

## RESEARCH SUMMARY

### WEED CONTROL IN PROCESSING VEGETABLES (2005)

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#### **Tolerance of Lima Bean to Preemergence and Postemergence Herbicides.**

This trial was kept weed-free to test for the effect of preemergence applications of Sandea and First Rate and postemergence applications of Sandea on visual injury, height, dry weight and yields of lima bean. Sandea and First Rate applied PRE did not injure lima bean at either rate applied. POST applications of Sandea did injure lima bean, and though the lima beans outgrew some of the injury (chlorosis and stunting), there was a delay in maturity.

#### **Tolerance of Snap Bean to Preemergence and Postemergence Herbicides**

This trial was kept weed-free to test for the effect of PRE and POST applications of Sandea on visual injury, height, dry weight and yields of snap bean. PRE applications of Sandea did not cause injury or yield losses in snap bean, but POST applications of Sandea caused significant visual injury to all varieties and at all rates tested.

#### **Weed Control with Reduced Rates of Pursuit and Split Applications of Reflex**

The addition of Reflex at the full label rate or as two split applications did improve control of velvetleaf in the Dual+Pursuit treatments, but did not improve control in the EPTC+Pursuit or Treflan+Pursuit treatments. Common ragweed and common lamb's-quarters control was not improved by the addition of Reflex at either the full rate or in the split application treatments, because these weeds were already at the 4-6 leaf stage by the time the first application was made.

#### **Weed Control and Tolerance of Carrot to Herbicides**

Two trials were conducted to determine tolerance of carrot to Dual II Magnum and Sencor, applied alone or in combination with one another. **Dual II Magnum and Sencor have been submitted as URMULEs to the PMRA.** These two herbicides should not be sprayed to carrots in the same field season, or unacceptable injury and yield loss could occur.

#### **Tolerance of Transplanted Broccoli to Preemergence Herbicides**

This trial examined the effect of Frontier, Authority (sulfentrazone), Goal, Frontier+Authority and Frontier+Goal on weed control and tolerance of transplanted broccoli. Transplanted broccoli showed excellent tolerance to all herbicide treatments. The tank mixes gave good to excellent control of lambs-quarters and lady's thumb, and fair control of ragweed and velvetleaf throughout the season. These herbicides should be recommended for prioritization in the Federal Minor Use System.

#### **Tolerance of Transplanted Cabbage to Preemergence Herbicides**

This trial examined the effect of Frontier, Authority (sulfentrazone), Goal (oxyfluorfen), Frontier+Authority, and Frontier+Goal on weed control and tolerance of transplanted

cabbage. Transplanted cabbage showed excellent tolerance to all herbicide treatments. The tank mixes gave good to excellent control of lambs-quarters and pigweed, and fair control of common chickweed throughout the season. These herbicides should be recommended for prioritization in the Federal Minor Use System.

#### **Tolerance of Transplanted Cauliflower to Preemergence Herbicides**

This trial examined the effect of Frontier, Authority (sulfentrazone), Goal (oxyfluorfen), Frontier+Authority and Frontier+Goal for weed control and tolerance of transplanted cauliflower. Transplanted cabbage showed excellent tolerance to all herbicide treatments. The tank mixes gave good to excellent control of lambs-quarters, pigweed, and green foxtail throughout the season. These herbicides should be recommended for prioritization in the Federal Minor Use System.

#### **Tolerance of Transplanted Cabbage to Muster**

This trial was maintained weed free to determine the tolerance of transplanted cabbage to Muster applied at 6 and 12 g/ac. Muster did not cause significant visual injury to cabbage and did not reduce head size or yield.

#### **Tolerance of Processing Peas to Preemergence Herbicides**

This trial was established to determine the influence of Sandea and KIH-485 applied preemergence and Sandea applied postemergence on pea tolerance, yield and weed control. Preemergence applications of Sandea and KIH-485 did not injure pea, nor did they reduce pea tenderness or yield. The postemergence applications of Sandea caused significant visual injury (chlorosis, stunting and delayed maturity), and eventually killed the entire stand. Sandea gave excellent control of perennial sow-thistle, good control of ragweed and fair control of common lamb's-quarters. KIH-485 gave good control of perennial sow-thistle, and fair control of common ragweed and common lamb's-quarters.

