### Title: Evaluating Tolpyralate (Shieldex) Herbicide in Sweet Corn Production

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### Abstract

### Two on-farm studies compared Shieldex with Impact, Laudis and other herbicides for weed control, efficacy, and crop safety in sweet corn. Overall weed control was exceptional for all three of the 4-HPPD herbicides applied at V4 to sweet corn. Crop injury was minimal but elevated slightly when tankmixed with Basagran. The main advantage of Shieldex is the cost of $8.10/A.

*Objective 1. Measure efficacy of topyralate in sweet corn and compare with other HPPD inhibitors such as tembotrione (Laudis) and topramezone (Impact) with and without atrazine and other tankmixes to improve efficacy.*

### Procedures: Two demonstration and research trials were located on farms in the Willamette Valley to compare Laudis, Impact, and Shieldex herbicides for postemergent control in sweet corn. Herbicides were applied to plots and each treatment replicated three times. Plots were 30 to 40 feet long and 10 ft. wide (4 rows). Weed and crop injury evaluations were made approximately 2 weeks after treatments were applied, and again at harvest. Corn was harvested by hand from 20 ft of row in each plot. Field days were held at each site.

**Accomplishments**

*Stayton.* Overall weed control was exceptional across all three of the 4-HPPD herbicides applied at V4 to the sweet corn variety Cash (Table 2). Crop injury was minimal but elevated slightly when tankmixed with Basagran. Dual Magnum and Outlook provided little if any control of volunteer squash and caused substantial injury to the corn. When Dual Magnum or Outlook was tank mixed with Zidua PPI or PRE corn growth was reduced from 18 to 25%, but with only a slight improvement in weed control. The intent of the Zidua treatments was to look for alternative grass control products, particularly for annual ryegrass. The annual ryegrass density in this field was inadequate for a robust evaluation. Corn yield at this site was low on average with the largest yield of 8.5 t/A coming from Tr. 25 (Shieldex + Outlook applied at V4, Table 3). Treatments that included Impact and Laudis applied at V4 tended to yield lower the Shieldex. All of the 4-HPPD herbicides provided exceptional weed control, whether applied alone or tankmixed with Basagran or atrazine. The main advantage of Shieldex is the cost of $8.10/A that controlled all weeds when applied alone at V4 and still yielded 8.3 t/A.

*Junction City.* Similar to the Stayton site, weed control was very good with the 4-HPPD herbicides (Table 5), with one exception. Common purslane is very tolerant to the 4-HHPD herbicides, and this species was not controlled at this site. Even with the addition of Basagran, control of purslane was only moderate. Laudis appeared to be the weakest of the 4-HPPD herbicides for control of purslane when applied alone. Preemergence treatments were largely ineffective because neither rainfall nor irrigation was available to incorporate the herbicides before weeds emerged. Ear yield was as expected for Super Sweet Jubilee at this planting date (Table 6). Tankmixes with Basagran appeared to suppress yield. Impact alone yielded best even though it only provided 92% weed control.

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| **Table 1.** Herbicide application data for the Stayton trial. |
| Date | 2-Jun, 2018 | 6-Jun, 2018 | 20-Jun, 2018 | 30-Jun, 2018 |
| Crop stage | - | Planted 6-4 | V2 | V4-5 |
| Weeds and growth stage |  |  |  | Lambsquarters up to 6” tall |
|  |  |  |  | Nightshade and pigweed <4” tall |
| Herbicide/treatment | PPI | PRE | EPOST | V4  |
| Application timing | PPI | PRE | V2 | V4-5 |
| Start/end time | 11-11:45 | 6-6:45 | 12:15-12:45PM | 8-9:30 |
| Air temp/soil temp (2")/surface | 73/82/95 | 59/52/52 | 85/84/95 | 70/76/76 |
| Rel humidity | 46% | 74% | 55% | 74% |
| Wind direction/velocity | N 1.6-6 | 0 | S 2-5 | WNW 2-5 |
| Cloud cover | 0% | 80% | 20% | 0 |
| Soil moisture | 0 | Very dry, incredibly cloddy, and very rocky in spots | Wet irrigated 6-19 | irrigated 2 days ago, damp |
| Plant moisture | - | - | Dry | Dew on corn and weeds |
| Sprayer/PSI | BP CO2/25 | BP CO2/25 | BP CO2/25 | BP CO2/25 |
| Mix size | 2100 | 2100 | 2100 | 2100 |
| Gallons H20/acre  | 20 | 20 | 20 | 20 |
| Nozzle type | 5-XR8003 | 5-XR8003 | 5-XR8003 | 5-XR8003 |
| Nozzle spacing and height | 20/20 | 20/20 | 20/20 | 20/18 above corn |
| Soil Inc. method/implement | Vibrashank | Irrigation 0.5 in after planting; rainfall 1 to 1.5 in 6/8-10 | - | - |

