CHAPTER - I
INTRODUCTION
Agriculture is a pivotal sector in almost all the developing countries of the world. Thus, all such countries more or less depend for their growth on agricultural development. It has been generally accepted that all the rural development programmes in rural areas are not feasible until the basic core of rural development such as agricultural occupation, is not toned up to a satisfactory level. Indeed, agricultural development has been a challenging question posing a continued threat in view of its complex and multi-dimensional nature.

Popularization of new scientific technology in the field of agriculture for rural development in India, several massive extension approaches and programme have been launched since the early part of the twentieth century. While efforts have been made, indeed, on all the fronts, but a dramatic break through agricultural production including sugarcane has come to surface only. Recently, this has largely been due to the new strategy of sugarcane production in terms of intensive approaches of sugarcane research department. It had done a lot in this direction.

A modified version of the same approach was extended to several other parts of the country in the form of intensive cultivation with modern technologies.
A new emphasis has been laid on the role of sugarcane technology as a major input in agricultural development. Constantly changing technology is one of the essential parts for sugarcane development because sugarcane production is enhanced due to new techniques and methods. They are being put into practice by farmers for better yield and quality.

Sugarcane (*Saccharum-officinarum*) is an important cash crop in India, which occupies a prominent position in crop production. Sugarcane is the only major raw material for sugar factories, which is the second largest agricultural-based industries after cotton in the country. It provides livelihood to millions of farmers and rural population. It is also contributed to the overall development of its area of operation. There are several socio-economic projects for the improvement of rural economy which are associated with the up-liftment of large population of India and further, it is a great source of economic-cycle of the country.

A great deal of research has gone into sugarcane production technologies. But adoption of such technologies by the farmers community is not up to the desired level, that is why, there is a wide gap between the potential and actual productivity in most of the sugarcane growing situations in the country. Availability of information on various production technologies in a simplified manner and their usage is vital for their acceptance and adoption.

Higher yield of sugarcane mostly depends on the technological development by various scientist and is being an important factor, which is
needful for adoption, like land preparation, sugarcane varieties, season of planting, seed material, seed treatment, planting system, time of planting, weeds, pests and diseases management, fertilizers, manures, irrigational inputs, cultural operations according to climatic conditions, harvesting of crop, ratoon management, inter-cropping and their management and marketing etc.

In India, the area, production and average yield of sugarcane was observed 4403 thousand hectare, 300096 thousand tonne and 68.2 tonne per hectare respectively. It gave 18528 thousand tonne sugar with the average sugar recovery 10.27 percent, during the year 2001-02 (Cooperative Sugar May, 2003).

However, the average data of 1988-99 to 2001-02 showed that the area and production of sugarcane continuously increased, but the yield of sugarcane continuously decreased.

Being a leading producer of sugarcane, Uttar Pradesh in India, plays an important role in national economy. Muzaffarnagar, Meerut, Saharanpur, Moradabad, Deoria, Basti, Kheri and Sitapur are main sugarcane producing districts in U.P. (Raj Kishor and S.P.R. Chaurasia, 2001). Uttar Pradesh alone has 47.6 percent share in the area under sugarcane cultivation and 38.6 percent in sugar production in India. But the sugarcane yield of U.P. remained very poor as compared to Tamil Nadu, Karnataka and Maharashtra etc. It was only 58.0 tonne per hectare in U.P. while the highest yield of Tamil Nadu 111.4 tonne per hectare (Cooperative Sugar May, 2003).
In Western Uttar Pradesh, Muzaffarnagar, district was purposely selected for study because it stood in first position in terms of area and production of sugarcane (Raj Kishor and S.P.R. Chaurasia, 2001). The area, production and the average yield of sugarcane was observed 214.10 thousand hectare, 13445.6 thousand tonne and 62.8 tonne per hectare respectively. Jansath and Kairana blocks were selected according to the highest and lowest area under sugarcane cultivation i.e. 22.65 and 9.54 thousand hectare respectively in district Muzaffarnagar, (Econ. & Stati Deptt. of Muzaffarnagar 2000-2001).

Focus of the Problem:

In India, sugarcane is an important crop for sugar industries as well as the different industries which is related to its by products and many other agro-based industries like power, alcohol, agricultural implements, paper, synthetic yarn, fertilizers, pesticides, fungicide etc. also depend on sugarcane.

The productivity level of the crop is low to very low in general due to non-adoptability of the technological knowledge, which needs more improvement in adoption.

However, the scientists associated in the field of sugarcane Research has generated several different scientific recommendation which had much potential, if the present level of technology on sugarcane cultivation could be exploited. The farmers can safely get the same in implementation for higher productivity.
Knowledge and technology adoption of sugarcane farmers needs betterment to understand. The recommendations of scientists improve the practice, generally used by farmers.

The state of U.P. had a major percentage in area and production under sugarcane cultivation, where as district Muzaffarnagar stands on number one position in U.P. It was under this belief that the present study was undertaken in Muzaffarnagar district of Western Uttar Pradesh.

Thus, taking up a study on knowledge and adoption and other different aspects associated with sugarcane production in the leading sugarcane growing area was just and timely. It was in the view of this present study, which was undertaken with the following objects.

**Objectives**: The following are specific objectives of the study—

1. To study the knowledge level of sugarcane farmers for the recommended package of practices in sugarcane cultivation.
2. To study the extent of adoption of improved technology in sugarcane cultivation.
3. To study the personal and socio-economic characteristics of sugarcane farmers.
4. To study the constraints coming in the way of adoption of improved technology in sugarcane cultivation.
5. To develop a suitable extension strategy for technological adoption in sugarcane cultivation.
Scope of the study:

The present study was conducted in district Muzaffarnagar of Western Uttar Pradesh. The findings of this study, which is first of its kind in the part of the state would help in adoption of technologies of sugarcane cultivation and other factors associated with higher productivity per unit area. Therefore, the findings of the study can be generalised in the sugarcane growing areas of the state as well as the other states of the country and more over at the global level.

Based on the result of the study and suggestions of the respondents a suitable strategy may be developed of improving the adoption of new technology in sugarcane cultivation. This information may be helpful for the policy makers, planners for promotion of sugarcane production.

This will enable to the owners of sugar industries and the different industrial producers associated with it to draw their attention to improve their present functioning.

Above all, this study will also provide a feedback to the scientists for their further research and to build an adequate theory of technological adoption.

Limitation of the Study:

The present study, suffered from the limitations of time, funds, conveyance and coverage etc. as they are usually faced by a single man
investigation within these limitations. The care, has however, been taken to make the study as much objective and systematic as possible.

It may also to be noted that the findings of this study may not be applicable beyond the area of investigation in view of the localised nature of climatic conditions and also the farmers characteristics, but it will definitely be helpful or become a guideline for the other locality and climatic area of sugarcane cultivation of the different parts of the country and global level because of having general technologies for adoption which do not affect on either climatic or nature of sugarcane cultivations, like wise the adoption of technologies based on irrigation, manuring, earthing/bindings etc. for sugarcane cultivation with their importance of higher yield and quality management.