PROJECT TITLE: Wild Oat Herbicide Screening Trial in Spring Wheat.

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OBJECTIVES: To evaluate new and existing wild oat herbicides for efficacy and crop injury.

RESULTS:

Spring wheat cultivar, WPB 926, was planted on April 25, 2002 at a rate of 75 lb/a on 7-inch rows to a depth of 1.75 inches. A fertilizer blend of 119-52-62-20 lb/a was applied prior to seedbed preparation. Plots were 10x15 ft with three replicates arranged in a randomized complete block design. Wild oat was planted in the center of all plots to improve the consistency of weed pressure. Treatments were applied on May 26 with a $CO_2$ backpack sprayer in 20 gallons water per acre at 30 psi. Teejet XR11002 nozzles spaced 20 inches apart were used for applications. The environmental conditions at application time were 57 F temperature, 83% relative humidity, 0 wind speed, 58 F soil temperature and excellent soil moisture. The spring wheat was in the 3-4 leaf stage and 3.5 inches tall at the time of application. Wild oat was in the 2-3 leaf stage and 1.5 to 2 inches tall. Each herbicide was applied at 2 rates (label rate: 1X and one half of label rate: 1/2X). The broadleaf weeds were controlled by application of 0.1546 lb ai/a Express and 0.375 lb ai/a MCPA Ester with 1 pt/a NIS on June 14.

At the label rate (1X), all the six herbicides had an excellent wild oat control, with a more than 94% control rating, and minimal wild oat biomass and dockage. However, wild oat control at the1/2X rate varied among herbicides. The1/2X rate of Everest provided excellent wild oat control (98%), but other herbicides at the1/2X rate only resulted in 82-91% control and a slight reduction in crop yield as compared to 1X rate. Herbicide application at both rates significantly increased spring wheat yield and reduced the dockage as compared to untreated check (Table 1).

SUMMARY:

At label rates, all six herbicides provided excellent wild oat control. Therefore, the environmental conditions during herbicide application favored for both ACC-ase class (Achieve, Discover, Hoelon and Puma) and ALS class (Assert and Everest) herbicides. However, only Everest herbicide provided excellent control at 1/2X rate, and the efficacy of other herbicides was reduced at 1/2X rate as compared to 1X rate.

FUTURE PLANS:

Continue to evaluate wild oat herbicides for performance and crop tolerance.

Table 1. Effect of herbicide rate on wild oat control and crop yield grown at Northwestern Agricultural Research Center, Kalispell, MT in 2002.

| | | | Wild Oat | | | | Wheat |
|---|---|---|---|---|---|---|---|
| | | Rate | Control | Density | Dry weight | dockage | yield |
| Treatment | Rate | Unit | % | $m^2$ | $g/m^2$ | % | Bu/A |
| Achieve<br>Super charge<br>AMS | 0.178<br>0.5<br>15 | LB A/A<br>% V/V<br>LB/100 GAL | 96 | 18.3 | 18.3 | 0.40 | 78 |
| Achieve<br>Super charge<br>AMS | 0.089<br>0.5<br>15 | LB A/A<br>% V/V<br>LB/100 GAL | 85 | 93.3 | 43.4 | 1.57 | 71 |
| Discover<br>DSV | 0.05<br>0.4 | LB A/A<br>% V/V | 98 | 1.8 | 0.2 | 0.37 | 87 |
| Discover<br>DSV | 0.025<br>0.4 | LB A/A<br>% V/V | 91 | 12.2 | 8.7 | 0.60 | 80 |
| Assert<br>NIS | 0.46<br>0.25 | LB A/A<br>% V/V | 94 | 54.9 | 10.2 | 0.66 | 77 |
| Assert<br>NIS | 0.23<br>0.25 | LB A/A<br>% V/V | 82 | 115.2 | 41.5 | 1.80 | 63 |
| Everest<br>NIS | 0.0275<br>0.25 | LB A/A<br>% V/V | 100 | 81.7 | 5.6 | 0.47 | 71 |
| Everest<br>NIS | 0.0135<br>0.25 | LB A/A<br>% V/V | 98 | 106.1 | 13.2 | 0.49 | 75 |
| Hoelon<br>COC | 1<br>1 | LB A/A<br>PT/A | 95 | 16.5 | 4.4 | 0.53 | 79 |
| Hoelon<br>COC | 0.5<br>1 | LB A/A<br>PT/A | 83 | 37.8 | 36.7 | 0.83 | 74 |
| Puma | 0.0825 | LB A/A | 97 | 6.1 | 10.1 | 0.45 | 77 |
| Puma | 0.0412 | LB A/A | 85 | 16.5 | 3.7 | 0.68 | 77 |
| Check | | | 0 | 161.0 | 424.0 | 7.02 | 36 |
| | LSD | | 9.1 | 60.412 | 28.004 | 0.888 | 25.9 |
| | CV | | 6.33 | 62.58 | 33.75 | 41.81 | 20.49 |
| | REP (F) | | 0.0978 | 0.1627 | 0.2235 | 0.2798 | 0.0311 |
| | TMT (F) | | 0.0001 | 0.0005 | 0.0001 | 0.0001 | 0.0913 |