| **Table 2.** Weed control in sweet corn, Stayton, 2018  |
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|   | Treatment | Timing | Product rate | Total cost | Adjuvant  | Crop injury (30-Jun) |  | Crop injury (17-Jul) |  | Weed control(17-Jul) |
|  |  |  |  |  |  |  | Phyto | Stunting |   | Phyto | Stunting |   | Pig-weed | Lambs-quarters | Night-shade  | Wild proso millet | Volunteer squash | Smart-weed | Overall |
|  | *0-10* | *%* |  | *0-10* | *%* |  | *------------------------------------ % ---------------------------------------* |
| **Comparison of 4-HPPD herbicides** |  |  |  |  |  |  |  |
| 1 | Laudis | V4 | 3 | oz |  $ 15.30  | MSO+UAN | 0 | 3 |  | 0 | 7 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2 | Laudis | V4 | 3 | oz |  $ 15.30  | COC | 0 | 7 |  | 0 | 3 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
|  | Basagran | V4 | 2 | pt |  $ 13.75  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Laudis | V4 | 3 | oz |  $ 15.30  | MSO+UAN | 0 | 0 |  | 0 | 0 |  | 67 | 100 | 100 | 100 | 98 | 70 | 100 |
|  | Atrazine | V4 | 2 | pts |  $ 4.15  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Impact | V4 | 1 | oz |  $ 19.83  | MSO+UAN | 0 | 0 |  | 0 | 3 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 5 | Impact | V4 | 1 | oz |  $ 19.83  | COC | 0 | 0 |  | 0 | 0 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
|  | Basagran | V4 | 2 | pt |  $ 13.75  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Impact | V4 | 1 | oz |  $ 19.83  | MSO+UAN | 0 | 0 |  | 0 | 3 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
|  | Atrazine | V4 | 2 | pt |  $ 4.15  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Shieldex | V4 | 1 | oz |  $ 8.10  | MSO+UAN | 0 | 3 |  | 0 | 0 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 8 | Shieldex | V4 | 1 | oz |  $ 8.10  | COC | 0 | 0 |  | 0 | 0 |  | 100 | 100 | 99 | 100 | 100 | 100 | 100 |
|  | Basagran | V4 | 2 | pt |  $ 13.75  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Shieldex | V4 | 1 | oz |  $ 8.10  | MSO+UAN | 0 | 3 |  | 0 | 3 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
|  | Atrazine | V4 | 2 | pt |  $ 4.15  | MSO+UAN |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Check |   |  |  |  |  | 0 | 0 |  | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Dual Mag vs Outlook** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Outlook | PRE | 13 | oz |  $13.81  | - | 0 | 12 |  | 0 | 10 |  | 100 | 48 | 77 | 100 | 67 | 67 | 67 |
| 12 | Dual Magnum | PRE | 16 | oz |  $11.70  | - | 0 | 5 |  | 0 | 0 |  | 100 | 73 | 37 | 100 | 0 | 33 | 58 |
