | OZ/A | 14EPPBD | C | | | | | | | | | | | |
| 11 | NO-TILL | | | | | | | | | 0 | 0 | 90 | 100 | 60 | 60 | 0 | 0 | 0 | 0 | 0 |
| 11 | NONTREATED | | | | | | | | | | | | | | | | | | | |
| 12 | TILLAGE AT PLANTING | | | | | | | | | 0 | | | | | | 87 | 82 | 63 | 75 | |
| 12 | BALANCE PRO | 4 | SC | 0.094 | LB A/A | 3 | OZ/A | PPI | D | | | | | | | | | | | |
| 12 | DEFINE | 60 | WG | 0.375 | LB A/A | 10 | OZ/A | PPI | D | | | | | | | | | | | |
| 12 | AATREX | 90 | WG | 1.5 | LB A/A | 26.7 | OZ/A | PPI | D | | | | | | | | | | | |
| 13 | TILLAGE AT PLANTING | | | | | | | | | 0 | | | | | | 90 | 72 | 80 | 88 | |
| 13 | BALANCE PRO | 4 | SC | 0.094 | LB A/A | 3 | OZ/A | PPI | D | | | | | | | | | | | |
| 13 | DEGREE EXTRA | 4 | L | 2.5 | LB A/A | 2.5 | QT/A | PPI | D | | | | | | | | | | | |
| 14 | TILLAGE AT PLANTING | | | | | | | | | 0 | | | | | | 92 | 50 | 73 | 58 | |
| 14 | DEGREE EXTRA | 4 | L | 3.5 | LB A/A | 3.5 | QT/A | PPI | D | | | | | | | | | | | |
| 15 | TILLAGE AT PLANTING | | | | | | | | | 0 | | | | | | 93 | 90 | 95 | 96 | |
| 15 | BALANCE PRO | 4 | SC | 0.0703 | LB A/A | 2.25 | OZ/A | PRE | E | | | | | | | | | | | |
| 15 | DEFINE | 60 | WG | 0.45 | LB A/A | 12 | OZ/A | PRE | E | | | | | | | | | | | |
| 15 | AATREX | 90 | WG | 1.5 | LB A/A | 26.7 | OZ/A | PRE | E | | | | | | | | | | | |
| 16 | TILLAGE AT PLANTING | | | | | | | | | 0 | | | | | | 93 | 83 | 90 | 98 | |
| 16 | BALANCE PRO | 4 | SC | 0.0703 | LB A/A | 2.25 | OZ/A | PRE | E | | | | | | | | | | | |
| 16 | DEGREE EXTRA | 4 | L | 3.0 | LB A/A | 3 | QT/A | PRE | E | | | | | | | | | | | |
| 17 | TILLAGE AT PLANTING | | | | | | | | | 0 | | | | | | 92 | 80 | 90 | 90 | |
| 17 | DEGREE EXTRA | 4 | L | 3.5 | LB A/A | 3.5 | QT/A | PRE | E | | | | | | | | | | | |
| LSD (P=.05) | | | | | | | | | | 0.0 | 0.0 | 0.0 | 0.0 | 36.8 | 47.7 | 18.2 | 30.0 | 32.1 | 24.3 | 34.5 |
| Replicate F | | | | | | | | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.163 | 0.071 | 2.442 | 0.127 | 1.092 | 0.844 | 0.045 |
| Replicate Prob(F) | | | | | | | | | | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.8510 | 0.9321 | 0.1125 | 0.8809 | 0.3479 | 0.4395 | 0.9558 |
| Treatment F | | | | | | | | | | 0.000 | 0.000 | 0.000 | 0.000 | 2.353 | 2.104 | 31.182 | 13.708 | 9.617 | 20.571 | 11.133 |
| Treatment Prob(F) | | | | | | | | | | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.0496 | 0.0752 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |

Balance Pro Cleanstart in Corn.

Project Code: 02-11B-E90

Location: Belleville Research Center

Trial Comments

1. Protocol: Aventis.
2. Weed control ratings on 5-17-02 were 28 and 14 days after 30EPP and 14EPP applications, respectively.
3. Weed control ratings on 7-29-02 were 102, 87, 87, 59, 58, and 53 days after 30EPP, 14EPP, 14EPPBD, PPI, PRE, and 3-4"W applications, respectively.
4. Planned CI and WC ratings at 14 and 28 days after PRE, PPI and POST applications were not made due to miscommunications between investigators.