

Semi field trials to evaluate undersowings in maize for management of western corn rootworm larvae

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Abstract

Western corn rootworm larvae (*Diabrotica virgifera virgifera* LeConte) need to feed on maize roots after hatching from overwintering eggs. It was hypothesized that the roots of undersown plants mixed with maize roots disrupt the host finding of the larvae, lowering their survival and subsequently reducing larval densities. Six undersowings (perennial rye grass, Italian ryegrass, a mixture of Italian ryegrass and white clover, white clover, yellow mustard and sunflower) were tested with a standard maize cultivar under semi field conditions. The larval density per plant was determined by extracting the larvae from the root core of the maize plants with a Kempson extraction system at the end of larval development. Contrary to the hypothesis only sunflower caused a significant reduction in larval densities, whereas white clover as an undersowing resulted in a significantly higher larval density than in the control. In conclusion, undersowings generally do not provide an alternative control measure against western corn rootworm larvae. Sunflowers mixed with maize plants indicate a promising option as an additional control measure, but would have to be tested under field conditions to confirm its potential for western corn rootworm management.

Key words: *Diabrotica virgifera virgifera*, cultural control, undersowing, maize, semi field.

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Received May 11, 2016. Accepted November 30, 2016.