

# ANOTHER YEAR OF DOOM

## *Bt Cotton in AP - 2008*

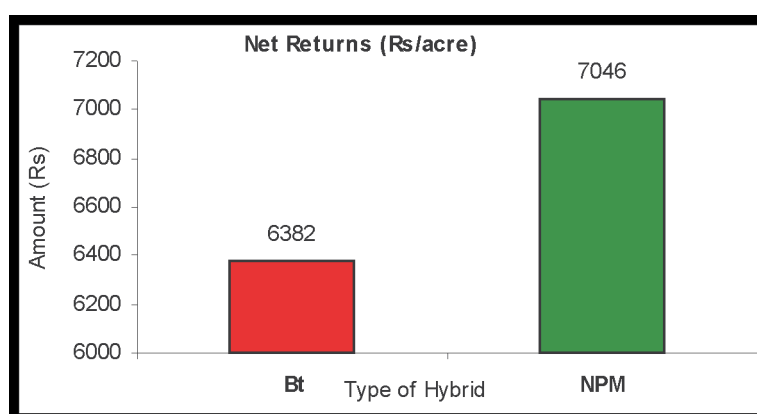
The huge hype of Bt Cotton has once again trapped cotton farmers in Andhra Pradesh. In a season long study conducted up by nine community researchers, who were guided by the Deccan Development Society & Andhra Pradesh Coalition in Defense of Diversity found that the Non Bt farmers harvested 10% higher net profits.

As part of the final year of the five year long study, the community researchers in collaboration with the Scientists of Deccan Development Society identified two sets of farmers – 45 Bt farmers and 82 Non Bt farmers from 14 villages across Warangal, Adilabad and Nalgonda districts in Andhra Pradesh and closely monitored the crop performance from the date of sowing to the date of harvesting by all the sampled farmers.

Bt cotton had been introduced in AP as the saviour of cotton farmers by reducing pesticide consumption, saving the crop from the Bollworm damage, thereby enhancing the crop yields.

The community researchers who closely watched their sampled farmers on a day to day basis found out a completely different situation, which are presented below

### **Net returns in 2007-08 :**

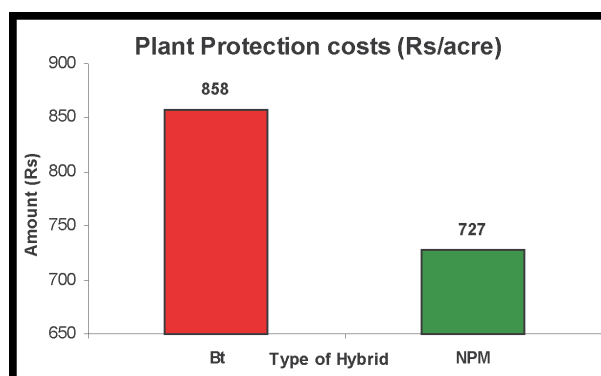


Contrary to the popular notion that farmers gain higher net returns by growing Bt cotton, the Non Bt cotton farmers who had grown their crop with out using any pesticides (Non Pesticidal Management of crop) reaped 10% higher net returns from their Non Bt cotton hybrid.

As happened in the last season, this year also farmers faced a lot of problem in getting their Non Bt cotton hybrids as the market was completely flooded by the Bt hybrids.



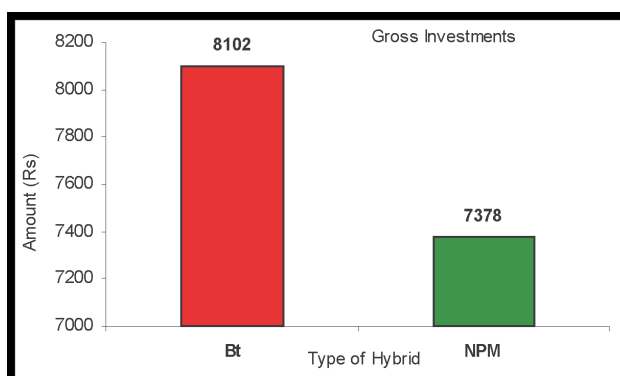
## Plant protection costs in 2007-08 :



Even on the pest management front the Non pesticidal management methods proved far better than Bt cotton. The incidence of sucking pests is increasing year after year on Bt hybrids a phenomenon world over. While the Bt cotton offers protection only from the Bollworms the Non pesticidal management methods act as a precautionary measure. All the resources used for making the decoctions in the Non pesticidal management are available locally and are environmentally very safe.

