TRANSGENIC BT COTTON - COTTON CONSULTANTS PERSPECTIVE

Chuck Farr
Mid South Ag Consultants Inc.,
Crawfordsville, AR
Lonnie Bull
Bull Cotton Pest management, Inc.,
Cameron, SC
Ray Young
Young's Insect Control,
Wisner, LA
Roger Carter
Agricultural Management Services, Inc.,
Clayton LA

Abstract

In years past cotton consultants in the Mid-South have had to deal with control measures for Tobacco budworms, Cotton bollworm, and Weevils. Other pest such as plant bugs, thrips, aphids, and mites that once were considered to be secondary pest, now pose problems for consultants and growers in the Mid-South. With increase pressure from these pest and the cost to control them, consultants and growers are looking for new economical control measures. Transgenic Bt cotton gave promise that both Tobacco budworm and Cotton bollworm could be managed in the Mid-South. If consultants and growers could manage these pest with transgenic Bt cotton then maximum economic production of cotton could be obtained with less cost.

Observations of one transgenic Bt cotton variety (DPL NuCotn 33B) were made by numerous consultants in Louisiana, Mississippi, and Arkansas. Many of the same problems were seen by consultants in these states.

Observations :

1. NuCotn 33B required early planting in Northeast Arkansas during the last week of April or first week of May as DPL 5415 which is considered to be its parent.
2. Plant populations of NuCotn 33B must be less than standard varieties.
3. NuCotn 33B required higher amounts of growth regulators than standard varieties. (Table 1)
4. Nitrogen requirements must be managed properly with NuCotn 33B.
5. NuCotn 33B controlled both bollworm and budworm effectively prior to bloom without any damage to small fruit.
6. Fruiting patterns with NuCotn 33B were erratic and irregular.
7. Scouting had to be done twice a week and during peak time as much as four times a week.
8. Bollworm egg-lays were found throughout the entire plant on NuCotn 33B and typically in the top one third on standard varieties.
9. NuCotn 33B gave excellent control of tobacco budworm.
10. NuCotn 33B required more applications for weevils than standard varieties due to maturity.
11. NuCotn 333B required higher rates of defoliants since maturity was later than standard varieties and fall weather patterns started.
12. The use of boll openers did not eliminate the need for a second picking.
13. Average input cost was greater for NuCotn 33B than standard varieties. (Table 2)

Table 1.Average Pix Required for NuCotn 33B vs. STV 474 from four adjacent fields.

Variety	Average ounces of Pix/Acre
STV 474	20
NuCotn 33B	32

Table 2. Average Input Cost for NuCotn 33B vs. STV 474 from four adjacent fields.

Input	NuCotn 33B	STV 474
In-Furrow Cost	$23.01	$23.01
Plant Bug Application	$11.13	$6.56
Growth Regulator	$22.40	$14.00
Bollworm Application	$7.45	$14.90
Defoliation	$20.62	$10.05
Second Picking	$27.50	$27.50
Technology Cost	$32.00	$0.00
Total Cost	$144.11	$ 96.02

Conclusions and Concerns:

1. NuCotn 33B is not well adapted to all areas of the Mid-South.
2. Future Bt varieties should perform better agronomically than NuCotn 33B.
3. Will new Bt varieties perform better on Bollworm than NuCotn 33B?
4. What other pest will increase and become a problem with Bt cotton?
5. Will new Bt varieties perform as well as their parent varieties agronomically?
6. Will the Mid-South generate more boll weevils to overwintering with Bt cotton?
7. Will resistance increase quicker with NuCotn 33B due to its full season stature?
8. Will plant bugs increase with Bt cotton?

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 2:875-876 (1997)
National Cotton Council, Memphis TN