| 13 | Dual Magnum | PPI | 16 | oz |  $11.70  | - | 0 | 20 |  | 0 | 33 |  | 100 | 87 | 87 | 100 | 0 | 97 | 82 |
|  | Outlook | PRE | 13 | oz |  $13.81  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Zidua** |
| 14 | Dual Magnum | PPI | 16 | oz |  $11.70  | - | 0 | 13 |  | 0 | 18 |  | 100 | 80 | 87 | 100 | 33 | 58 | 82 |
|  | Zidua | PPI | 3 | oz |  $28.84  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | Dual Magnum | PRE | 16 | oz |  $11.70  | - | 0 | 15 |  | 0 | 23 |  | 100 | 93 | 98 | 100 | 0 | 77 | 55 |
|  | Zidua | PRE | 3 | oz |  $28.84  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 | Outlook | PRE | 13 | oz |  $13.81  | - | 0 | 13 |  | 0 | 25 |  | 100 | 97 | 97 | 100 | 33 | 67 | 94 |
|  | Zidua | PRE | 3 | oz |  $28.84  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 | Zidua | PRE | 3 | oz |  $28.84  | - | 0 | 7 |  | 0 | 22 |  | 100 | 100 | 82 | 100 | 33 | 67 | 77 |
| 18 | Anthem | V2 | 9 | oz |  $40.01  | - | 0 | 12 |  | 0 | 15 |  | 100 | 90 | 85 | 67 | 67 | 0 | 73 |
|  | (Zidua + fluthiacet) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Misc.** |
| 19 | Dual Magnum | PRE | 1 | pt |  $11.70  | - | 0 | 17 |  | 0 | 8 |  | 100 | 97 | 96 | 100 | 100 | 100 | 96 |
|  | Callisto | PRE | 7.7 | oz |  $9.69  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 | Outlook | PRE | 13 | oz |  $17.00  | - | 0 | 15 |  | 0 | 18 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
|  | Callisto | PRE | 7.7 | oz |  $9.69  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21 | Outlook | V2 | 13 | oz |  $13.81  | MSO+UAN | 0 | 8 |  | 0 | 0 |  | 100 | 100 | 97 | 100 | 100 | 100 | 97 |
|  | Impact | V2 | 1 | oz |  $19.83  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22 | Atrazine | V4 | 2 | pts |  $4.15  | COC | 0 | 0 |  | 0 | 3 |  | 100 | 98 | 100 | 67 | 100 | 67 | 100 |
| 23 | Dual Magnum | PPI | 16 | oz |  $11.70  |  | 0 | 12 |  | 0 | 8 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
|  | Atrazine | PPI | 2 | pt |  $4.15  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24 | Shieldex | V2 | 1 | oz |  $8.10  | MSO+UAN | 0 | 15 |  | 0 | 7 |  | 100 | 100 | 98 | 97 | 100 | 100 | 96 |
|  | Outlook | V2 | 13 | oz |  $13.81  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 | Shieldex | V4 | 1 | oz |  $8.10  | MSO+UAN | 0 | 3 |  | 0 | 7 |  | 100 | 100 | 100 | 100 | 98 | 100 | 99 |
|  | Outlook | V4 | 13 | oz |  $13.81  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *FPLSD (0.05)* |  |  |  |  |  | *-* | *9* |  | *-* | *15* |  | *19* | *17* | *18* | *27* | *46* | *46* | *19* |

