

**A NEW APPROACH TO COLLABORATIVE PEST MANAGEMENT RESEARCH USING TRANSGENIC CORN.** Kathrin Schirmacher, James J. Kells, Christina D. DiFonzo, and Scott M. Swinton, Graduate Student, and Professor, Department of Crop and Soil Sciences, Associate Professor, Department of Entomology, and Professor, Department of Agricultural Economics, Michigan State University, East Lansing, MI 48824-1325.

Transgenic traits offer corn growers new options for weed and insect management. Stacking both insecticide and herbicide resistance traits into a single corn hybrid offers new strategies for pest management in Michigan corn production. These technologies will be aggressively marketed in the near future. Adoption of these new technologies will only occur if there is a clear economic advantage over current practices. There will be many questions regarding the economic value of these traits.

The objectives of this project are: (1) to design and conduct field experiments to identify the conditions in which the cost of multiple transgenic traits are justified in relation to conventional practices, and (2) to disseminate the results of the experiments to farmers and farm advisors.

This research involves weed science, entomology, and agricultural economics. A field experiment was designed and conducted in 2004 at four locations with differing weed and corn rootworm infestations. Near-isogenic corn hybrids were selected containing either the glyphosate resistance trait or both glyphosate resistance and corn rootworm resistance. Weed control comparisons included one preemergence and two postemergence herbicide strategies. Corn rootworm strategies included the resistant hybrid, a conventional soil-applied insecticide, and seed treatment. The experiment will be repeated in the 2005 and 2006 growing seasons.