Weed Control Timing and Nitrogen Strategies in Corn

Purpose:

The purpose of this study was to evaluate the impact of weed control timing on possible nitrogen fertilizer strategies. Research from the Northern Corn Belt has suggested that when post-emerge weed control timing is delayed, corn yields are reduced and nitrogen fertilizer requirements to optimize corn yields are increased. The question to be answered by this project was: "In a situation where weed control is delayed, can some of the anticipated corn yield lost be recovered by side dressing additional N after the post-emerge application of herbicide?"

Methods:

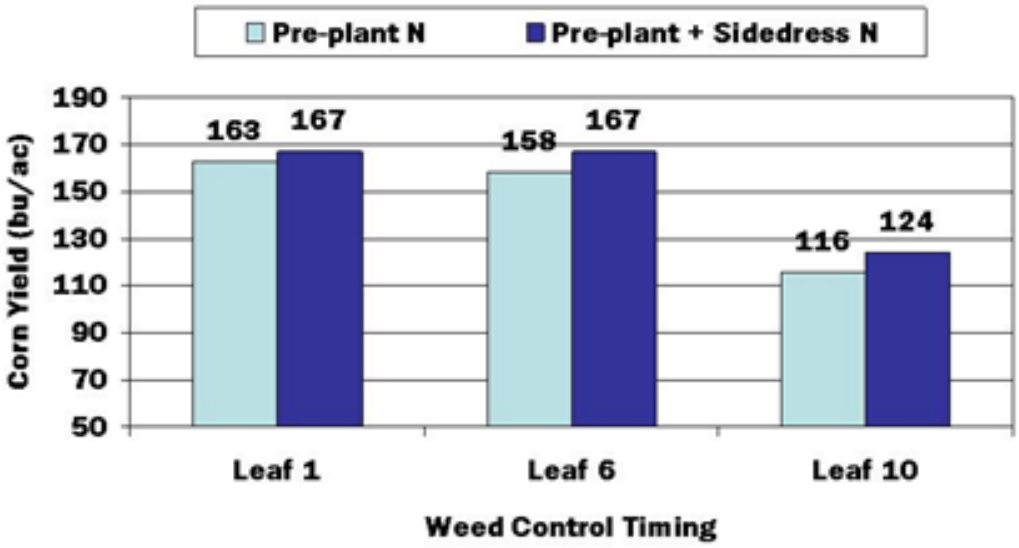
This study was conducted in Elora in 2008. To ensure heavy, uniform weed pressure, winter wheat was initially seeded and then the corn was planted at right angles to the wheat rows. Both were seeded the same day. Urea at 125 lbs of actual N was pre-plant incorporated prior to planting. The Roundup Ready corn was sprayed at the 1st, 6th or 10th leaf-over stage, simulating three distinct weed control timings. After the final application of Roundup (10 leaf stage), all plots were spit in half. One half received no additional sidedress nitrogen while the other half received 100 lbs/acre (as UAN). Yields were measured of all plots.

Figure 1. Corn growth is impacted significantly by the timing of post-emerge weed control. Elora, Ontario 2008

Results:

As expected, delaying weed control until the 10 leaf stage had a large impact on corn yield (see Figure 1). Yields were decreased by approximately 40 bu/ac by the delay in weed control from the 6-10 leaf stage. However, the influence of the nitrogen side dressing application was not significant at any of the weed control timings. At this site the yield loss associated with delayed application of herbicide could not be reduced by adding additional fertilizer N as sidedress UAN.

Figure 2. Impacts of weed control timing and N application strategies on corn yield. Elora Ontario, 2008.



Next Steps:

This project will be repeated in 2009.

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Project Contacts:

Greg Stewart, OMAFRA, greg.stewart1@ontario.ca, 519-824-4120 ext. 56707.