#### **Tolerance of Transplanted Pepper to Preemergence Herbicides**

This trial examined weed control and tolerance of transplanted pepper to preemergence applications of Dual II Magnum, Command, Sandea, Authority, Outlook, Dual II Magnum+Authority, Command+Sandea and Outlook+Authority. None of the herbicide treatments caused significant visual injury or reduce marketable fruit size or weed-free yield of pepper compared to the untreated check. Command and Command+Sandea gave excellent control of velvetleaf, while the remaining treatments gave only fair velvetleaf control. Command, Frontier, Command+Sandea and Frontier+Authority gave good control of common lamb's-quarters. **Dual II Magnum was registered for peppers early in 2005, at a rate of 0.42 to 0.5 L/ac, and should be applied within 48 hours of transplanting.**

#### **Tolerance of Red Beet to New Herbicides**

Two trials were established to examine tolerance of red beet to preemergence applications of Dual II Magnum and postemergence applications of Upbeet, Lontrel and Select. Red beet showed excellent tolerance to each of these herbicides – no visual injury, no reduction in beet diameter and % sugar, and no yield reductions. An additional trial was established to determine weed control and tolerance of red beet to four micro-

rate applications of Pyramin+Upbeet+Lontrel (product rates in each micro-rate application were 500 ml/ac + 3.6 g/ac + 50 ml/ac). Red beet showed excellent tolerance to micro-rate treatments. Micro-rate treatments gave greater than 90% control of common lamb's-quarters and lady's thumb, and 84% control of redroot pigweed. **Upbeet was submitted as an URMULE in 2004, and residue studies are currently being conducted to meet PMRA requirements for registration of this product.**

#### **Tolerance of Sweet Corn to Preemergence Applications of KIH-485**

This trial was maintained weed free to test for the effect of KIH-485 (a preemergence residual broadleaf herbicide) applied preemergence at 140 and 280 g/ac, on eight processing sweet corn cultivars: GG446, GG214, GH2547, GH2041, GH2298, EMPIRE, GH2684 and GSS9299. Visual injury was not observed in any of the varieties tested. There were no statistically significant reductions in height, marketable cob weight or marketable yield.

#### **Tolerance of Sweet Corn to Accent**

This trial was maintained weed free to test for the effect of Accent applied postemergence (4-5 leaf stage) at 13 and 26 g/ac, on eight sweet corn cultivars: POLKA, CSuYP2-28, ACCORD, GH2041, GG227, GG236, GG763, and GG447. **GG227, GG236 GG763 and GG447 will be submitted for addition to the Accent label.**

#### **Tolerance of Sweet Corn to Postemergence Applications of Sandea**

This trial was maintained weed free to test for the effect of Sandea applied postemergence (4-5 leaf stage) at 13.5 and 27 g/ac, on eight sweet corn cultivars: GG446, GG214, GH2547, GH2041, GH2298, EMPIRE, GH2684, and GSS9299. Commercially unacceptable visual injury was observed in three of the eight varieties tested: GH 2298, Empire and GH2684. Height, cob size and marketable yield tended to be less in the Sandea treatments. GG446, GG214, GH2547, GH2041 and GSS9299 were not injured by Sandea, and height, cob size and yield were all similar to the untreated, weed-free check.

#### **Tolerance of Pumpkins to Herbicides**

This trial examined weed control and pumpkin tolerance to Dual II Magnum, Command, Sandea, Outlook and tank mixes of Command+Sandea, Dual II Magnum+Sandea and Outlook+Sandea applied preemergence. Pumpkin showed excellent tolerance to Dual II Magnum (0.5 L/ac), Command (0.45 L/ac), Sandea (13.5 g/ac) and Outlook (0.42 L/ac). **Data will be submitted to the PMRA to support the Command URMULE on pumpkin.**

#### **Tolerance of Squash to Herbicides**

This trial examined weed control and pumpkin tolerance to Dual II Magnum, Command, Sandea, Outlook and tank mixes of Command+Sandea, Dual II Magnum+Sandea and Outlook+Sandea applied preemergence. Pumpkin showed excellent tolerance to Command (0.45 L/ac), Sandea (13.5 g/ac) and Outlook (0.42 L/ac). There were reductions in squash number and yield at the overlap rate of Dual II Magnum (1.0 L/ac). **Data will be submitted to the PMRA to support the Command URMULE on squash.**