SUMMARY AND CONCLUSION

Sugar has been considered to be one of the unavoidable necessities of life and it is demanded by the people belonging to all the classes of the society. The consumption of sugar in the country during past few years has been rising at a faster rate than the indigenous production and, therefore, it would sometimes become necessary for us to resort to imports of sugar. Fortunately, India being a predominantly agricultural country with a favourable agro-climatic condition for sugarcane cultivation may not only fulfill the need of countryman, rather it may export more sugar to other parts of the world when our farmers are trained with skilful utilization of technology.

The sugarcane productivity in our country is only 59.1 t/ha (2003-04), much lower than the yield obtained at research stations (184 t/ha). Similarly, Uttar Pradesh being a leading state for growing sugarcane, the average yield is 55.50 t/ha as against 59.10 t/ha at the National level and 335.42 t/ha at the competition plots in sub-tropical India. This shows a wide gap between potential and production of sugarcane in the country.

Speedy development in crops is vital to the progress of our country. A large populace of farmers in the country is not able to exploit the potentiality of their crops because of poor utilization of available technologies but the
mechanism for transferring it to the illiterate and small users in an effective manner does not exist ironically, there is a global communication network, which makes the latest findings of science available almost immediately to research workers in any corner of the world, but what is urgently needed is such a communication network meant for the poor farmers in our country (Chauhan, 2004).

The main problem, as it exists today, was the low rate of dissemination of available technologies related to sugarcane cultivation. Decision of the farmers to adopt the technologies depend on the number of the factors such as social, economical, cultural, situational, etc.

In this context, it is of great significance to know the various sugarcane cultivation practices as being practiced by the farmers in Bulandshahr district. The result of the study would be providing an immense help to the research scholar, official of the sugar industries, planners, administrators, extension personnel, NGO and persons engaged in sugarcane development, to prepare future plans and effective extension strategies.

Keeping in view the above situation, a study entitled Adoption gaps and constraints analysis of sugarcane cultivation in Bulandshahr district of Uttar Pradesh has been planned with following objectives :-
1. To know the existing level of technical knowledge and adoption pattern of farmers in varying aspects of sugarcane cultivation.

2. To find-out the gaps in knowledge and adoption of farmers in sugarcane cultivation.

3. To establish correlation between knowledge and adoption pattern of sugarcane growers.

4. To find-out the constraints faced by farmers for adoption of sugarcane cultivation.

5. To develop a suitable extension strategy for increasing yield potential of sugarcane in project area.

5.1 RESEARCH METHODOLOGY

The study was conducted in the areas of four operating sugar mills, i.e. Aguta Sugar mill in Aurangabad, Sabitgarh sugar mill in Jhangirpur, Kisan sahakari Sugar mill in Anoopshahr, Panniji Sugar mill in Bulandshahr district. Three village from each sugar mill circle was randomly selected. After the selection of the villages, a preliminary survey was conducted in the selected villages to know the total number of farm families falling in different land holding categories. From each category, a proportionate random sample of respondents was selected, for making the sample size of 15 farmers from each village. The respondents of the study were those who are the
sugarcane cultivator since last 10 years. In total, 180 respondents of 12 villages were interviewed by applying personal interview method.

The data thus collected were scored, compiled, tabulated and subjected to the appropriate statistical tools to draw meaningful conclusions.

5.2. SALIENT FINDINGS

5.2.1 SOCIO-ECONOMIC PROFILE OF THE RESPONDENTS

- About seventy one percent of farmers belonged to the middle age group (35.01-50 years) and among them 23.33 percent were educated up to high school level followed by 18.89 percent up to middle level. In the study area 72.78 percent respondents were belongs to OBC caste group followed by general caste group i.e. 25.56 percent of respondent.

- In the study area 68.33 percent farmers were living in joint family, having medium number of family member i.e.5-13 member per family and majority of them (70.56%) manage their marriage between 21 to 25 years of age.

- As regard of family back ground, most of the sugarcane grower. i.e. 73.89 percent were from farming back ground and having medium level of experience of sugarcane growing and 42.22 percent were maintaining 151-200 percent cropping intensity on their farm.

- In the study area 42.78 percent respondents earned medium level of income i.e. fifty thousand to one lakh per year. Whilst about thirty six percent
respondents’ annual income was more than one lakh. Although the main share in annual income was sugarcane but animal production also contribute in a sizeable amount.

- Almost half of the respondents had medium level of farm implements and their income ranged from fifty thousand to one lakh in a year while cultivating sugarcane on small size of land holdings. Similarly they had medium level of household items and 6.67 percent respondents having luxury material possession in the study area.

- Rearing of dairy animals has always remained as a symbol for honor in the farming community and a large chunk i.e. 40.56 percent were having medium size i.e. 5 to 14 animals per household.

