

Efficiency in Herbicide Applications

Project number: GR02-049

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Project Justification

Future research efforts with the Redux Sprayer were redirected to other weed control issues. In project years 2001 and 2002, the Redux Sprayer system showed no difference in weed control and the disadvantages of the system out-weighed any advantages.

After testing WeedSOFT in field trials at MSU with good results, on-farm tests were needed to determine the accuracy, usefulness, and effectiveness of the WeedSOFT program on a larger scale. To address efficiency in herbicide applications, the Redux Sprayer was used to apply herbicides selected by the grower in comparison with the herbicide(s) selected by WeedSOFT.

WeedSOFT offers the producer another decision tool to be used when considering herbicide selection. The value to the producer is the ability to refine an herbicide program based on weed problems as well as recognizing a net gain from the herbicide program selected.

Objectives

1. Conduct on-farm demonstrations of WeedSOFT selected herbicide treatments in side-by-side comparison with the grower selected herbicide treatment when applications are made using the Redux Sprayer;
2. Determine if the WeedSOFT selected treatments are as effective as the typical herbicides used as grower selected. The selection of WeedSOFT recommendations will be made on the basis of Net Economic Gain
3. Compare the actual WeedSOFT selection cost versus the grower selected herbicide costs.

Results and Accomplishments

In FY2003, two on-farm research demonstrations were conducted to compare the WeedSOFT selected herbicide program with the grower selected herbicide program. Visual observation of the fields confirmed that weed control was achieved at the 96% control level for both the grower selected herbicides and the WeedSOFT selections. Yield monitor data indicate that the two treatments were similar in corn yields, there was no significant difference due to herbicide selection. The corn yield when the grower selected herbicide was applied averaged 168.1 bushels per acre. The corn yield averaged 168.8 bushels per acre for the WeedSOFT selection. Therefore, we have determined that the WeedSOFT selected treatments are as effective as the typical herbicides used by these growers.

WeedSOFT selections were based on net economic gain when using the software program. Trial #1 reflects that the WeedSOFT selection was more economical per acre

in two sets of comparisons. Trial #2 reflects the unfortunate outcome when WeedSOFT selects an herbicide that is not readily available and the application window for the herbicide is missed. This was a valuable lesson to learn. In this trial, the grower selected herbicide treatment was applied. The WeedSOFT selection was not available within the application window as described on the herbicide label and therefore was not applied. WeedSOFT is useful to the producer, only when the producer can purchase the selected herbicide in a timely manner or use WeedSOFT to make another selection. In this case, WeedSOFT was not available to the producer to make another herbicide selection.

Impacts

- On-farm weed control was achieved (96% control or better) when using the WeedSOFT herbicide selection when sorted by net gain.
- The WeedSOFT selected herbicides reduced the amount of dollars going into the herbicide program in two comparisons in Trial #1. The total savings per acre ranged from \$6 to \$15.
- Capital Area Innovative Farmers has increased communication and interaction with MSU. They have established relationships with MSU faculty that will lead to future cooperative projects. CAIF has gained experience in conducting on-farm research.

Summary

WeedSOFT recommended herbicide selections that were as effective in weed control as the typical grower selected herbicide treatment with no adverse effect on corn yields. WeedSOFT selections based on net economic gain were confirmed by these trials to have a cost savings of \$6 to \$15 per acre.

Funding Partnerships

\$800- Capital Area Innovative Farmers use of Redux Sprayer

WeedSOFT research Control v. WeedSOFT treatment



What did we learn?

Comparable weed control between programs.

Costs per acre? WeedSOFT selections provided a net gain.

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| Callisto + Keystone = (Grower) | \$20.66 |
| Python+Shroud+Atrazine= (WeedSOFT) | \$14.68 |
| Keystone = (Grower) | \$23.89 |
| Shroud+Atrazine= (WeedSOFT) | \$ 8.84 |