My Cotton Experience

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Brief Introduction

• A tech enthusiastic South Indian farmer
• Over three decades of Farming Experience
• Crops Grown: Rice, Cotton, Pulses, Coconut in 50 acres
• Experiments with novel farming techniques and technology
• Advice startups, corporations and non-profit groups
My foray into cotton

● Started farming from 1986
● Started growing OPV cotton from 1986
● Started growing hybrid cotton from 1999
● Started growing Bt cotton from 2004
Pest menace in pre Bt cotton era

- Bollworms devastate cotton which reduce yield & inflict huge economic loss
- Spraying different chemicals (Caleader spray) and Biological control
- Pest developed resistance to chemicals
- Drained our resources - Farmers caught in debt trap
- Farmers in the verge of giving up cotton cultivation
My initial skepticism about BT Cotton

- I got carried away by the false information
- Cattles grazing in Bt Cotton Field would die
- Soil organisms including earthworms would be adversely affected
- Non target Insects would die
- High cost of seed
My decision to try out Bt Cotton

- All my attempts to control bollworms failed
- I was so frustrated & was on the verge of quitting cotton cultivation
- Had the opportunity to attend a meeting in Coimbatore in Feb 2004
- Got my doubts clarified by the scientists
- Decided to make a comparative study about Bt & Non Bt Cotton
- What I expected from Bt Cotton & what I realised
## Comparative Cost Analysis

<table>
<thead>
<tr>
<th>Account Head</th>
<th>Non Bt Variety Cotton</th>
<th>Non Bt Hybrid Cotton</th>
<th>Bt Hybrid Cotton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
</tr>
<tr>
<td>Seed &amp; Sowing related cost</td>
<td>2511</td>
<td>2500</td>
<td>3060</td>
</tr>
<tr>
<td>Land Preparation cost</td>
<td>6400</td>
<td>6120</td>
<td>6120</td>
</tr>
<tr>
<td>Fertilizer &amp; Nutrient cost</td>
<td>8225</td>
<td>7290</td>
<td>7800</td>
</tr>
<tr>
<td>Plant Protection cost</td>
<td>7000</td>
<td>7000</td>
<td>1500</td>
</tr>
<tr>
<td>Irrigation &amp; Over Heads</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
</tr>
<tr>
<td><strong>TOTAL COST OF CULTIVATION A</strong></td>
<td><strong>27136</strong></td>
<td><strong>25910</strong></td>
<td><strong>21480</strong></td>
</tr>
<tr>
<td><strong>SALE OF KAPPAS</strong> B (net of picking cost)</td>
<td><strong>40000</strong></td>
<td><strong>46000</strong></td>
<td><strong>53300</strong></td>
</tr>
<tr>
<td><strong>Net Profit/ Acre</strong> B-A</td>
<td><strong>12864</strong></td>
<td><strong>20090</strong></td>
<td><strong>31820</strong></td>
</tr>
</tbody>
</table>
Economic Benefits of Bt Cotton

- Hybrids are more profitable than OPV
- Bt Hybrids are more profitable than Non Bt Hybrid
- Factors for higher Profitability:
  - Increase in yield
  - Reduction in Cost of cultivation
  - Favorable Selling Price
Three ways to increase farm Profitability:

1. Reduction in cost
2. Increase in per Acre yield
3. Increase in per unit selling price

Result: Increase in Profitability
How Yield Increases in Bt Cotton

- Yield of Cotton depends on
  - The number of squares & Bolls
  - The vigour of the plant

- Squares & Bolls shed due to biotic & abiotic stress

- Boll shedding is nearly nonexistent due to absence of bollworm

- Higher boll retention rate of Bt Cotton translates into higher yield

- Unhindered growth and vigour right from sowing

- Damage of tender shoot portion is absent
Cost Reduction

- Reduced Pesticide Material Cost & Spraying Cost
- Reduced Labour Cost in Sowing & placement of fertilizers
- Hybrids enables small Power Tillers for interculture
- Harvest labor efficiency enhanced because of fully bloom cotton
Usage of Power tools
Bt-cotton vs. non Bt-cotton
(both planted at the same time)

**Bt-cotton**
- Small compact plant
- Many mature bolls ready for harvest
- 3 sprays for non bollworm pests

**Non Bt-cotton**
- Large plant, excessive vegetative growth
- Difficult to spray
- Few bolls to harvest
- 10 sprays for all insect pests
Better sale value for farmers

- Farmer Stands to gain at the time of sale because of contamination free fiber
- Absence of oil contamination due to bollworm damaged seed
- Fungus and Bacteria entering through the entry and exit holes is prevented
- Ginners and textile mills prefer Bt Cotton for better fiber characteristics
Other Benefits

- Non target Insect Predators are preserved
- Environment is not polluted
- Labour can be employed for more productive farm activities
- Win-Win for the farmers and the industry
Benefits for the Textiles & other Industries

- More farmers would grow profitable Bt cotton
- Textile Industry gets contamination free cotton with superior fiber characteristics
- This technology turned India from cotton importing country to exporting nation
- Enables adoption of small farm machines
- Land productivity improves
- Besides being fiber crop cottonseed oil is a major edible oil & cotton meal is an important cattle feed.
Myths and Realities: Grazing - I
Myths and Realities: Grazing related - II
Myths and Realities: Grazing related - III
Myths and Realities: Soil Organism Related
Myths & Realities: Honey Bee & Other non-target insects
Untapped Potential of GM Crops

- Plants resistance to biotic & abiotic stress
- Climate resilient crops
- More nutritious crops
- Crops with enhanced drought, submergence & salinity tolerance
Apartment by farmers

- Let us enjoy the freedom to access and select the technology
- Let policy related to farm technology be made on scientific merits & not on politics
- GM Mustard & GM Eggplant
- Ongoing agitation by farmers in India
“GM Crop makes it easier in achieving the goal of doubling farmers income”.

Thank You