

Study Title	Augmenting Control of Corn Earworm (<i>Helicoverpa zea</i>) in Organic Sweet Corn with Gemstar Insecticidal Virus
Investigator/Location	Dr. A. Schreiber, Ag Development Group/ Columbia River Basin, Washington
Treatments	<ol style="list-style-type: none"> 1. Gemstar® LC (active ingredient: <i>H. zea</i> nucleopolyhedrovirus) at 8 fluid ounces per acre every 6 days. Total of 4 applications. 2. Gemstar at 4 fluid ounces per acre every 3 days. Total of 8 applications. 3. Entrust® (spinosad) at 2 ounces/acre every 5 days. Total of 5 applications. 4. Entrust at 1 ounce/acre every 3 days. Total of 8 applications. 5. Gemstar (4 fl. oz.) alternated with Entrust (1 oz.) at 5 day interval. Total of 3 applications Gemstar and 2 applications Entrust (Gemstar applied first). 6. Gemstar (4 fl. oz.) alternated with Entrust (1 oz.) at 3 day interval. Total of 4 applications each (Gemstar applied first). 7. Check (overhead irrigation water only)
Experimental Design	Randomized complete block with 4 replicates, each 12 × 20 feet.
Application Method	Chemigation via overhead sprinkler system in 0.15 inches of water (2,715 gallons of water per acre).
Application Timing	20 August – 10 September, 2009 (silking period)
Evaluation	The number of infested ears was determined at harvest.
Results Summary	<p>A high incidence of corn earworm infestation was encountered in this trial, with over 2/3 of untreated ears infested.</p> <p>All treatments significantly reduced pest incidence compared to the untreated check (see figure 1). However, only alternating applications of Gemstar and Entrust at 3-day intervals (T6) resulted in commercially acceptable incidence of ear infestation.</p> <p>Stand-alone applications of Gemstar at 4 fl. oz./A every 3 days (T2) were as effective as spinosad (T3 & T4) in reducing the number of infested ears.</p> <p>More frequent application at lower rates (T2 & T4) tended to result in lower incidence of ear damage than did higher rate applications with longer intervals between sprays (T1 & T2). Alternating sprays of Gemstar and Entrust also were more effective when the interval between sprays was shorter (T5 v. T6).</p> <p>Alternating applications of Gemstar with a half rate of Entrust in a 5-day rotation interval resulted in no loss of control compared to Entrust applied every 5 days at a higher rate (T5 v. T3). The total amount of Entrust used was reduced from 10 to 2 oz/A, saving the grower over \$250/A in product costs (based on 2011 average retail price of Entrust in Washington).</p> <p>Increasing the spray frequency of the alternating program to every 3 days (T6) further reduced incidence of infested ears to a commercially acceptable level. The estimated total product cost for this treatment per acre was \$113 less than the cost of the same rate of Entrust applied every 3 days (T4).</p>

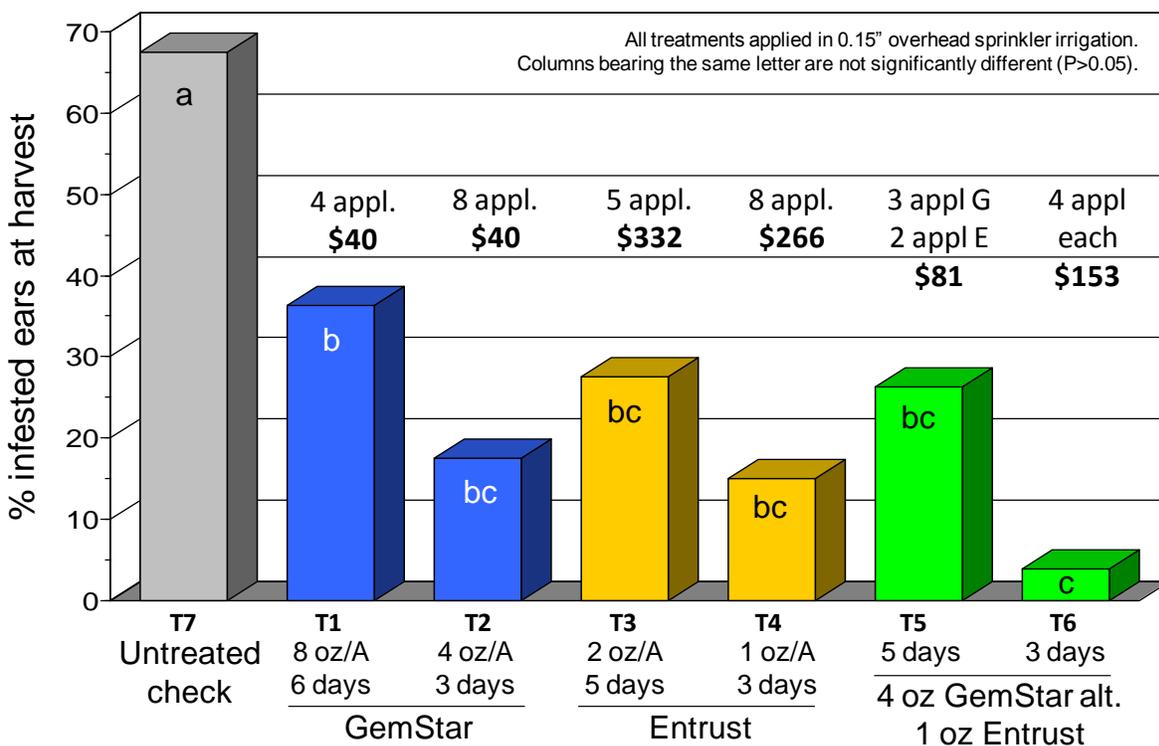


Figure 1. Incidence of ear infestation by corn earworm (*Helicoverpa zea*) in organic sweet corn treated by overhead sprinkler chemigation with Gemstar (*H. zea* NPV), Entrust (spinosad), or alternating applications of these two products. Application rates and intervals are indicated below each treatment, with the total number of applications and estimated total product cost to the grower indicated above. Columns bearing the same letter are not significantly different ($P > 0.05$, Student-Newman-Keuls test). Eltopia, Washington (2009).

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