

HERBICIDE AND INSECT RESISTANT TRAITS IN MICHIGAN CORN. Kathrin Schirmacher, James, J. Kells, and Christina D. DiFonzo, Graduate Student, Professor, Department of Crop and Soil Sciences, and Associate Professor, Department of Entomology, Michigan State University, East Lansing, MI 48824-1325.

Corn hybrids with stacked resistance traits are becoming more common in the marketplace. Two traits that are being stacked in corn hybrids are resistance to the western corn rootworm (*Diabrotica virgifera virgifera*) and glyphosate resistance. These hybrids offer new options for pest management but their adoption will only occur if there is an advantage over current practices. The objective of this three-year study was to examine the consistency of conventional and transgenic strategies for control of insects and weeds at four field sites with differing pest infestation levels.

Under low corn rootworm pressure, there was no added yield benefit from either the conventional control methods or the transgenic Bt hybrid. All control methods reduced damage to roots and protected corn yield under high corn rootworm pressure. Under high corn rootworm pressure, the transgenic Bt hybrid was the most effective at protecting yields and roots from damage. Natural corn rootworm pressures were difficult to predict from year to year.

Uncontrolled weeds decreased corn yields at all locations, even at low weed pressure sites. All weeds control strategies, either conventional or glyphosate-based provided yields similar to the weed free plots. Under high weed pressure, the glyphosate-based sequential herbicide application consistently provided the highest yields. Unlike corn rootworm, yearly weed pressures were easier to predict.