



Bt Cotton



Presentation at 2002 Milan
No-till Field Day (Scott Stewart)

Bollgard cotton expresses Cry 1Ac δ -
endotoxin of *Bacillus thuringiensis*

Bollgard II cotton expresses Cry1Ac and
Cry 2Ab

**Bollgard II will be commercially
available in 2003**

Efficacy of Bollgard Cotton - Heliothines **(Field Observations in Mississippi, 1995-1997)**

- **56% reduction in 'heliothine' larvae compared to non-Bt cotton (n = 719,000 terminals)**
- **77% reduction in heliothine damaged squares (n = 653,000 squares)**
- **No survival of tobacco budworm**

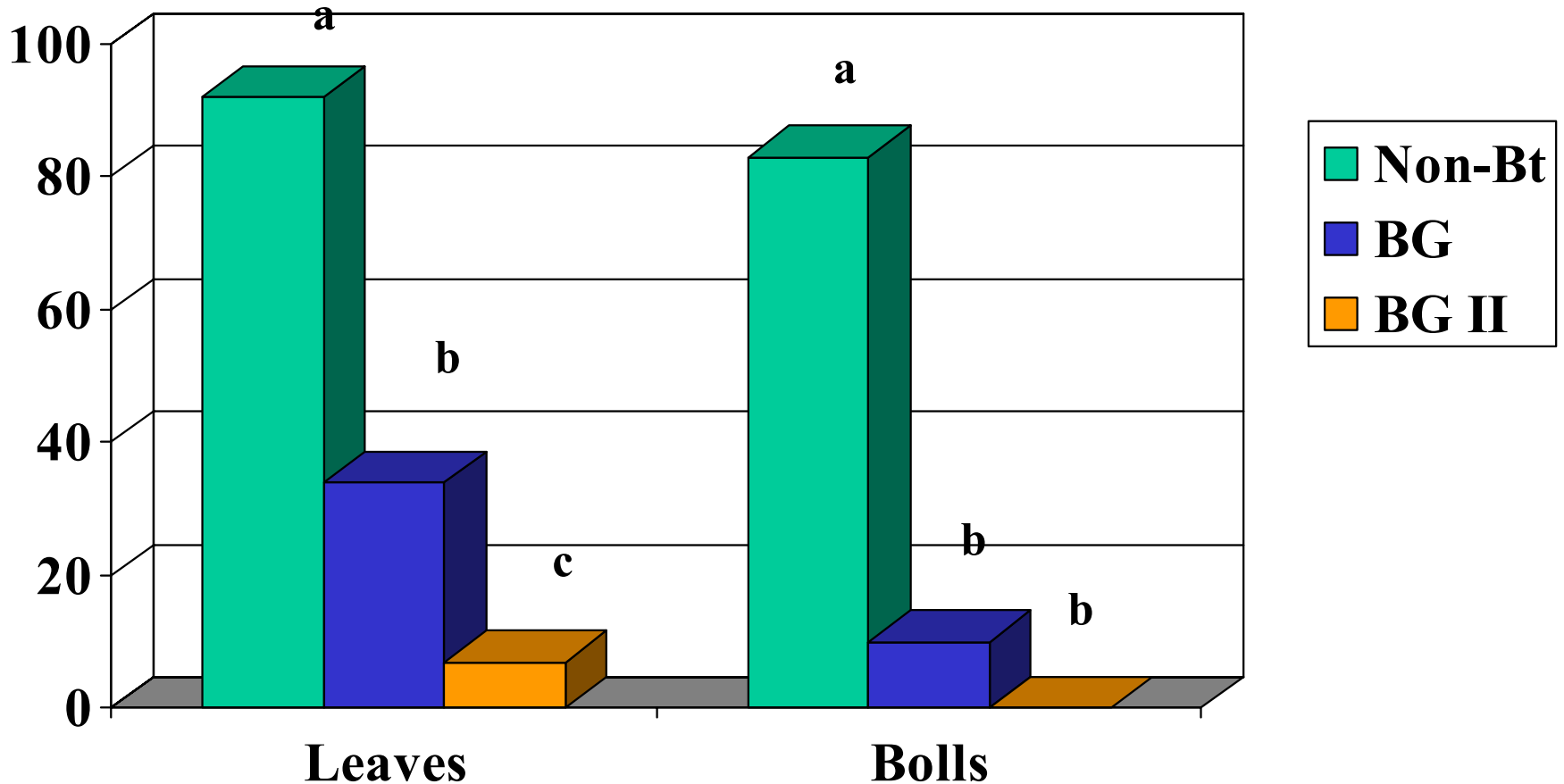
Survey of Budworm and Bollworm Damage and Treatments in Mississippi Cotton Fields

<u>Varieties</u>	<u>Insecticide treatments</u>	<u>Damaged bolls</u>
Bollgard	0.66 / acre	2.1 %
Non-Bt	3.09 / acre	3.6 %

Layton et al. (2002): 6 year average (N = 600 cotton fields)



Percent Survival of Neonate Bollworm After 4 Days When Fed Non-Bt, Bollgard and Bollgard II Cotton Tissue



Number of Larvae (% Reduction) Found in Field Plots During 1999-2000

(MSU: Akin & Stewart - total across 4 replicated tests)

<u>Species</u>	<u>DPL50</u>	<u>DPL50 B</u>	<u>DPL50 BII</u>
Bud/bollworm	236	50 (79%)	17 (93%)
Loopers	311	413 (-33%)	19 (94%)
Fall Army.	32	28 (13%)	1 (97%)
Beet Army.	7	0	0

Yield Data - Bollgard vs. Bollgard II

Lentz - University of Tennessee

<u>Variety</u>	<u>Insecticide*</u>	<u>2000</u>	<u>2001</u>
Non-Bt	Sprayed	784 bc	---
	Unsprayed	690 c	1116 b
Bollgard	Sprayed	933 a	---
	Unsprayed	904 ab	1099 a
Bollgard II	Sprayed	891 ab	---
	Unsprayed	905 ac	984 b

* Two insecticide applications for caterpillar control were made to “sprayed” plots in 2000

Value of Bollgard II

- **Excellent control of caterpillar pests**
 - **Need dependent upon geography (distribution of various caterpillar pests)**
- **More likely to have problems with tarnished plant bug and stink bugs because of reduced spraying for lepidopteran pests**
- **Overall value and impact in TN is uncertain**