

# INTRODUCTION

## Chapter I - INTRODUCTION

Cotton is one of the principal commercial crop and has been one of the main sources of India's economic growth and a foreign exchange earner. India ranks first in area under cotton crop in the world and stands third in terms of production. In India, the total area under cotton crop is 8.81 million hectares and 24.25 million bales with an average productivity of 465 kg. Lint/ha (Anonymous, 2005-06).

Among cotton growing states of India, Gujarat is one of the main cotton producing states. It covers 2.07 million hectares with a production of 8 million bales with an average productivity of 655 kg. Lint/ha. (Anonymous, 2005-06). In Gujarat, Vadodara is one of the district having the major area under cotton crop. However, it is interesting to note that cotton, which occupies only 5% of the cropped area accounts for share of 55% of the total pesticides used in India. Excessive and indiscriminate use of chemical pesticides has lead to several complications such as resistance development, resurgence, secondary pest out break, toxicity to beneficial organism, residues in food, feed, fodder etc and <sup>toxic</sup> above all environmental pollution. The approach to overcome these ill effects as pesticides to a certain extent is Integrated Pest Management practices. The IPM approach is gaining importance and is being increasing by adopted in the country. The IPM strategy involves integration of various techniques of pest control such as cultural, mechanical, physical, biological, chemical and regulatory methods. In other words, IPM is a broad ecological approach of pest control (Insect, diseases, weeds etc.) employing all methods and techniques in a compatible manner to keep pest population below economic threshold level.

Thus, the study is carried out to know the impact <sup>of</sup> knowledge and adoption level of cotton growers regarding IPM strategy.



## 1.1 STATEMENT OF THE PROBLEM

Cotton is one of the important cash crop grown in vadodara district. The crop is heavily infested with numerous insect-pest. The losses caused by the insect-pest is reported very high. The excessive and indiscriminate use of hazardous pesticides has its own limitations because of the build up of resistance in certain pests, especially ball worms and also the disturbance of natural balance. Integrated Pest Management (IPM) is an approach that envisage combination of techniques that they may contribute to suppression of pest by cultural methods, resistant crop varieties, conservation and augmentation of natural enemies and specific chemical pesticides as needed to keep pests population at level below economic injury.

The success of any technology depends on extent of adoption on farmer field. Sufficient time has already passed therefore, it is necessary to focus light on to what extent technology has been adopted and how far farmers have been benefited. It is therefore, felt necessary to assess the impact of this programme in terms of knowledge, adoption, yield and constraints faced by farmers in adoption of IPM technology in cotton cultivation. Such type of study has not been undertaken so far in vadodara district. Hence, the present research on "Impact of Integrated Pest Management Technology on cotton growers of vadodara district of Gujarat State" was undertaken.

## 1.2 OBJECTIVES OF THE STUDY

The overall objective of this study was to <sup>find out</sup> ~~study~~ the "Impact of Integrated Pest Management technology on cotton growers in Vadodara district of Gujarat state". The specific objectives of the study are as under :

1. To study the selected personal, socio-communicational, economic and psychological characteristics of IPM trained and untrained cotton growers.



2. To find out the level of knowledge in respect of integrated pest management technology of cotton crop of IPM trained and untrained cotton growers.
3. To determine the extent of adoption of IPM technology by the IPM trained and untrained cotton growers.
4. To ascertain the relationship between selected characteristics of the IPM trained and untrained cotton growers and their knowledge level regarding IPM technology.
5. To ascertain the relationship between selected characteristics of IPM trained and untrained cotton growers and their extent of adoption of IPM technology.
6. To ascertain the relationship between knowledge level and adoption of IPM trained and untrained cotton growers regarding IPM technology.
7. To identify the constraints faced by the IPM trained and untrained cotton growers.
8. To develop suitable extension strategy for effective adoption of IPM technology.

### **1.3 IMPORTANCE OF THE STUDY**

The statement of the objectives mentioned earlier would indicate the practical utility of this research. The findings of this study will be useful to determine the knowledge level and extent of adoption of IPM strategy by the cotton growers.

These findings will also lead to research scientists to develop or to refine a modules of IPM strategy in cotton crop in Gujarat state.

