

**BT COTTON - THE SECOND YEAR-
A CONSULTANT'S PERSPECTIVE**
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Abstract

Bt cotton varieties yielded less than comparable standards in the east-central region of Louisiana in 1997. NuCotn 33B & 35B yielded less than its respective non-Bt parents; exhibited less vegetative growth than in 1996; exhibited more plant bug & boll weevil problems than standard varieties treated with pyrethroids; required a second picking; had lower total insecticide costs than standards; and similar value to standard varieties when considering inputs versus value. Paymaster BG1330RR exhibited the "wilt" and yielded substantially less than other Bt varieties. Oversprays of Bt cotton plots with synthetic pyrethroids or Orthene on both an as needed and scheduled basis increased yields dramatically.

Introduction

Tobacco budworms have been a consistent problem facing Mid-South cotton producers. This problem has occurred annually since the tobacco budworms (TB) have built up resistance to synthetic pyrethroids. The introduction of transgenic Bt cotton (Bollgard from Monsanto) has given consultants and producers a tool that should offer excellent control of tobacco budworms. Cotton varieties that contain Bollgard are in such demand throughout the Cotton Belt that they have been planted to millions of acres prior to their assessment via controlled field research. Observations made by consultants and research have been documented from the 1996 crop. Because of the rapidity at which transgenics are forging their way to the market place not as much intensive research data is generated prior to intensive implementation. General observations noted by researchers, consultants, and farmers are a very necessary tool in order to generate larger databases from which scientists can make better decisions. General field observations may or may not be less replicable than intensive research data.

Discussion

The most widely planted variety containing Bollgard in 1996 in the Mid-South was NuCotn 33B. However, other NuCotn varieties and Paymaster varieties containing Bollgard were planted in east-central Louisiana in 1997. Given the above mentioned limitations and parameters the following general observations were made while consulting on these varieties.

NuCotn 33B

1. did not exhibit the excessive growth that was noted in 1996. This could have been because of the reduced amounts of nitrogen applied/acre or due to the loss of nitrogen from excessive early season rainfall.
2. required several applications of foliar urea (3 gals/acre) in order to minimize fruit shed late in the season.
3. required a second-picking to maximize yields.
4. yielded consistently less than its parent - DPL 5415.

NuCotn 35B

1. had fewer plant bug problems than NuCotn 33B.
2. yielded consistently equal to its parent - DPL 5690.

Paymaster BG1330RR

1. exhibited symptoms similar to the "wilt" that was predominant in Hartz varieties in 1996.
2. did not exhibit fruit loss & malformation associated with Roundup Ready varieties in other areas of the Mid-South.
3. yielded 300 lbs less than DPL 33B and DPL 20B.

Varieties containing Bollgard

1. gave effective control of very heavy tobacco budworm infestations.
2. had more plant bug problems than standard varieties.
3. had more boll weevil problems than standard varieties.
4. exhibited orange-leaf characteristics prior to maturity due to root damage caused by excessive rainfall in June.
5. had lower overall insect control costs per acre than standard varieties primarily because of heavier tobacco budworm pressure.
6. had lower yields than the standard for the area - DPL 5415.

Oversprays of NuCotn 33B

1. increased yields.
2. increased yields more when scheduled as opposed to treating based on thresholds.
3. did not enhance maturity.
4. with lighter than normal rates of synthetic pyrethroids were effective against cotton bollworms.

Table 1. Yields of Bt cotton variety trial – 1997, Wildsville, LA

Variety	Yield (lbs lint/ac)
1. NuCotn 33B	1093
2. NuCotn 35B	1093
3. Stoneville BG 4740	1075
4. NuCotn 32B	1066
5. NuCotn 50B	1012
6. NuCotn 90B	1003
7. NuCotn 20B	998
Average	1049

Table 2. Insect data from Bt overspray plots, 1997.

Treatment	% Sq Dmg		% L Wrm		% Wrm
	Wv	Wrm	Sq	Trm	Eggs
1. Karate – s	0.4	0.0	0.0	3.1	20.9
2. Karate – a/n	1.8	0.2	0.0	3.1	13.4
3. Fury – s	0.4	0.0	0.0	1.7	16.1
4. Orthene – s	0.4	0.1	0.0	2.8	18.3
5. UTC	0.2	0.2	0.0	4.4	18.7
Average	0.7	0.1	0.0	3.0	17.5

s = scheduled applications a/n = as needed applications

Table 3. Insect, application, & yield data from Bt overspray spray plots, 1997.

Treatment	% Bolls		%	# of	Yield
	Dmg	L Wrm	P Bugs	Apps	Lbs/ac
1. Karate – s	0.0	1.4	3.7	6	921
2. Karate – a/n	0.0	0.2	6.3	3	767
3. Fury – s	0.0	0.8	1.9	6	783
4. Orthene – s	0.4	2.4	0.6	6	848
5. UTC	0.6	2.2	5.0	0	632
Average	0.2	1.4	3.5		790

s = scheduled applications a/n = as needed applications

Table 4. Average inputs, yields, and value differences of five comparison fields of Bt versus non-Bt cotton, 1997.

Input	\$ Cost Per Acre		
	Bt	Non-Bt	Bt Difference
1. Insecticides	\$ 54.59	\$ 84.42	+ \$ 29.83
2. G. Regulators	\$ 6.38	\$ 5.10	- \$ 1.28
3. Fertilizer	\$ 17.50	\$ 17.81	+ \$ 0.31
4. Application	\$ 20.50	\$ 22.00	+ \$ 1.50
5. Scrapping	\$ 4.50	-	- \$ 4.50
6. Technology	\$ 32.00	-	- \$ 32.00
TOTAL	\$ 135.47	\$ 129.33	- \$ 6.14
Yields (lb lint/ac)	907 lbs	915 lbs	- 8 lbs
Value @ \$0.65/lb	\$ 589.55	\$594.75	- \$ 5.20
Value Difference			- \$11.34