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## SUMMARY

Agricultural land functions as one of the principal resource to carry out the farming operation of any crop. In India, farming is considered as one of the principal sector since it influences the socio-economic development in a big way.

Desi or conventional cotton farming is attributed to the indiscriminate use of chemical fertilizers, pesticides, biodiversity loss, imbalances in ecosystems; use of inappropriate agricultural techniques, or selection of low yielding crop varieties etc. Genetically modified (GM) crop such as *Bacillus thuringiensis* (Bt) cotton is developed by the incorporation of a foreign Bt gene in the wild cotton seed variety. Cotton crop is mainly grown to meet out the fiber demands of textile industries. There is a big scope to analyze the socio economic ecological impacts associated with the usage of pesticides in genetically modified (Bt) and Desi cotton farming using a proper scientific research method such as Environmental Impact Quotient method (Kovach *et al.*, 1992).

The socio-economic benefits derived from any crop depends upon its production and byproducts that can generate the possibility for further employment as well as the improvement in the living standard of living of the farming society.

### Objectives

The present study has been undertaken to achieve the objectives stated below.

- To study the environmental setting of the study area.
- To study the agro-ecological conditions for cotton farming.
- To study the existing pattern of cotton farming in Sirsa district.
- To study the impact of modern technology on cotton productivity.
- To study the ecological impacts associated with cotton farming in the study area.
- To study the socio-economic impacts of cotton farming in the study area.

### Study area

Sirsa district lies in the western bulge of Haryana state. The study area is divided into three sub-divisions namely Sirsa, Dabwali and Ellenabad, four tehsils namely Sirsa, Dabwali, Rania and Ellenabad and seven community development blocks namely Sirsa, Dabwali, Baragudha, Rania, Odhan, Ellenabad and Nathusari Chopta.

### Data Base and Methodology

The present study is based upon primary as well as secondary data.

### Organization of the Work

The present study has been compiled into six chapters.

**The Chapter-1 is "Environmental Setting of the Study Area".**

This chapter mainly comprises of some of the significant aspects associated with the physical and cultural environment of the study area.

**The Chapter-2 is "Agro-Ecological Conditions and Cotton Farming in Sirsa District".**

This chapter pertains to the brief history, economic significance of cotton crops in the economy and economic development, farming techniques and inputs of cotton farming and various agro-ecological conditions needed for cotton farming. The Sirsa district is part of an area with arid and semi-arid climate that is conducive for the cultivation of cotton.

**The Chapter-3 is "Existing Pattern of Cotton Farming" in Sirsa District".**

This chapter mainly describes the spatio-temporal variations prevailing in the acreage under American (Bt) and Desi cotton crops all through the blocks of the study area between 2005 to 2010.

**The Chapter-4 is "Impact of Modern Technology on Cotton Productivity".**

This chapter is mainly focused on impacts of various modern agricultural inputs on the productivity of cotton crops in the study area. It describes the patterns of agricultural mechanization, irrigation intensity, fertilizer and pesticide consumption, modern technology and pattern of cotton productivity in Sirsa district.

**The Chapter-5 is "Ecological Impacts of Cotton Farming in the Study Area".**

This chapter exclusively pertains to the ecological impacts of pesticides, protective measures, sign and symptoms used in Bt cotton and Desi cotton farming in the study area.

**The Chapter-6 is "Socio-Economic Impacts of Cotton Farming in the Study Area".**

This chapter provides a detailed description of socio-economic impacts of American (Bt) cotton farming in comparison to Desi cotton farming on the life of small, medium and large farmers in the study area.

In overall, it is suggested in the light of above findings drawn from the present analysis that there is a considerable need to bridge the gap between the variability existing in the socio-economic benefits derived from the American (Bt) cotton farming as compared to Desi cotton farming at the levels of small, medium and large farmers.