Economic profitability and adoption of Bt cotton and Non-Bt cotton in North India
Puran Mal¹, S.Bauer², K.K. Reddy³, A.V. Manjunatha⁴

Background: Bt Cotton is the first genetically modified crop introduced in India during 2002, currently dominates more than 75% area to the total cotton area. The adoption of Bt cotton in India is higher than other countries. In spite of higher adoption rate, Bt cotton is not fully accepted by all sections of the population because few studies showed Bt cotton is profitable and few studies showed Bt cotton is not profitable for Indian farmers.

Research goals: To compare the profitability of Bt cotton with Non Bt cotton and identify the adoption factors of Bt cotton in North India.

Methodology:
Study area: Haryana, Punjab State (200 Farmers), India

(i) Partial Budgeting: It is a method of making a comparative study of costs and returns resulting from a change in a part of the farm business.

(ii) Logit Model: If Ui BT > Ui C then Bt cotton will adopt
So Pi = f(β, Xi)
where X is explanatory variables related to adoption

\[
Y(P = 1 / \Xi) = \frac{1}{1 + e^{-(\beta + \beta_i X_i)}}
\]

Where,
Y = Adoption of Bt cotton (1,0)
\(\beta_i\) = Coefficient of explanatory variables
Xi = Explanatory variables – Expenses on insecticide, cotton revenue, Network dummy, education, experience in cotton, No of information source, family size, annually off-farm income and state dummy.

Results:

a) Increase in costs in Rs./acre
I) Seed cost = 1364.52-256.48=1108.04
II) Fertilizer cost=1739.49-915.13=824.36
III) Irrigation cost=1256.24-734.45=521.79
IV) Picking cost = 2468.75-1846.25=622.50
Sub total =1108.04+824.36+521.79+622.50=3076.69

c) Decrease in Returns in Rs.: 0

b) Decrease in cost in Rs.
Insecticide cost=1690.29-867.28=823.01
Sub total = 823.01

d) Total Increase in Returns in Rs.: 22328.13 -14799.25 =7528.88

Net return with Bt cotton = (b+d)-(a+c) = (823.01+7528.88) - 3076.69 = 5275.20 Rs.

Conclusion:
• Bt farmers are comparatively profitable than Non-Bt farmers.
• Revenue from Bt cotton, reduction of insecticide expenses are main reason to adopt Bt cotton. Educated, networking, and Punjab farmers are more likely to adopt than other farmers.


Corresponding Author: ¹² Dept. of Project and Regional Planning, Justus Liebig University, Senkenbergerstr.3, 35390 Giessen, Germany, puran78@gmail.com, ³ Project scientist, IWMI, India
⁴ Institute for Agricultural Policy & Market Research, Justus Liebig University, Senkenbergerstr.3, 35390 Giessen, Germany