

AGRONOMIC ALERT



Corn Rootworm Rescue Treatment Decision Aid

- In situations where corn rootworm (CRW) pressure is high, management of corn rootworm larvae in fields planted to a *B.t.* product may be necessary.
- To determine if control methods are necessary, dig roots to sample CRW larvae, record findings, and calculate the average larval instar to determine if economic thresholds have been met.
- A list of insecticides for rescue treatment options is included.

In situations where corn rootworm (CRW) pressure is high, management of corn rootworm larvae in fields planted to a *B.t.* product may be necessary. To obtain best results, proceed according to the following instructions.

Dig roots to sample CRW larvae

Dig 10 or more roots after corn rootworm larvae have hatched and are actively feeding on corn. This typically occurs in the month of June in most of the Corn-Growing Area.

Process sample

To sample for larvae, place the roots into a bucket with water and gently wash the roots. If corn rootworm larvae are present they should float to the surface. Early instars are small and can easily be mistaken for debris, so check the surface carefully.

Enter data and calculate average larval instar

Record the total number of larvae found for each larval stage from the roots sampled into Table 1. Also enter the total number of roots sampled and calculate the average number of larvae per root along with the average instar of the CRW recovered from the roots.

Round the average larval instar score to the nearest whole integer. If the average larval instar is greater than 3.5, it is too late for a rescue treatment to be effective.

Economic thresholds

Refer to Table 2. If the average number of larvae/plant for the average instar exceeds the economic threshold and the historical field pressure, then a rescue treatment is advised.

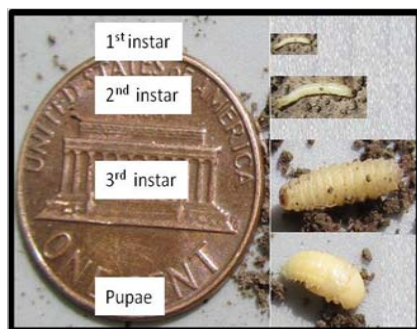


Figure 1. Size estimation in relation to penny.

Rescue treatment options

Insecticides (this list is not all-inclusive) can be applied through the irrigation pivot (preferred) or by making lay by applications

Table 1. Average instar and larvae per root worksheet

Enter # of 1st instar larvae		X	1	=	
Enter # of 2nd instar larvae		X	2	=	
Enter # of 3rd instar larvae		X	3	=	
Enter # of pupae found	+	X	4	=	+
Total # of larvae	Total	Adjusted Total		Total	
Enter # of roots		Average Instar			
Average # larvae/root (Total # larvae / roots)	Total Larvae # Roots	(Adjusted total / Total # larvae)		Adjusted total Total # larvae	

Table 2. Economic thresholds

Average Larval Instar	Previous Year CRW Pressure		
	Light	Moderate	Heavy
1	3.5	3	2.1
2	4	3.1	2.5
3	4.5	3.6	3
4	Damage has already occurred - rescue treatment not effective		

and watering the insecticide in (least effective). Whether through the pivot or lay by applications, for best effect, ample water is required to move the applied insecticide to the root zone.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.

Corn Rootworm Rescue Treatment Decision Aid

Cobalt®

Active ingredients: chlorpyrifos and gamma cyhalothrin

Apply: 38-42 fl oz/acre

Application timing should coincide with 2nd instar larvae.

Counter®15G via Lock'n Load® and SmartBox® Systems

Active ingredient: terbufos

Apply: 8 oz/1000 row ft

For field corn and popcorn. If application is made at planting, do not make post emergence or cultivation time treatments of Counter®15G. Do not graze or cut for forage within 30 days of treatment. ALS-inhibiting herbicides should not be used if Counter®15G has been applied to corn at the time of planting. Counter® 15G may be applied 7 days after application of ALS-inhibiting herbicides.

Counter®20G via SmartBox® Systems

Active ingredient: terbufos

Apply: 6 oz/1000 row ft

For field corn and popcorn. If application is made at planting, do not make post emergence or cultivation time treatments of Counter® 20G. Do not graze or cut for forage within 30 days of treatment. ALS-inhibiting herbicides should not be used if Counter® 20G has been applied to corn at the time of planting. Counter® 20G may be applied 7 days after application of ALS-inhibiting herbicides.

3 R Force®3G via conventional and SmartBox® Systems

Active ingredient: tefluthrin

Apply: 4-5 oz/1000 row ft

Field corn, popcorn, and seed corn. Place granules at the base of the plant on both sides of the row and cover with 2-3 inches of soil by making the application ahead of cultivation equipment. Use Force® 3G only once per crop season.

Lorsban®4E, Govern®4E, Hatched®, Warhawk®, Yuma 4E®

Active ingredient: chlorpyrifos

Apply: 2-3 pts/acre

May apply at cultivation by directing the spray to both sides of the row at the base of the plants just ahead of the cultivator shovels. Cover the insecticide with soil around the brace roots. A cultivation application of Lorsban® 4E may be made in addition to an at-planting application of Lorsban® 15G.

Another option is to apply through sprinkler irrigation systems with enough water to wet the root zone to the depth that root protection is needed. Timing should coincide with appearance of second instar larvae. Pre-harvest interval of 21 days before harvest of grain, ears, forage, or fodder.

Lorsban®15G via conventional and SmartBox® Systems

Active ingredient: chlorpyrifos

Apply: 8 oz/1000 row ft

Field corn, popcorn, and corn grown for seed. Apply by directing the granules at the base of the plant on both sides of the row just ahead of the cultivation shovels and cover the granules with soil. PHI 35 days for grain. Do not allow meat or dairy animals to graze in treated areas or harvest treated corn silage as feed for meat or dairy animals within 14 days after last treatment. Do not feed treated corn fodder to meat or dairy animals within 35 days after last treatment.

Follow up

Fields that require a rescue treatment are probably candidates for adult management as well. Be sure to continue scouting and managing adults as the season progresses to help ensure lower CRW pressures for not only this season, but the next growing season as well.

Sources:

¹University of Nebraska Insecticide Treatments for Corn Rootworm Larvae in Field Corn. Online: www.unl.edu/entomology/ (verified 6/7/13).

²Godfrey, L.D. and F.T. Turpin. 1983. Comparison of western corn rootworm (Coleoptera: Chrysomelidae) adult populations and economic thresholds in first-year and continuous corn fields. J. Econ. Entomol. 76, 1028-1032.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Leaf Design® is a registered trademark of Monsanto Company. All other trademarks are the property of their respective owners. ©2013 Monsanto Company. 06072013JMG