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| **Table 3.** Sweet corn yield, Stayton, 2018. |
|   | Treatment | Timing | Product rate | Total cost | Adjuvant  | Ear no | Ear yield | Avg. ear wt | Weed control |
|  |  |  |  |  |  |  | *20 ft of row* | *t/A* | *lb/ear* | *%* |
| **Comparison of 4-HPPD herbicides** |  |
| 1 | Laudis | V4 | 3 | oz |  $ 15.30  | MSO+UAN | 24.0 | 8.6 | 0.83 | 100 |
| 2 | Laudis | V4 | 3 | oz |  $ 15.30  | COC | 20.3 | 7.6 | 0.86 | 100 |
|  | Basagran | V4 | 2 | pt |  $ 13.75  |  |  |  |  |  |
| 3 | Laudis | V4 | 3 | oz |  $ 15.30  | MSO+UAN | 19.0 | 7.4 | 0.90 | 100 |
|  | Atrazine | V4 | 2 | pts |  $ 4.15  |  |  |  |  |  |
| 4 | Impact | V4 | 1 | oz |  $ 19.83  | MSO+UAN | 18.7 | 7.3 | 0.93 | 100 |
| 5 | Impact | V4 | 1 | oz |  $ 19.83  | COC | 21.3 | 7.6 | 0.84 | 100 |
|  | Basagran | V4 | 2 | pt |  $ 13.75  |  |  |  |  |  |
| 6 | Impact | V4 | 1 | oz |  $ 19.83  | MSO+UAN | 20.0 | 7.7 | 0.88 | 99 |
|  | Atrazine | V4 | 2 | pt |  $ 4.15  |  |  |  |  |  |
| 7 | Shieldex | V4 | 1 | oz |  $ 8.10  | MSO+UAN | 22.0 | 8.3 | 0.87 | 99 |
| 8 | Shieldex | V4 | 1 | oz |  $ 8.10  | COC | 21.0 | 8.0 | 0.87 | 100 |
|  | Basagran | V4 | 2 | pt |  $ 13.75  |  |  |  |  |  |
| 9 | Shieldex | V4 | 1 | oz |  $ 8.10  | MSO+UAN | 21.3 | 8.5 | 0.92 | 100 |
|  | Atrazine | V4 | 2 | pt |  $ 4.15  | MSO+UAN |  |  |  |  |
| 10 | Check |   |  |  |  |  | 6.0 | 1.3 | 0.51 | 0 |
| **Dual Mag vs Outlook** |  |  |  |  |  |  |  |  |
| 11 | Outlook | PRE | 13 | oz |  $13.81  | - | 12.0 | 4.4 | 0.79 | 68 |
| 12 | Dual Magnum | PRE | 16 | oz |  $11.70  | - | 17.3 | 5.8 | 0.76 | 83 |
| 13 | Dual Magnum | PPI | 16 | oz |  $11.70  | - | 20.3 | 7.5 | 0.87 | 73 |
|  | Outlook | PRE | 13 | oz |  $13.81  |  |  |  |  |  |
| **Zidua** |
| 14 | Dual Magnum | PPI | 16 | oz |  $11.70  | - | 22.0 | 7.9 | 0.83 | 88 |
|  | Zidua | PPI | 3 | oz |  $28.84  |  |  |  |  |  |
| 15 | Dual Magnum | PRE | 16 | oz |  $11.70  | - | 20.0 | 7.4 | 0.86 | 95 |
|  | Zidua | PRE | 3 | oz |  $28.84  |  |  |  |  |  |
| 16 | Outlook | PRE | 13 | oz |  $13.81  | - | 20.7 | 8.2 | 0.92 | 95 |
|  | Zidua | PRE | 3 | oz |  $28.84  |  |  |  |  |  |
| 17 | Zidua | PRE | 3 | oz |  $28.84  | - | 23.3 | 8.0 | 0.80 | 79 |
| 18 | Anthem | V2 | 9 | oz |  $40.01  | - | 20.0 | 7.6 | 0.87 | 75 |
|  | (Zidua + fluthiacet) |  |  |  |  |  |  |  |  |
| **Misc.** |
| 19 | Dual Magnum | PRE | 1 | pt |  $11.70  | - | 21.0 | 7.8 | 0.85 | 95 |
|  | Callisto | PRE | 7.7 | oz |  $9.69  |  |  |  |  |  |
| 20 | Outlook | PRE | 13 | oz |  $17.00  | - | 17.3 | 6.3 | 0.83 | 99 |
|  | Callisto | PRE | 7.7 | oz |  $9.69  |  |  |  |  |  |
| 21 | Outlook | V2 | 13 | oz |  $13.81  | MSO+UAN | 19.7 | 6.8 | 0.80 | 98 |
|  | Impact | V2 | 1 | oz |  $19.83  |  |  |  |  |  |
| 22 | Atrazine | V4 | 2 | pts |  $4.15  | COC | 21.7 | 8.3 | 0.87 | 99 |
| 23 | Dual Magnum | PPI | 16 | oz |  $11.70  | - | 21.3 | 8.3 | 0.94 | 93 |
|  | Atrazine | PPI | 2 | pt |  $4.15  |  |  |  |  |  |
| 24 | Shieldex | V2 | 1 | oz |  $8.00  | MSO+UAN | 20.0 | 8.3 | 0.96 | 98 |
|  | Outlook | V2 | 13 | oz |  $13.81  |  |  |  |  |  |
| 25 | Shieldex | V4 | 1 | oz |  $8.00  | MSO+UAN | 21.7 | 8.7 | 0.92 | 100 |
|  | Outlook | V4 | 13 | oz |  $13.81  |  |  |  |  |  |
| *FPLSD (0.05)* |  |  |  |  |  | *6.9* | *2.1* | *0.14* | *14* |

