Indian economy is basically an agricultural economy. Agriculture provides livelihood to about 69 percent of the labour force, contributed nearly 32 percent of gross domestic product (GDP) and accounts for a sizeable share or total value of the countries exports. Agriculture domestics the economy to such an extent that every high proportion of working population in India is engaged in agriculture. Thus, in the development of Indian economy agriculture plays a great role. So India is called as agricultural economy.

Sugarcane is one of the important commercial crops in India, particularly, in southern and northern states. Karnataka is an important producer of sugarcane. There are 37 sugar factories working in both the private and co-operative sectors in the state and some more in the government and semi-government sectors. One could easily find the rapid socio-economic changes around the factory areas. All the efforts are being made by the factory managements to increase the per acre production of sugarcane by promoting suitable developmental activities. The farmers are encouraged to grow sugarcane and they are helped by way of adequate and timely credit, technical guidance, guaranteed market and reasonable prices for their produce. Although incentives and encouragement are given to the farmers in factory areas, it is observed that all of them are not in a position to adopt the recommended practices to get maximum possible yields. In order to ascertain the extent of adoption
of sugarcane cultivation, practices, an investigation was undertaken in the four talukas of Belgaum district. The talukas covered under the study area are Athani, Chikodi, Gokak and Raibag.

This investigation was undertaken purposively in Krishna and Ghataprabha river belt area of Belgaum district in Karnataka. This district has sufficient no. of sugar factories extending their jurisdiction over the modified area. From these 4 talukas tend the list of the farmers who had grown and supplied cane to the factory during 2000-2001 were considered as 1 sample farmers.

Analysis of the data was undertaken by ANOVA test, multiple regression, $X^2$ (chi-square) test, f-test, and also by simple percentages. Null hypotheses (excepted value) were set for the study and were tested for their validity. If calculated value is greater than table (expected) value the null hypotheses will be rejected and if calculated value is less than table (expected) value the null hypotheses will be accepted.

**Important findings of the study area as follows:**

1. Majority of the farmers educated between SSLC and degree level in the study area, but in all 83.50 percent of the people are educated in the study area as per the field survey.

2. Number of farmers belonging to SC and ST's caste groups is very negligible amounting to 9 and 1.50 percept respectively which indicates that SC and ST caste group people are less in number in the study area.
3. Majority of the small farmers having nuclear families while large farmers having joint family that accounts for 76.47 percent.

4. Still 70.5 percent of the people in the study area are dependent upon the agriculture.

5. Majority of the farmers participate as gram panchayat members and others, while participation among the farmers in upper layers of the politics is negligible. The political participation of marginal and small farmers is more than others. The reason behind this may be the implementation of reservation policy because most of the marginal and small farmers belong to lower caste groups.

6. All the modern instruments/implements available in the market are employed by the farmers. But most of the modern implements used by marginal and small farmers are hired due to the economic holdings.

7. Personal vehicles like bicycle, two wheeler, car and jeep are used by the farmers. More number of marginal and small farmers use bicycle and two wheeler while jeep is found to be the most useful vehicle among the large farmers.

8. Radio and T.V. are the most appropriate media for the farmers as 24.5 and 41 percent of the farmers received information from radio and Radio+TV. However, Radio + Newspapers and T.V. is popular among the large farmers.

9. Pucca and RCC house types are popular among the farmers but RCC is most popular among large farmers.
10. Most of the land holdings of sample farmers is irrigated and average land holding accounts for 10.9 acres, which is 1.6 among marginal and 46.4 acres among large farmers.

11. Kharif/Adasali and Rabi/Eksali are the two important seasons of sugarcane cultivation because 87 percent of the farmers plant in these seasons.

12. 69.50 percent of the farmers have both planted and ratoon crops simultaneously as they may not plant all the holding at a single point of time.

13. Majority of the farmers grow only co. 8011 and co. 671+ co. 8011 varieties, but most of the marginal and small farmers grow only co. 8011 which is around 63.6 and 55.7 percent of the farmers respectively.

14. The cost of cultivation of planted crop is higher than ratoon crop. The cost of cultivation is inversely related with the size of holding. Major cost of cultivation are farm yard manure, fertilizers and labour charges in case of variable costs while electricity and machinery charges are the major heads of fixed cost.

15. Net income of Rs. 16023 is the best net income from the medium farmers. This may be due to the appropriate economical holdings and most efficient use of resources.

16. Profit margin is more among the large farmers accounting for Rs. 22215.97 while it is Rs. 15303.69 in case of small farmers.

17. Commercial banks are the important institutional financial agency by which 61.66 percent of the farmers borrowed loans. Whereas relatives, landlords and traders are the important sources of non-institutional agency. But both institutional and non-institutional agencies are operating in the study area.
18. 84.33 percent of the farmers use modern seeds sets which is very high (100 percent) among the large farmers. The problems related with the marginal and small farmers in adoption and modern seeds sets are the financial and non-availability of such seeds in needed time.

19. Majority of the farmers (97.50 percent) are satisfied with the supply of fertilizers but higher applicatin (above 12 quintals) of fertilizers can be observed among large farmers and semi-medium farmers which accounts for 100 and 91.49 percent respectively.

20. Usage of farm yard manure (FYM) is more in case of small farmers amounting to 35.1 percent. Most of the farmers use farm yard manure before planting sugarcane.