- Almost eighty nine percent respondents enrolled themselves as members of any one or two village institutions such as milk cooperative societies, agricultural credit societies, religious societies, Gram Panchyat, NGOs, etc. Radio was a top most source of mass communication followed by TV and respondents were having medium to high exposure to mass media channels.

5.2.2 EXISTING LEVEL OF TECHNICAL KNOWLEDGE AND ADOPTION PATTERN OF FARMERS IN VARYING ASPECTS OF SUGARCANE CULTIVATION

- The results revealed that majority of the respondents (34.44%) having high level of knowledge followed by 40.56 percent farmers possessed medium
level knowledge on sugarcane cultivation practices, respectively. Thus, farmers were having high to medium level of knowledge on sugarcane cultivation in the study area.

- Respondents were having knowledge up to the extent of 63.89 percent in relation to scientific sugarcane cultivation practices, and small land holding farmers were having highest knowledge i.e. 65.80 percent, which was closely followed by large farmers who had 65.18 percent of extent of knowledge in the study area of Bulandshahr of Uttar Pradesh.

- Respondents were having sound knowledge on water management (70.28%) in sugarcane crop and on sowing activities farmers were having knowledge up to the extent of 68.86 percent. But the sampled farmers were having comparatively less extent of knowledge on plant nutrient management (57.15%) and improved varieties (57.35%).

- A critical examination of data revealed that 69.44 percent respondents were adopted the recommended sugarcane production practices up to the medium level. Whereas remaining 15.00 percent respondents fell in high level and 15.56 percent in low levels category of sugarcane adoption practices

- The overall adoption among the farmers was higher in case of small (48.60%) followed by large (47.98%), whereas comparatively less extent of adoption was observed among marginal land holder in relation to scientific
sugarcane cultivation in the study area. The overall extent of adoption was 46.69 percent in the sampled area of Bulandshahr district of Uttar Pradesh.

- The water management was adopted up to the highest extent i.e. 51.28 percent and inter-culture operation up to the extent of almost fifty percent. Similarly, weed management and land preparation practices were adopted up to the extent of 48.65 and 48.10 percent, respectively.

- The sampled farmers were having comparatively less extent of adoption on plant nutrient management (38.15%) and improved varieties (38.35%).

5.2.3 GAPS IN KNOWLEDGE AND ADOPTION OF FARMERS IN SUGARCANE CULTIVATION

- An overview revealed that marginal farmers were having higher gap (38.72%) compare to others. Whereas small (34.20%) and large (34.82%) farmers was possessed less knowledge gap.

- It was concluded that respondents were maintained almost proper moisture in their crops and also operates sowing operation (seed rate, time of sowing, and method of sowing) as per recommendation. The sampled farmers were having comparatively less extent of knowledge gap in these practices. On the other hand a comparatively higher knowledge gap was observed in the practice of plant nutrient management and on improved varieties of sugarcane crops.
The marginal farmers were having higher adoption gap (55.92%) compared to others, whereas small farmers were possessed less adoption gap i.e. 51.40 percent. The overall adoption gap was observed up to the extent of 53.31 percent on recommended sugarcane cultivation practices in the study area of Bulandshahr of Uttar Pradesh.

As whole it could be concluded that the gap was almost fifty three percent which was little bit higher side, hence extension system have to gear up their work for speedy and timely transfer of location specific improved practices of sugarcane in the study area Bulandshahr District of Uttar Pradesh.

The research system engaged in generating location specific improved varieties along with package of practices, but comparatively higher gap was existed in adoption of improved varieties and plant nutrient in the sugarcane crop.

5.2.4 CORRELATION BETWEEN KNOWLEDGE AND ADOPTION PATTERN OF SUGARCANE GROWERS

The data were subjected to correlation view to identify the potent variables, which were influencing the knowledge and adoption gap in relation to sugarcane cultivation separately. This analysis helps in guiding the extension system in manipulating the important variables which have a role to play in increasing the knowledge and finally to minimize the adoption gap.
The correlation analysis unearthed that mass media exposure, experience, were significantly and positively correlated at 1.00 percent level of probability to the knowledge of the respondents, whereas family size and farm income exhibited positive significant relationship at 5 percent level of probability.

This analysis revealed that more the mass media exposure, more experiences towards sugarcane cultivation, increase of family size and more income/yearly motivate the respondents for gaining more and knowledge on sugarcane cultivation.

Out of 16 independent variables five namely, family size, social participation, mass media exposure and knowledge were significantly and positively correlated at 1.00 percent level of probability with the adoption of sugarcane production practices. Whilst cropping intensity and farm income was exhibited significant relationship at 5 percent level of probability.

This analysis revealed that large family size, more exposure of mass media, more participation in social activities and knowledge leads higher application of recommended sugarcane production practices.