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| **Table 4.** Herbicide application data for Junction City site. |
| Date | Wednesday, June 20, 2018 | Monday, July 09, 2018 |
| Crop stage | Planted 18-Jun | V3-4 |
| Weeds and growth stage | - |  |
| Pigweed | - | <4 tall |
| Lambsquarters | - | <2 tall |
| Hairy nightshade | - | <1 tall |
| Barnyardgrass | - | 2-8 leaves |
| Crabgrass | - | <2 in dia |
| Herbicide/treatment | PRE | POST |
| Application timing | PRE | V3-4 |
| Start/end time | 3:30-4:15 PM | 10:20-11:20 AM |
| Air temp/soil temp (2")/surface | 81/96/103 | 71/64/65 |
| Rel humidity | 54% | 71% |
| Wind direction/velocity | S 3-7 | 0 |
| Cloud cover | 20% | 100% |
| Soil moisture | Dry | Wet, irrigated day before |
| Plant moisture | - | Wet from light mist earlier |
| Sprayer/PSI | BPCO2/20  | BPCO2/20  |
| Mix size | 2100 mls | 2100 mls |
| Gallons H20/acre  | 30 | 30 |
| Nozzle type | 5-XR8003 | 5-XR8003 |
| Nozzle spacing and height | 20/20 | 20/20 |

