

Scouting Canola for Diamondback Moth

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There are reports of diamondback moth infesting canola in several locations in southwest Oklahoma and Texas. Diamondback moth populations can build rapidly, and cause problems in canola when plants start to bloom. We do not currently have any research-based economic thresholds from Oklahoma for managing diamondback moth, so my suggestions are adapted from recommendations developed in spring canola in North Dakota.

Diamondback moth is a pest of many crucifer crops, including canola. This insect is found worldwide, and was introduced into the United States in 1854. The moth is a small, gray and brown moth that measures ½ inches. When resting, the wings are folded over the body in a roof like position. Male moths have three diamond-shaped markings on the forewings when they are folded together, which is how it got its name (Figure 1). Female moths lay oval flattened eggs measuring 0.44 mm in groups of 1-8 eggs which will hatch in 5-6 days. One female will lay an average of 150 eggs.

Newly hatched larvae are light green with a green head, and become progressively darker as they mature. They develop through four instars and when full grown, a larva measures about ½ inches long. One distinct feature of this caterpillar is that they will thrash violently back and forth and drop from the plant on a silk strand. They create a loose, silken cocoon that they attach to the plant and pupate in. They can complete a lifecycle in about 32 days, depending on temperature. Typically a scout will find all life stages at the same time within a field.

Larvae are the damaging stage. When they first hatch, larvae feed by leaf mining. As they grow they begin to feed on the outside of the leaves. Small larvae chew small irregular windowpane areas on a leaf (Figure 2). As they get larger, they chew entire leaves leaving only the veins. Although leaf feeding looks bad, it doesn't result in much yield loss. Yield loss is associated with flower and seed pod injury. When larvae feed on flowers, they cause them to abort. When they feed on seed pods, the pods may fail to produce seed. Feeding associated with flowers and pods can also cause a delay in plant maturity.

Scout for diamondback moth by pulling plants from a 1-square foot area, beet the collected plants into a white bucket and count larvae. Count larvae that are dangling on the plant from silk threads as well. Take counts in at least 5 locations to get an average number of larvae per square foot.

Thresholds are:

- 10-15 larvae per square foot during early flowering
- 20-30 per foot during pod stage.

One caution: Diamondback moths are notorious for developing resistance to insecticides, particularly pyrethroids, which are the primary registered insecticides for use in canola. Therefore, I suggest that the high end of any rates should be considered to eliminate the possibility of not obtaining adequate control. Current recommendations for control of army cutworms in canola are listed in CR-7667, *Management of Insect and Mite Pests in Canola* which can be obtained online at <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-3045/CR-7667web2009.pdf>

Figure 1. Diamondback moth adult



Photo courtesy of Alton Sparks Jr., University of Georgia. Bugwood.org

Figure 2. Diamondback moth larva and windowpaning feeding injury.



Photo courtesy of Merle Shepard, G.R. Carne and P.A.C. Ooi. Bugwood.org