

Q&A: How To Manage Extended Diapause in Corn Rootworm

The challenge of extended diapause

Extended diapause is an adaptation in Northern corn rootworm (NCRW) that can cause problems with your regular management plan. Find out why it can be tough to deal with and learn the most important strategies for managing it.

Q: What is extended diapause?

A: Extended diapause is a survival strategy where NCRW eggs have genetically adapted to remain dormant in the soil for more than one winter before hatching. Instead of hatching after one winter as normal, eggs can remain viable for two or more years.

Q: Why is extended diapause a problem?

A: This adaptation has made NCRW more challenging to manage because it requires new strategies for effective management. Delaying egg hatch for multiple seasons gives NCRW more opportunities to reestablish itself in a year following soybeans. This means that a standard crop rotation approach may not be effective.

Q: Is extended diapause a new problem?

A: Extended diapause NCRW populations were first observed in the mid-1980s and have fluctuated since then. In 2023, Syngenta agronomists started seeing larger numbers of NCRW beetles and root damage from larva in rotated corn fields, indicating extended diapause was likely present. These observations largely aligned with previously reported geographies with extended diapause, although it was also found in a few counties

outside the normal range. Signs of NCRW in rotated corn fields in 2025 may be an indicator that CRW may reappear in the same fields in 2027, even if soybeans are planted in 2026. Observations from 2023 are a good indicator that NCRW may reappear in the same fields in the 2025 season, even if soybeans were planted in 2024.

Q: Where is extended diapause commonly seen?

A: This issue has been observed more commonly in specific parts of the U.S. Midwest. It's particularly problematic in Iowa, Minnesota, Eastern Nebraska and Eastern South Dakota.

Q: How is this different than normal diapause?

A: Typically, corn rootworm eggs pause development to increase survival throughout colder winter months and resume development as soil temperatures increase in spring, eventually hatching after accumulating a set number of heat units. With extended diapause, egg development can pause for multiple years before hatching. This adaptation allows population levels to remain high even with crop rotation to non-host crops.

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Q: How does extended diapause affect crop rotation as a strategy?

A: Traditionally, rotation to a non-host crop was an effective control method, but extended diapause defeats this management strategy. A portion of the eggs can survive through the soybean year or years and then hatch when corn is planted again.

Q: How does extended diapause impact CRW management strategy?

A: It complicates pest control strategies because short-term rotation schemes may no longer effectively manage CRW. Extended diapause also makes it more difficult to identify and predict future problems and requires other control measures in addition to crop rotation every year.

Q: Is scouting an important management practice?

A: Regular monitoring or scouting of corn fields for root injury and adult beetles can help evaluate the severity of infestation and future risk. Your scouting plan should include both in-season adult sticky traps and late-season root digs. Be sure to scout enough areas to fully represent whole fields.

Q: How can I manage extended diapause in continuous-corn fields?

A: Managing NCRW extended diapause requires a comprehensive and adaptive approach. Regular monitoring and understanding of local population dynamics are critical to developing a long-term strategy.

Here are some of the most important management strategies for controlling NCRW in fields with extended diapause:

- **Longer crop rotation durations:** Consider adjusting rotations with a third-year non-host crop or multiple years of alfalfa where possible.
- **Corn rootworm traits:** Avoid repeated use of the same CRW trait, as this can select for resistant rootworm populations. The Duracade™ trait stack and the Durastak™ trait stack (available for the 2027 crop year) both carry the *Bacillus thuringiensis* CRW trait, which expresses a protein that binds differently in the gut of CRW than any other trait on the market.
- **Soil-applied insecticide:** Soil-applied insecticides such as Force® can be applied through planters for an additional layer of control.
- **Foliar insecticides:** Well-timed foliar insecticide applications can effectively reduce the number of gravid adult female beetles prior to laying eggs. Multiple applications may be needed to effectively control beetles that have emerged at different timings.

Contact your Syngenta seed seller to discuss a plan for managing corn rootworm on your operation.



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