

**WIDESTRIKE® INSECT PROTECTION: ADOPTION, PERFORMANCE AND  
OBSERVATIONS SINCE COMMERCIALIZATION**

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**Abstract**

WideStrike® *Insect Protection* was launched in PhytoGen cotton varieties in 2005 and has since been widely adopted by producers. WideStrike contains Cry1Ac and Cry1F insecticidal proteins and was developed in an effort to broaden the spectrum of activity, reduce the frequency of insecticide spray applications, and to aid in resistance management of Lepidoptera. Since launch, Dow AgroSciences has continued with a vigorous research program focused on key cotton pests which include 1) efficacy of standard varieties and new candidate varieties against *H. zea* and secondary Lepidoptera 2) efficacy and benefits of timely foliar applications targeting *Helicoverpa zea*, and 3) monitoring for geographic-wide shifts in susceptibility to Cry 1Ac and Cry1F for *H. zea*, *Heliothis virescens*, and *Spodoptera frugiperda*.

In two South Carolina locations in 6 years from 2004 to 2010, boll damage in 400 series non-Bt PhytoGen varieties (not over-sprayed to control Lepidoptera) ranged from 42.8 to 68.3% for sampling dates that exceeded 5% boll damage. In contrast, boll damage in a similar 400 series WideStrike variety ranged from 4.4 to 15.8% for sampling dates that exceeded 5% in the non-Bt variety in South Carolina. In Bossier City, LA in 5 years from 2006 to 2010 boll damage in a 400 series non-Bt PhytoGen variety ranged from 5.6 to 62.2%. In contrast, boll damage at this same Louisiana location for a similar 400 series WideStrike variety ranged from 1.3 to 13.8% on sampling dates that exceeded 5% in the non-Bt variety. The multiyear mean reduction in boll damage on WideStrike was 82% at each location. The multiyear data reveal no trends across time for a change in efficacy.

Since launch, occasional supplemental sprays targeting bollworm have been necessary in WideStrike cotton, particularly against high and/or sustained infestations. Research from Arkansas in 2006 showed that a timely pyrethroid application, when boll damage exceeded the arbitrary threshold of 5%, reduced damage and protected yield. WideStrike also offers protection against secondary lepidopteran pests of cotton which includes fall armyworm, beet armyworm, soybean looper, and saltmarsh caterpillar. In 2005, under natural fall armyworm infestations, WideStrike reduced the number of larvae infesting bolls or plants 91 and 94% at Pine Bluff and Lonoke, Arkansas, respectively, relative to the non-Bt. In 2004, WideStrike reduced soybean looper infestations 90% in field trials conducted in Mississippi.

Six growing seasons after launch, WideStrike continues to perform as initially positioned. This technology continues to deliver convenient and economical control of lepidopteran pests that provides value to cotton producers. WideStrike will provide a solid foundation for future Bt technologies currently under development by Dow AgroSciences.

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