

**EFFICACY OF BIOGODON (BOLLGARD)
TO CONTROL TARGET COTTON
LEPIDOPTERAN PESTS IN ARGENTINA**

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Abstract

Cotton leaf worm (clw) *Alabama argillacea*, budworm complex (bwc) *Heliothis virescens* and *Helicoverpa gelotopoeon*, and pink bollworm (pbw) *Pectinophora gossypiella*, are pests of primary importance in almost all cotton regions of Argentina. Usually, farmers have to perform three to six applications to control them, and the crop still suffers a decrease of yield due to the damage inflicted for those pests at sub-threshold and threshold levels.

The objective of this research was to determine the efficacy of Biogodon (i.e., Bollgard) genotypes to control target lepidopteran pests as compared with conventional management of non-Biogodon varieties.

Trials were established in the States of Chaco, Salta and Jujuy, Argentina. Also, pre-commercial strip-plots were distributed across the Argentine Cotton Belt, as large demonstration plots. The trials were conducted in split plot design, which allowed to test conventional and Biogodon genotypes with and without chemical control of target pests, based on economic thresholds.

Cotton leaf worm was present at levels that required insecticide applications in all places. Their numbers were, in most situations, significantly ($P < 0.05$) different between conventional varieties treated to control target pests and Biogodon varieties without insecticides (LSD mean separation). In all locations clw infestation on Biogodon genotypes were either zero or near zero, with a clear pattern of significantly larger numbers infesting non-Biogodon varieties. No significant differences were observed between

Biogodon with and without treatment, due to the intrinsic control Biogodon performs.

It was also evident the excellent control provided by Biogodon to maintain budworm complex and pink bollworm infestations significantly low.

It is important to focus on what the farmers situation would be, planting either conventional cotton and applying for target pests or Biogodon without applications against those pests. Comparisons of infestations and yields were concentrated between NuCOTN 33B, the first Biogodon variety commercialized in Argentina, and the two most commonly planted varieties (Guazuncho 2 INTA and Chaco 520 INTA).

It was concluded that Biogodon genotypes demonstrated to be an important mortality factor for cotton leaf worm, budworm complex and pink bollworm, in Argentina. Yield advantage of NuCOTN 33B without control measures, as an example, as compared with Guazuncho 2 INTA with treatments to control target pests, was 513 kg of seed-cotton per hectare, when averaging all trials and strip plots. Adding to that difference the savings of three average sprays (products and applications) and deducting the price of the technology, the benefit can be calculated.