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The Impact of Transgenic Cottons Expressing One or Two Proteins from *Bacillus thuringiensis* on Survival and Damage Potential of First and Second Instars of *Ostrinia nubilalis* (Lepidoptera: Crambidae)

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European corn borer, *Ostrinia nubilalis* (Hübner), is susceptible to toxins produced by *Bacillus thuringiensis* (Berliner), but damage to Bollgard (Bt) cotton (*Gossypium hirsutum* L.), which produces the cry1Ac δ -endotoxin, has been observed in the field. Laboratory studies investigated the comparative survival and damage potential of first and second instar larvae of *O. nubilalis* on transgenic cotton bolls in 1993 and 1994. After 6 d, a significantly higher percentage of second instars survived on both non-Bt and Bt bolls compared with first instars. A similar trend, greater damage by second instars than first instars on non-Bt and Bt bolls, was detected for the percentage of damaged bolls for both genotypes. An additional experiment was performed in 2004 that included non-Bt, Bollgard, and Bollgard II cotton cultivars. Bollgard II was included because it expresses two Bt proteins, cry1Ac and cry2Ab. Percentage survival of second instars was significantly higher than that of first instars after 6 d on non-Bt and Bollgard bolls. A similar trend was observed for Bollgard II bolls, but the differences in larval survival between instars was not significant. Second instar larvae damaged a significantly higher proportion of bolls of non-Bt, Bollgard, and Bollgard II cultivars than first instars. These data suggest that the presence weed hosts of *O. nubilalis* in cotton fields may lead to economic injury in Bt cottons. Results from this study also indicate that boll damage by *O. nubilalis* may be higher for Bt cottons due to row-to-row movement in embedded refuge plantings.