As correlation analysis indicate the relationship between dependent variable and one independent variable at a time, so multiple regression analysis was employed to the contribution of each variable in adoption of sugarcane production practices. Knowledge itself contributed at highly significant level
and cropping intensity, material possession and mass media exposure contributed in the significant extent at 5 percent level of probability.

5.2.5 CONSTRAINTS FACED BY THE SUGARCANE GROWER

- The majority of respondents experienced serious constraints i.e. 45.56 percents, whereas least serious constraints were experienced by 29.44 percent followed by most serious 25.00 percent respondents in the area.

- Constraints pertaining to inputs ‘improved seeds and fertilizers’ are costly have been perceived as the most serious constraints (severity 93.61%). ‘Inadequate credit facilities for purchasing necessary inputs’ (severity 90.28%) and good quality seed and fertilizers are not available on time (severity 90.28%) have accorded most second serious constraint.

- The top most two constraints related to production aspects were ‘Sugarcane crops get damaged due to unfavourable weather conditions’ (severity 88.22%) and ‘re-sowing due to bad weather’ (severity 82.66 %).

- Low market price of sugarcane’ has been found to be a most serious constraint (severity 86.65%), as it is ranked first by the farmers. ‘Delayed payment by sugar mills’ (severity 85.33%) has appeared as second serious constraint related to sugarcane marketing.

- Constraints related to technical know-how ‘lack of knowledge on location specific improved varieties of sugarcane ’ (severity 90.28%) and 'lack of
knowledge about seed treatment' (severity 85.83%) were perceived most serious and serious constraints by the sugarcane growers in the study area.

5.2.6 EXTENSION STRATEGIES

- There should be an appropriate technology to fit the sugarcane production needs of the farmers. Accordingly, high priority should be placed on the direct involvement of research beneficiaries, individually and collectively, in the selection of research priorities, ongoing evaluation of research programme and the validation of research results.

- While implementing a scheme or programme some factors of social system should be kept in mind such as socio-economic factors (land ownership, labour requirements and lack of knowledge), cultural factors (traditional practices and indigenous knowledge) that play a pivotal role in accelerating the speed of technological adoption.

- There should be appropriate and timely training, demonstration, field days and exposure visits to the sugarcane growers for minimizing the adoption gap in the study area.

- Planners and policy makers have to take up each and every constraint as a challenge to them and have to work on scientific lines in close collaboration with the research stations, banking agencies and other allied departments to resolve these constraints. All this call for utilizing already available resources
and developing an effective mechanism and setup directed toward mitigating these constraints.

5.3 CONCLUSIONS

- It was concluded that marginal farmers were having higher knowledge gap (38.72%) compared to others, whereas small (34.20%) farmers possessed less gap. The overall knowledge gap was observed up to the extent of 36.11 percent on recommended sugarcane cultivation practices in the study area of Bulandshahr district of U. P.

- As a whole, it could be concluded that there was almost fifty-three percent adoption gap existed. Which was a little bit higher side, hence extension systems have to gear up their work for speedy and timely transfer of location specific improved practices of sugarcane in the study area Bulandshahr district of Uttar Pradesh.

- It was concluded that adoption gap could be minimized by conducting demonstration and training on location specific varieties, insecticides and disease control, application of plant nutrient based on soil testing and proper place of marketing by extension personnel with the assistance of sugar mills and researchers.

- Reasonable market price of sugarcane and timely payments should be ensured by the sugar mills in particular and government in general. There is
a need to provide proper market information and education to the farmers at village level.

- Finally, major emphasis is being given to in the research programme in order to improve the productivity. Production and distribution of disease and insect pest free healthy nucleus seed cane of promising varieties in adequate quantity for increasing the productivity of sugarcane and sugar.

5.4 SUGGESTIONS

- It is suggested that extension agencies should gear up their work for speedy and timely transfer of location specific improved practices of sugarcane in the study area of bulandshahr so that knowledge among farming community could be enriched and ultimately cultivation of sugarcane crops will be more fruit full to the farmers.

- The adoption gap must be minimize by organizing extension activities at farmers field such as method demonstration and field days and specific trainings on relevant aspect of sugarcane cultivation i.e., latest improved varieties, insect and disease control, application of plant nutrient based on soil testing and proper place of marketing.

- The extension personnel working in the KVKs, SAUs, Research institute and functional staff sugar mills must provide a platform to discuss the current scenario of sugarcane cultivation and finally suggest the appropriate modules to the farming community.
➢ Reasonable market price of sugarcane and its timely payments should be ensured by the sugar mills in particular and government in general. There is a need to provide proper market information and education to the farmers at village level in Bulandshahr district of U.P.

➢ Finally, time to time current information on sugarcane cultivation must be disseminated through extension activities, mass media, channels such as Radio, TV, Exhibition, Kisan Melas, etc. for the betterment of sugarcane status in the study area in particular and U. P. in general.