Corn Rootworm Monitoring Network Summary

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Abstract
A monitoring network was established this year to monitor corn rootworm adults in Iowa cornfields, similar to the moth trapping network we manage in the spring each year. The goal was to help farmers and agronomic professionals monitor populations of northern corn rootworm (NCR) and western corn rootworm (WCR) in their fields and assess management decisions. A secondary goal was to estimate the ratio of NCR to WCR throughout the state and describe changing ratios into the future. The sampling protocol used is detailed at the end of the article.

Disciplines
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Corn Rootworm Monitoring Network Summary

September 10, 2020

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When using sticky traps to monitor for corn rootworm adults, you can assess management decisions based on the number of beetles per sticky card per day. Capturing greater than two beetles/trap/day suggests that something different should be done to manage corn rootworm the following growing season. For example, you may consider planting soybean the following season to manage corn rootworm. Or, if you are using a hybrid with corn rootworm Bt traits and plan to plant corn the following year, you may consider using a soil-applied insecticide instead.

**Monitoring summary:** 21 volunteers monitored 35 fields for four weeks beginning the week of July 13. The fields were located in 19 counties in the northern two-thirds of the state and two counties in southeast Iowa. Twenty-five fields were continuous corn, while nine were corn following soybean. Only two locations with a corn-soybean rotation planted a hybrid with corn rootworm Bt traits, while all but one continuous corn location planted a hybrid with a corn rootworm Bt trait. Locations with a corn-soybean rotation tended to capture fewer corn rootworm beetles over the trapping period (0-15) than continuous corn fields (0-533), which was expected as crop rotation is an effective management tactic for corn rootworm.
The total number of WCR and NCR captured during the peak week at each location is shown in Figures 1 and 2, respectively. It is important to note that the peak week varied by location. Adult emergence is based primarily on degree day accumulation, but emergence can also be influenced by soil factors, planting date, larval density, and whether larval corn rootworm was challenged by the presence of insecticides or Bt toxins. Since the rootworm species present doesn’t affect management decisions, Figure 3 shows the total corn rootworm beetles captured during the peak week at each location.
Total northern corn rootworm (NCR) during the peak week at each location
Figure 4 shows the ratio of WCR:NCR during the peak week at each location. A ratio greater than one indicates more WCR than NCR were reported at that location. Seven locations reported more NCR than WCR: these were located in Clay, Kossuth, Polk, Washington and Winneshiek counties. We suspect these ratios are changing, and we intend to monitor their change over time as we continue this project in the future.
We appreciate our volunteer cooperators for helping with the first year of this project. We hope to continue this monitoring effort into the future and have more participation across the state.

Disclaimer: The data we collected from individual fields cannot be used to make region-wide predictions of corn rootworm activity or density. Populations of corn rootworm are localized to individual fields and are based on past and current management practices. Corn rootworms overwinter in Iowa cornfields, and movement is typically restricted to within fields or between neighboring fields. WCR, specifically, only disperses about 130 feet (40 meters) per day.

Sampling protocol: We mailed traps to volunteer cooperators at the end of June. Cooperators established a transect of four traps, the first placed 165 feet into the field and the rest placed every 165 feet along a single row. Cooperators would return a week later, count the number of each species present on each sticky trap, and replace each sticky trap with a new one. They set their first traps in the field the week of July 13 and continued sampling for one month. We aimed to capture the peak emergence of beetles in the field,
though emergence can occur for a period of 6-8 weeks. Normally, multiple transects would be established within a single field and traps would be monitored for eight weeks.

Category: Insects and Mites

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Crop:
Corn

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