

Progress Report for Demonstration and Implementation Proposal in IPM-1997

Title: Combining Reduced Herbicide Rates and Cultivation for Effective Weed Control in Corn

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**ABSTRACT:** Though the combination of cultivation and reduced herbicide rates has been experimentally shown to offer effective weed control in corn, few New York field corn growers cultivate corn for weed control. In fact, according to a 1997 survey, most growers who do cultivate corn still use broadcast, full rate herbicides. Three on-farm experiments were performed in New York state in 1997 to demonstrate the effectiveness of banded herbicides and cultivation in protecting corn from weed-induced yield loss. Weed numbers in sample quadrats were lowest in broadcast herbicide treated plots, equivalent or higher in plots treated with banded herbicide and a single cultivation, and higher in cultivated plots. However, yields were not as high in band-treated plots as in broadcast treated plots at two of the three sites. Herbicide failure and heavy weed pressure contributed to these lower yields. Despite the extensive research supporting the use of banding and cultivation, more work needs to be done to make this alternative viable on a farm scale.

**Introduction:** Only 20% of N.Y. field corn growers currently use cultivation to control weeds, either with or without herbicides. Despite years of on-station research demonstrating that banded herbicides and cultivation result in yields equal to broadcast herbicides, most N.Y. corn growers who cultivate still use broadcast, full-rate herbicides (Gift and Mt. Pleasant, 1997). While interest in cultivation is growing, according to both extension agents and growers, growers who cultivate and use herbicides lose money unless they understand the role of banding (Mt. Pleasant et al., 1996). According to growers, the reasons not to cultivate include time constraints (both amount of time during hay cutting and timeliness due to wet soil) and costs (fuel, equipment). However, both of these concerns can be mitigated with use of a banded herbicide. A banded herbicide enables growers to cultivate later in the season and still control weeds (timeliness), to cultivate only once or twice and still control weeds (lessening hours in the field), and to cut the herbicide portion of weed-control costs by two-thirds. This year, we performed demonstrations of cultivation and banding at three sites, one each in central, western and eastern New York. These demonstration experiments were designed to make the benefits of banding and cultivation clearer to growers.

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