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| **Table 5.** Crop injury and weed control, Junction City, 2018 |
|  Treatment | Timing | Date | Adjuvant | Product sate | Cost/A | Crop injury(18-Jul) | Weed control(18-Jul, before V6 treatments were applied ) |
|  |  |  |  |  |  |  | Phyto | Stunting | Pigweed | H. night-shade | C. purslane | Barnyard-grass | Witch grass | Overall rating |
| **Postemergent** |  |  |  |  |  |  | *0-10* | *%* | *------------------------------------- % ----------------------------------* |
| 1 | Laudis | V4 | 9-Jul | MSO+UAN | 3 | oz |  $ 15.30  | 0.0 | 0 | 88 | 99 | 33 | 96 | 96 | 92 |
| 2 | Laudis | V4 | 9-Jul | COC | 3 | oz |  $ 15.30  | 0.7 | 0 | 95 | 100 | 83 | 95 | 95 | 93 |
|  | Basagran | V4 | 9-Jul |  | 2 | Pt |  $ 13.75  |  |  |  |  |  |  |  |  |
| 3 | Laudis | V4 | 9-Jul | MSO+UAN | 3 | oz |  $ 15.30  | 0.0 | 0 | 100 | 100 | 100 | 100 | 100 | 98 |
|   | Atrazine | V4 | 9-Jul |   | 2 | pts |  $ 4.15  |  |  |  |  |  |  |  |  |
| 4 | Impact | V4 | 9-Jul | MSO+UAN | 1 | oz |  $ 19.83  | 0.0 | 0 | 96 | 98 | 97 | 94 | 94 | 95 |
| 5 | Impact | V4 | 9-Jul | COC | 1 | oz |  $ 19.83  | 2.0 | 8 | 95 | 99 | 100 | 88 | 88 | 90 |
|  | Basagran | V4 | 9-Jul |  | 2 | pt |  $ 13.75  |  |  |  |  |  |  |  |  |
| 6 | Impact | V4 | 9-Jul | MSO+UAN | 1 | oz |  $ 19.83  | 0.0 | 0 | 99 | 100 | 100 | 98 | 98 | 98 |
|   | Atrazine | V4 | 9-Jul |   | 2 | pt |  $ 4.15  |  |  |  |  |  |  |  |  |
| 7 | Shieldex | V4 | 9-Jul | MSO+UAN | 1 | Oz |  $ 8.10  | 0.0 | 0 | 98 | 100 | 97 | 97 | 97 | 95 |
| 8 | Shieldex | V4 | 9-Jul | COC | 1 | Oz |  $ 8.10  | 2.3 | 10 | 92 | 99 | 100 | 93 | 93 | 92 |
|  | Basagran | V4 | 9-Jul |  | 2 | Pt |  $ 13.75  |  |  |  |  |  |  |  |  |
| 9 | Shieldex | V4 | 9-Jul | MSO+UAN | 1 | Oz |  $ 8.10  | 1.3 | 8 | 98 | 100 | 100 | 98 | 98 | 97 |
|   | Atrazine | V4 | 9-Jul |   | 2 | Pt |  $ 4.15  |  |  |  |  |  |  |  |  |
| **Preemergent** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Outlook | PRE | 20-Jun | - | 16 |  oz  |  $ 16.96  | 0.0 | 0 | 43 | 50 | 33 | 33 | 33 | 43 |
|  | Atrazine | PRE | 20-Jun | - | 1 |  pt  |  $ 4.15  |  |  |  |  |  |  |  |  |
| 11 | Acuron | PRE | 20-Jun | - | 2.5 |  qts  |  $ 38.75  | 0.0 | 0 | 83 | 93 | 67 | 85 | 85 | 80 |
| 12 | Acuron Flexi | PRE | 20-Jun | - | 2 |  qts  |  -  | 0.0 | 0 | 68 | 78 | 70 | 86 | 86 | 75 |
| **PRE + POST** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13 | Dual Magnum | PRE | 20-Jun | - |  1  | Pt |  $ 11.70  | *0.0* | *3* | *27* | *0* | *67* | *40* | *47* | *37* |
|  | Zidua | PRE | 20-Jun | - | 1.5 |  oz  |  $ 14.42  |  |  |  |  |  |  |  |  |
|  | Shieldex | V6 | 19-Jul | MSO+UAN | 1 |  oz  |  $ 8.10  |  |  |  |  |  |  |  |  |
| 14 | Outlook | PRE | 20-Jun | - | 13 |  oz  |  $ 13.78  | *0.0* | *7* | *42* | *13* | *100* | *47* | *47* | *37* |
|  | Zidua | PRE | 20-Jun | - | 1.5 |  oz  |  $ 14.42  |  |  |  |  |  |  |  |  |
|  | Shieldex | V6 | 19-Jul | MSO+UAN | 1 |  oz  |  $ 8.10  |  |  |  |  |  |  |  |  |
| 15 | Zidua | PRE | 20-Jun | - | 3 |  oz  |  $ 28.84  | *0.0* | *0* | *47* | *0* | *100* | *53* | *53* | *30* |
|  | Shieldex | V6 | 19-Jul | MSO+UAN | 1 |  oz  |  $ 8.10  |  |  |  |  |  |  |  |  |
| 16 | Shieldex | V6 | 19-Jul | MSO+UAN | 1 |  oz  |  $ 8.10  | - | - | - | - | - | - | - | - |
| FPLSD (0.05) |  |  |  |  |  |  | *0.7* | *6.7* | *31* | *24* | *54* | *27* | *24* | *12* |

