Economic thresholds for western bean cutworms

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Abstract
In his book, *Entomology and Pest Management*, Larry Pedigo discusses economic thresholds and the foundation for their development and use. He states that one type of very common economic threshold is what entomologists know as the nominal threshold. A nominal threshold is one that is based upon a person's understanding of the pest's biology tied together with field experience, and it is rarely based on rigorous research. Nominal thresholds tend to be static—that is, unchanging with changes in crop value, control costs, or plant development stage.

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Economic thresholds for western bean cutworms

by Marlin E. Rice, Department of Entomology

In his book, *Entomology and Pest Management*, Larry Pedigo discusses economic thresholds and the foundation for their development and use. He states that one type of very common economic threshold is what entomologists know as the nominal threshold. A nominal threshold is one that is based upon a person's understanding of the pest's biology tied together with field experience, and it is rarely based on rigorous research. Nominal thresholds tend to be static—that is, unchanging with changes in crop value, control costs, or plant development stage.

The western bean cutworm is a pest of field corn in which we have used a nominal threshold developed at the University of Nebraska. Their threshold was developed during the years when field corn was worth about $2/bushel, but with corn in the $3.50/bushel range now, it would make sense to cut the threshold in half to 4 percent of the plants infested with an egg mass.

Western bean cutworm eggs are “cantaloupe”-shaped and are white in color when newly laid. (Marlin E. Rice)
It sometimes doesn’t hurt to get a second opinion, so last winter I spoke to Earle Raun, a private crop consultant from Nebraska whom I highly respect, and he shared his nominal threshold with me. You will notice that Raun’s threshold (shown in the right-hand column) is about half of the University of Nebraska threshold, or right in the ballpark if we halved the Nebraska threshold based upon a current higher cash value for the crop. But the perspective I also appreciate with this threshold is that it incorporates a “field experience” component and increases as the crop matures, suggesting that it would require more insects to cause economic damage in the later plant stages.

I present both economic thresholds to you for your consideration. To my knowledge, neither has been tested side by side in the field, so the rigorous field validation aspect is missing here between these two thresholds. Also, remember that timing an insecticide application can be critical and applications should be made before larvae enter the silks.

**Nominal threshold #1 (University of Nebraska)**

1. 8 percent of plants with egg masses or small larvae

2. If eggs have hatched, spray at 95 percent tassel emergence or

3. If tassels already emerged, when most of eggs are expected to hatch

**Nominal threshold #2 (Nebraska crop consultant)**

1. 5 percent of plants with egg masses or small larvae on silking/blister/early milk-stage corn (R1-early R3)

2. 20 percent of plants with egg masses on mid-milk-stage corn (R3)

3. No threshold on late milk/dough/early dent-stage corn (late R3-early R5) unless seed production field

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and forage crops.

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