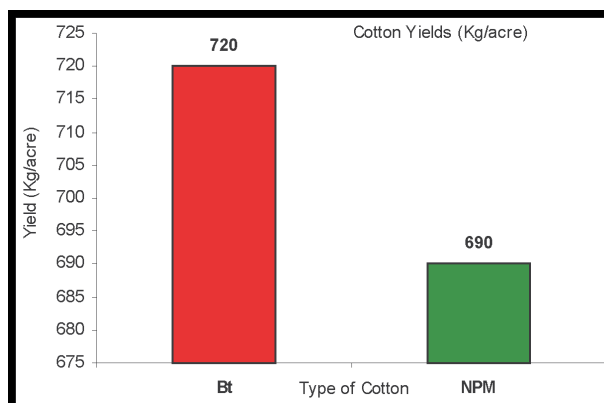
From the table above it is evident that farmers who had sown the Non Bt hybrids and cultivated their cotton using Non Pesticidal methods invested 18% less on pest management than the their Bt cotton counterparts.

## Gross Investments in 2007-08



Contrary to the claims of the Biotech industry, the average investments for growing Bt cotton crop shot up by 9% compared to the Non Bt cotton farmers who took up the Non pesticidal Management methods.

## Cotton yields in 2007-08

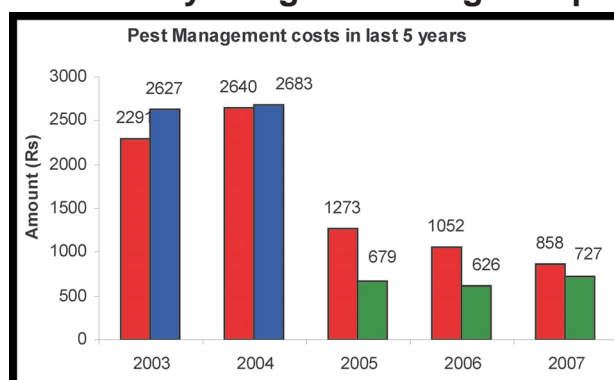


As far as seed cotton yields are concerned, Bt cotton farmers earned only 5% higher yields in spite of spending 9% more on total investments, 18% more on pest management when compared to the Non Bt cotton farmers with NPM methods. Even though the Bt cotton farmers had enjoyed a 5% higher yield of seed cotton, in terms of Net returns, the NPM farmers with Non Bt hybrids did far better by earning 10% higher net profits.

## Comparative figures of the last five season long studies

The study was initiated in the year 2003-04, which was the second year of introduction of Bt cotton in India. Probably It is the only independent study that had systematically tracked the Bt cotton crop *via-à-vis* the Non Bt / NPM cotton crop. In the first two years (2003 & 2004) Bt cotton was compared with the Non Bt cotton crop grown by the same farmers, while the rest of three years (2005, 2006 & 2007) Bt cotton was compared with the Non Pesticidal managed cotton.

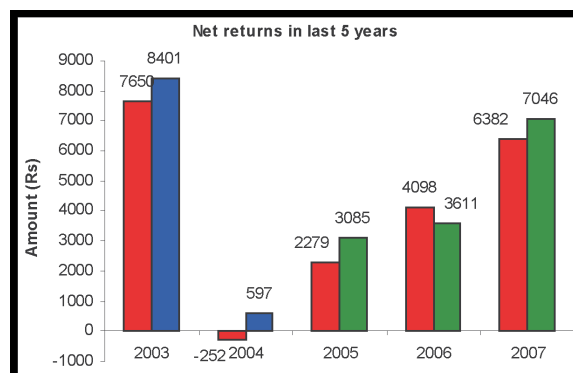
**[NPM cotton= Non Bt hybrid grown using Non pesticidal methods]**



A cursory look at the pest management costs in the last five years on Bt cotton and Non Bt cotton shows that the pest incidence has been decreasing since 2005. The main reason for this drastic reduction in the pest incidence is climatic influence especially the rain fall. In the last three seasons (since 2005) cotton crop encountered heavy showers in the months of August and September every year, which incidentally coincide with the egg laying period of the cotton bollworm, resulting in the wash out of the eggs and thus decreased incidence of bollworm not only on cotton crop but also on other crops.

However, the incidence of sucking pests such as aphids, jassids, and thrips on cotton is on an increasing trend. The last cotton season (2007) had also witnessed a forgotten sucking pest *viz.*, mealy bug on the Bt cotton. Reports from all over the cotton growing parts of India have confirmed the similar trend.

