

PROJECT REPORT TO THE NEW YORK STATE IPM GRANTS PROGRAM

**Title:** Evaluating Soil Characteristics as a Potential Means to Minimize Soil Insecticide Usage to Control Corn Rootworm.

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**Abstract:**

Previous research by Davis (1997), Allee (1998) and others has indicated a relationship between soil drainage, soil suitability for corn cropping and relative impacts of corn rootworm. Current research was an effort to explore this relationship as a means to enhance corn rootworm management decisions. In the second phase of this multiyear project, studies were conducted to determine root injury by larval populations of corn rootworm beetle (CRW), *Diabrotica* species, in corn fields grown for silage in well-drained and poorly drained soils and fields rated as “good”, “fair” or “poor” for corn cropping (Cline and Marshall 1988).

Seventeen fields were identified in western NY which met the following criteria: fields with either “well-drained” or “poorly drained” soils, second or greater year corn fields, a range of planting dates, a documented range of known 1998 CRW beetle counts “low” (0-0.25 CRW / plant), “medium” (0.26 – 0.99 CRW / plant) and “high” (1.0+ CRW / plant), corn grown for silage, plant populations 32-34,000 plants / A, row spacing at least 30 inches, no Prowl herbicide used in 1999, and the field manured within past 3 years. Replicated experiments comparing insecticide and non-insecticide treated plots were established in each field identified. Fields were evaluated for rootworm larval feeding injury in early August and silage yields in late September. Rootworm injury ratings were very low regardless of insecticide use or soil drainage category. Most root systems evaluated were less than the 3.0 rating generally accepted as causing economic impacts. No overall significant differences between root ratings from either “well-drained” or “poorly” drained fields were found. Widespread drought conditions are thought to have caused corn rootworm larval mortality resulting in the low root injury ratings observed.

For a printed copy of the entire report, please contact the NYS IPM office at:

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