These results will be helpful in preparing future planning to extension workers, teachers, students of extension education and those who are directly or indirectly concerned cotton production technology and related with the development of IPM strategy for the cotton crop.

#### 1.4 HYPOTHESIS OF THE STUDY.

The hypothesis formulated for the study in the light of the objectives were as under :

- 1 There is no difference between personal socio-communicational, economic and psychological characteristics of IPM trained and untrained cotton growers.
- 2 There is no relationship between personal, socio-communicational, economic and psychological characteristics of IPM trained and untrained cotton growers and their knowledge and adoption.

#### 1.5 OPERATIONALSATION OF THE CONCEPTS USED

##### 1. INTEGRATED PEST MANAGEMENT (IPM) : <sup>(Anon, 1996-97)</sup>

As per guideline of Govt. of India (Anon.1997), IPM is a <sup>bro</sup> broad ecological approach of pest control (Insects, diseases, weeds etc.) <sup>I</sup> employing all methods and techniques viz. cultural, mechanical, <sup>Relic</sup> biological and chemical in a compatible manner to keep pest population below economic threshold level (ETL)

##### 2. ECONOMIC THRESHOLD LEVEL (ETL)

The economic threshold level (ETL) is that level of a pest population which indicates ~~that~~ control tactics should be used to stop pest numbers from increasing further, thereby prevent economic losses to the cotton crop.

##### 3. KNOWLEDGE :

It is a body of understood information possessed by the cotton growers in respect of integrated pest management technology recommended in cotton crop.

##### 4. ADOPTION :

Adoption is a decision to continue full use of an innovation. In the present context, it means acceptance of full use of integrated pest management technology in cotton crop.



**5. IPM TRAINED COTTON GROWER :**

IPM Trained cotton grower is a farmer who has grown cotton and received training on integrated pest management technology in cotton crop.

**6. UNTRAINED COTTON GROWER :**

Untrained cotton grower is a farmer who has grown cotton crop but not received any training on integrated pest management technology in cotton crop.

**7. CONSTRAINTS :**

This refers to the items of difficulties faced by the cotton growers in actual adoption of integrated pest management technology recommended in cotton crop.

**8. PEST :**

Any organism detrimental to man or its properties is known as pest.

**9. INSECTICIDE :**

The chemical which kills the insects by their action are called insecticide

**10. PESTICIDES :**

Chemical substance useful for controlling the living pest organism and to reduce their population are known as pesticides.

**11. DISEASE :**

Disease is an interaction among the host, parasite and environment. It is any departure from health preventing mark symptoms, illness and diseases.

**12. EXTENSION CONTACT :**

Extension contact refers to the contact made by the cotton growers and the frequency and interval of the contact with extension agency or extension worker, whether locally or outside the village.

### **13. MASS MEDIA EXPOSURE :**

It is defined as the nature and frequency of farmers involvement in different mass media such as newspaper, radio, television, film and video.

### **14. TRAINING RECEIVED :**

It means cotton grower who has taken any type of training related to IPM strategy or modern agriculture from Agricultural University or any other organization.

### **15. ECONOMIC MOTIVATION :**

It is occupational success in terms of profit maximization and the relative value of individual places on economic ends.

### **16. SCIENTIFIC ORIENTATION :**

It is degree to which a cotton grower is oriented to the use of scientific methods in decision making in relation to their adoption behaviour.

### **17. RISK PREFERENCE :**

It is a degree to which a cotton grower is oriented towards en-counting risks and uncertainty in adopting IPM technology in cotton crop.

### **18. AWARENESS :**

According to Rogers (1962) awareness means the individual is exposed to the integrated pest management technology for cotton crop. Cotton growers are aware of these information.

## **1.6 LIMITATION OF THE STUDY**

On account of limited time and resources available with the investigator, the study was undertaken with the following limitations.

1. The study was limited to only 240 cotton growers of four blocks (i.e. Karjan, Dabhoi, Shinor and Sankheda) of Vadodara district in Gujarat State.



2. Some selected personal, socio-communicational, economic and psychological characteristics of cotton growers were included in the study.
3. The study was dependent only on oral response received from the cotton growers.
4. Findings drawn in this study were based on the verbally expressed opinions by the cotton growers and their honesty in providing required information for the study.
5. The findings of the study may not be applicable to the same extent, to other areas.