21. Well irrigation source (50 percent) is popular among the marginal and small farmers but bore well irrigation is more among large farmers (29.4 percent). However canal irrigation is common source of irrigation for all the farmers.

22. Application of pest controls chemicals is very poor in the study area, which accounts for only 30 percent of the total sample farmers. The usage of pesticides among small farmers is just 27.14 percent and among large farmers is 64.71 percent and 55 percent of the farmers who apply pesticides will apply at least once.

23. Inter companion cropping pattern is the most common features in the study area which is around 80.5 percent. This is 86.36 percent in case of medium farmers and 63.64 percent in case of marginal farmers.
24. Labour problem is very less in the study area which amounts to 34 percent, however it is more in case of large farmers amounting to 52.94 percent.

25. Ratoon crop can be continued for one or two crops among the sample farmers because 47.5 and 47 percent of the farmers keep ratooning for one time and two times respectively. The one time ratooning among marginal farmers is 63.6 percent while two time ratooning among large farmers is 76.5 percent respectively.

26. Tractors and bullock carts+ tractors are the important means transportation in the study area which is around 72.5 percent.

27. 91.5 percent of the farmers send sugarcane to factories due to the advantages of more price, in time harvesting, transportation facilities and others provided by the factories. It indicates that significant portion of the sugarcane produce is used for the production of sugar in the study area.

Implications and recommendations:

The findings of the study have brought out the following implications and recommendations.

1. Government and other agricultural organizations required to give higher education for study area farmers to produce more.

2. Study area farmers have to do other agricultural activities to support financially to cultivate cane.

3. Modern technology required to use for produce more and reduce cultivation cost.
4. Still majority of the small holding farmers use to grow same varieties, but due to modernizing or requirement of more growth in yield, which requires to grow new high yielding variety.

5. Government and Sugarcane Breeding Institute need to provide drought resist varieties of sugarcane.

6. The extension agency should play a dominant role in organizing several extension activities to facilitate large scale participation of farmers in these activities since the extension participation was found to be significantly associated with client system’s adoption behaviour.

7. The findings of the study revealed that radio and TV as a mass media source was an important source of information consulted and so efforts have to be made to chalk out effective radio and TV programmes on agriculture in order to increase the knowledge level and adoption of improved practices by the sugarcane growers.

8. The findings of the study revealed that all the respondents followed the recommended practices like sowing time, variety, seed rate and harvesting while the practices like age of the cane from which sets were used, spacing, time of application of farm yard manure, application of recommended Nitrogen and phosphatic fertilizers were adopted by large majority of the farmers are not same. It was disappointing to note that chemical weed control measures and chemical plant protection measures were adopted by only few farmers in the study area.
There is a need to give all possible facilities to the grass root level workers like agricultural assistants and factory field assistants, who are the frequently consulted sources of information to do their work more effectively. These grass root level workers need to be given incentives and encouragement for better work.

The study has categorically revealed important constraints operating in the adoption of sugarcane cultivation practices. Non-availability of inputs and their High cost are the important reasons for non-adoption or partial adoption of practices like fertilizers, plant protection measures and weedicides. Therefore, it is also suggested that the factory management should come to the rescue of farmers in removing these irritants for better cultivation of cane by the farmers. On the other hand the most dominating reason for non-adoption is found to be lack of knowledge and unfavourable attitude towards new technology. Until and unless and these barriers are broken by organizing aggressive extension education strategies, there is little hope of for proper cultivation of sugarcane by farmers even in factory areas. The local staff of the department of agriculture and factory management should take up this as a challenge and involve themselves in the proper education of farmers.

The findings of the study revealed the 'lack of knowledge' as the pivotal reason among the important reasons for non-adoption of partial adoption of recommended sugarcane cultivation practices. This poses a real challenge to the extension agency to increase the knowledge level of farmers through organized training programmes.
12. The important reasons as perceived by the sugarcane growers for their non-adoption and partial adoption of recommended practices of sugarcane cultivation were lack of knowledge, high cost, non-availability of inputs, feeling the practice is not necessary, inconvenience in adoption, no incidence of pests and diseases and lo infestation. So, it is required to educate the farmers to make them aware of all practices to cultivate cane.

13. Government have to establish local sugarcane Research centre to help Belgaum district farmers.

14. Government have to extend crop insurance to sugarcane also.

15. Developing laboratories in sugar factory to conduct adaptive research in order to:
   - Formulate ideal planting and harvesting schedules.
   - Find out the peak maturity of variety.
   - Identify locally suitable bio-fertilizers which can reduce 25 to 40 percent of inorganic nitrogen requirements.

16. Ensure constant surveillance on the occurrence of pests and diseases to take suitable remedial measures.

17. Testing all the technologies developed through the central institute and local sugarcane Research stations by factory.

18. Concentration on the improvement of jaggary yield.

19. Starting farmers training centres to train farmers.

20. Intensifying the demonstration trails for quicker adoption.
21. Tapping the underground water resources or construction of storage tanks to improve the percolation of water in the seepage wells.

22. Review meetings of both research and development workers for the further improvement in productivity.

23. Raising of enter crop such as soybean, maize, chilies etc., in the initial growth stage of sugarcane, to get additional return.

All objectives has been proved. And also hypothesis tested.