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| **Table 6.** Sweet corn yield, Junction City, 2018. |
| Treatment |  | Timing | Product rate | Corn yield(14-Sept) | Weed control at harvest(14-Sept) |
|  |  |  |  |  |  | Ear no. | Ear yield | Avg. ear wt | Crabgrass | Pigweed | C. lambs-quarters | Overall |
|  |  |  |  |  |  | *no./20 ft row* | *tons* | *lb* | *-------------------------- % ----------------------------* |
| 1 | Laudis |  | V4 | 3 | Oz | 32 | 9.3 | 0.66 | 98 | 98 | 100 | 98 |
| 2 | Laudis | + | V4 | 3 | Oz | 33 | 9.5 | 0.66 | 97 | 93 | 100 | 95 |
|  | Basagran |  | V4 | 1 | Qt |  |  |  |  |  |  |  |
| 3 | Laudis | + | V4 | 3 | Oz | 33 | 9.9 | 0.69 | 90 | 77 | 100 | 83 |
|  | Atrazine |  | V4 | 1 | Qt |  |  |  |  |  |  |  |
| 4 | Impact |  | V4 | 1 | Oz | 34 | 10.1 | 0.68 | 88 | 96 | 98 | 93 |
| 5 | Impact | + | V4 | 1 | Oz | 30 | 8.4 | 0.64 | 70 | 93 | 98 | 77 |
|  | Basagran |  | V4 | 1 | Qt |  |  |  |  |  |  |  |
| 6 | Impact | + | V4 | 1 | Oz | 31 | 9.2 | 0.67 | 94 | 100 | 100 | 96 |
|  | Atrazine |  | V4 | 1 | Qt |  |  |  |  |  |  |  |
| 7 | Shieldex |  | V4 | 1 | Oz | 32 | 9.6 | 0.69 | 90 | 100 | 100 | 92 |
| 8 | Shieldex | + | V4 | 1 | Oz | 30 | 8.4 | 0.65 | 85 | 93 | 100 | 90 |
|  | Basagran |  | V4 | 1 | Qt |  |  |  |  |  |  |  |
| 9 | Shieldex | + | V4 | 1 | Oz | 34 | 8.9 | 0.62 | 98 | 100 | 100 | 98 |
|  | Atrazine |  | V4 | 1 | Qt |  |  |  |  |  |  |  |
| 10 | Outlook |  | PRE | 16 | Oz | 28 | 7.5 | 0.62 | 58 | 13 | 33 | 7 |
|  | Atrazine |  | PRE | 1 | pt |  |  |  |  |  |  |  |
| 11 | Acuron |  | PRE | 2.5 | qts | 30 | 9.7 | 0.73 | 92 | 73 | 100 | 78 |
| 12 | Acuron Flexi |  | PRE | 2 | qts | 26 | 7.8 | 0.68 | 99 | 75 | 97 | 75 |
| 13 | Dual Magnum |  | PRE | 1 | pt | 31 | 9.4 | 0.70 | 98 | 99 | 100 | 98 |
|  | Zidua |  | PRE | 1.5 | oz |  |  |  |  |  |  |  |
|  | Shieldex |  | V6 | 1 | oz |  |  |  |  |  |  |  |
| 14 | Outlook |  | PRE | 13 | oz | 31 | 7.5 | 0.56 | 99 | 100 | 100 | 99 |
|  | Zidua |  | PRE | 1.5 | oz |  |  |  |  |  |  |  |
|  | Shieldex |  | V6 | 1 | oz |  |  |  |  |  |  |  |
| 15 | Zidua |  | PRE | 3 | oz | 27 | 7.7 | 0.66 | 100 | 96 | 100 | 98 |
|  | Shieldex |  | V6 | 1 | oz |  |  |  |  |  |  |  |
| 16 | Shieldex |  | V6 | 1 | oz | 30 | 7.5 | 0.57 | 88 | 62 | 67 | 62 |
| *FPLSD (0.05)* |  |  |  |  | *ns* | *2.0* | *0.89* | *ns* | *31* | *33* | *28* |