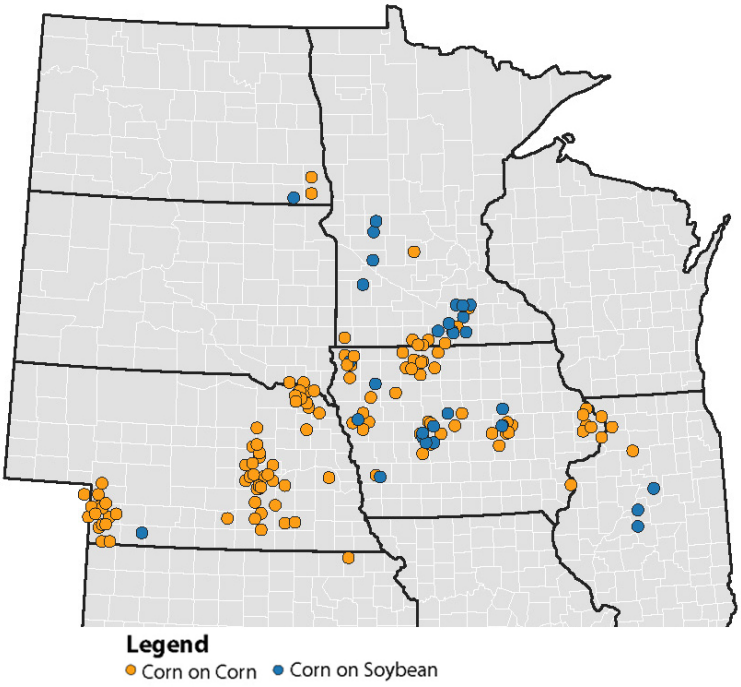
2020 Corn Rootworm Beetle Monitoring Project Summary

Rob-See-Co Direct Sales Representatives (DSRs) and Business Associates (BAs) worked together to conduct a corn rootworm beetle trapping project during the summers of 2019 and 2020. The primary purpose of this project was to demonstrate the value of Agrisure Duracade for control of corn rootworm, but the information gained also helps our customer's manage corn rootworm on their individual farms. Trap project observations provided cooperators with documentation of corn rootworm beetles actively feeding on silks during pollination, which coincided with timing of trap deployment. Trap counts also provide all Rob-See-Co customers with insight into situations where corn rootworm larvae are most likely to be a problem in 2021.

One or more sticky traps were placed in corn fields during the corn rootworm beetle flight and monitored for three consecutive weeks. Corn rootworm beetle traps were checked weekly. The number of corn rootworm beetles trapped, by species, was recorded, and traps were replaced with a fresh trap.

Location of Traps

Traps were placed in fields that represented a combination of corn following corn and corn following soybeans. Corn rootworm is a common problem where corn follows corn, and these fields provide great insight into efficacy of rootworm control strategies, as well as understanding of corn rootworm pressure during that growing season. The corn following soybean fields help us understand the likelihood of damage by Northern corn rootworm in extended diapause and/or the presence of Western corn rootworm soybean variant. Over the two-year period, traps were placed in a total of 151 fields. Two different corn rootworm control strategies were compared in 47 of these 151 fields. Traps placed in the remaining 104 fields were used to monitor rootworm pressure by capturing beetles in a single hybrid and/or corn rootworm control strategy. The map shows the location of the 151 fields where traps were placed in either 2019 or 2020.

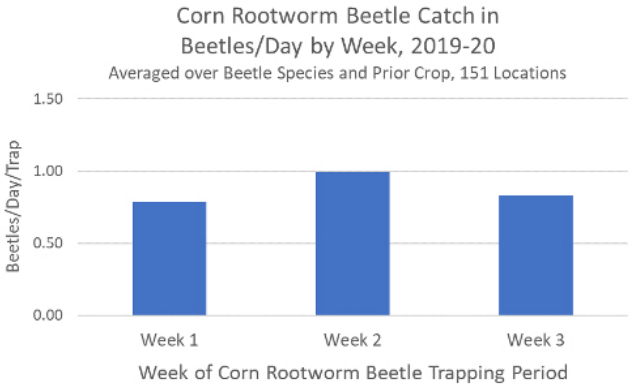


Left to right: Southern corn rootworm (Spotted cucumber beetle), Western corn rootworm, and Northern corn rootworm

Photo courtesy of Iowa State University

Summary of Results

All results are presented as the average number of corn rootworm beetles captured per day. Only counts of Northern and Western corn rootworm beetles were recorded. While the Southern corn rootworm beetle is often observed in corn fields, it is not able to overwinter in the Central or Northern Corn Belts and is not a significant pest of corn in geographies where traps were placed.

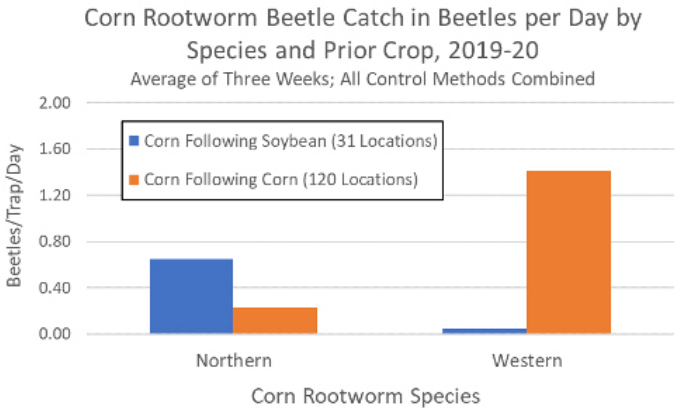


Beetles Captured by Week

Traps were not deployed during the entire beetle flight. The project was designed to have traps out on both sides of and during the peak in the beetle flight, due to the importance of this time period relative to corn rootworm management strategies. Corn rootworm beetles captured per day in weeks one and three were similar over the two years, but the week two count peaked slightly higher in 2020. Beetles/trap/day was slightly lower in 2019-20 compared to a smaller scale pilot study conducted in 2018 (data not shown; see *2018 CRW Beetle Monitoring Project Summary* under the Agronomy tab, and Agronomy Projects selection option at robseeco.com).

Beetles Captured by Corn Rootworm Species and Prior Crop

Traps were placed in 120 fields where corn followed corn and 31 fields where corn followed soybeans. Northern corn rootworm beetles were more frequently captured where corn followed soybeans, while the Western species was more dominant in continuous corn. Overall, beetle numbers were higher in corn following corn compared to corn following soybean. The Northern species was captured most frequently in Iowa, Minnesota, and Eastern Nebraska fields, and the Western species was often the only species captured in fields located further west.



Beetles Captured by Control Method

A Rob-See-Co hybrid carrying the Agrisure Duracade trait was compared to an alternative control option in 47 of the 151 fields. Corn rootworm activity in each strategy, based on beetle capture, was used for a comparison of control efficacy. Alternative control options compared included a non-rootworm trait hybrid treated with a soil insecticide at planting (5), a hybrid carrying a single mode of action rootworm control trait (3), and hybrids carrying an alternative dual mode of action rootworm trait (39). Alternative dual mode of action trait stacks included Genuity SmartStax, Optimum AcreMax Xtreme, and Qrome. Overall, Agrisure Duracade resulted in 14% fewer Western corn rootworm beetles compared to other control methods. These results demonstrate the control advantage provided by Agrisure Duracade, as well as the importance of managing corn rootworm on continuous corn acres. For more information on the Corn Rootworm Beetle Trap Project, contact your Rob-See-Co DSR, BA, or Product Evaluation Lead.