In addition to the above two groups of pests, and diseases such as Rhizoctonia root rot have started increasingly attacking the Bt cotton fields. This is not a common disease in our state, but has started appearing with the introduction of the Bt cotton since 2002. So far this disease has already invaded 40% of the cotton growing area resulting in the death of the cotton plants in the field causing severe losses. This disease not only affects but also harbours crops that are commonly rotated with cotton such as chilly, and other crops like redgram, and tomato that are grown in the cotton fields.



The above chart shows the net returns from the Bt and NBt /NPM cotton crops in the last 5 years. In the first two years (2003 & 2004) both Bt and Non Bt crops grown by the same farmer were taken into consideration and the net returns from Non Bt cotton were more than the Bt hybrid. Since 2005, the Bt cotton was compared with the NPM cotton. Except for the year 2006 in the remaining two years farmers reaped higher net returns from NPM cotton. The main reason for reduction in net returns from NPM cotton in 2006 was, that farmers could not get a better cotton hybrid. Hence in order to get a better Non Bt hybrid, we had to organise farmers into a group and place indent for a desired hybrid.

The results of the last 5 season long studies unequivocally reveal that, using locally available resources, farmers can better manage the pest problem instead of relying on the undependable technologies like Bt cotton which proved to be costlier both economically and environmentally.

### **Are Our Regulators willing to learn late lesions from Early Warnings?**

Besides the above figures, the current experience with the Bt cotton in India and elsewhere gave some very important early warnings to wake us of the large scale plethora of problems that are in the offing. The early warning that appeared in the field are -

#### **1. Incidence of the Rhizoctonia root rot disease**

This disease has started occurring on the cotton since 2002 with the introduction of the Bt cotton cultivation in Andhra Pradesh. In the first year of the Bt introduction, only 2% of the fields were infested by this disease and by the year 2007, the % of the cotton fields that faced this problem went up to 40%. This is a clear signal of the problems that we are going to face in the years to come. Many of the farmers had incurred huge losses of their Bt cotton crops because of this disease.



Chilly field grown after the cotton being affected by the Rhizoctonia disease in Warangal

#### **2. Large scale death of Livestock:**

In the last five years, thousands of the small ruminants such as sheep and goat succumbed to death on feeding the leftover cotton stalks in the Bt cotton fields. This has never happened in India earlier. The normal practice is, after the cotton crop is completely harvested, sheep and goats are allowed to freely graze on the leftover cotton stalks in the cotton field. This has been in vogue ever since cotton is being grown. However, these small ruminants started dying on feeding the Bt cotton stalks since 2003 and this problem was observed on a large scale in 2004 & 2005 . As the cotton acreage is increasing, shepherds had no other alternative except to feed them on the Bt cotton stalks, which resulted in the large scale death of the small ruminants.

In Warangal and Adilabad districts, even the cattle such as buffaloes died on eating the bt cotton stalks, resulting in huge losses to the farmers and shepherds. Of late, as soon as the symptoms started appearing, anticipating heavy losses, shepherds were selling their ruminants to the butchers. Thus there is a possibility of Bt toxin entering into human food chain through the consumption of meat.



Even Buffaloes succumbed to death on Feeding dried Bt cotton stalks

### 3. Sheep feeding experiment:

As more number of deaths of small ruminants are happening, we have initiated a control feeding experiment in Warangal in the month of march 2008. A group of 9 healthy sheep were selected for trial. These 9 sheep were divided in to 3 groups.

- Group 1 (3 sheep ): Grazed only on left over stalks of BG I cotton
- Group 2 (3 sheep ):Grazed on only left over stalks of BG II cotton
- Group 3 (3 sheep ): Grazed only on left over stalks of non Bt cotton

The experiment was initiated on 18<sup>th</sup> Feb 2008. *The mortality of sheep started on 13<sup>th</sup> March and by 18<sup>th</sup> March all the 6 sheep that were fed on the BG I and BG II have died, However, the other 3 sheep that were fed on the Non Bt cotton are still alive and healthy.* The above experiment was done in collaboration with Hyderabad based NGO “ANTHRA” which has qualified vets for organizing the experiment.

### 4. Skin allergies

Farmers working in Bt cotton fields reported skin allergies in Andhra Pradesh, Punjab and Haryana states. In A.P in the villages of Medarametta and Issipet in Warangal district, the labours who were harvesting the BT cotton fields had got rashes and skin allergies on the exposed parts of their body. They underwent a treatment with the nearest doctor at Mogullapalle investing their hard earned labour wages. Many women in Punjab have complained about the bronchial/pulmonary disorders and the skin allergy after the cotton plucking.



Farmers who worked in Bt cotton field suffered skin allergies