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Profitability analysis and problems of sugarcane in Andhra Pradesh

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Abstract
The India is one of the largest sugarcane producers in the world. The sugarcane is an important cash crop grown in India. The sugarcane cultivation and development of sugar industry runs parallel to the growth of human civilization and is as old as agriculture. The importance and use of sugarcane and sugar in the country economic milieu is deep rooted and immense in the current day rural economy set up sugarcane cultivation and sugar industry has been focal point for economic development in rural areas by mobilizing rural resources generating employment and higher income, transportation and communication facilities. The sugarcane growing may be broadly classified into two agro climatic regions tropical and sub-tropical. The sub-tropical zone includes four States are Uttar Pradesh, Bihar, Punjab and Haryana. The tropical zone includes five States are Maharashtra, Andhra Pradesh, Tamil Nadu, Gujarat and Karnataka. The sugar industry is the second largest agro industry in India, next to textiles. In Andhra Pradesh, Sugarcane is grown in 2.40 lakh hectares and 136 lakh tons of sugarcane is produced in the state. The major objectives are examine the socio-economic background of sample sugarcane farmers, to examine the cost and returns structure of sugarcane cultivation and the important problems of sugarcane cultivation at micro level in the study area. The nature of data used for study is both primary and secondary data. The discussion on methodology includes selection of the study area, sample households, tools of analysis. Multistage sampling technique is use in the sample selection process. Taking into consideration, the technical analysis of cost and returns, the problems of sugarcane farmers as pointed out sample farmers the following suggestions are given to sustain sugarcane cultivation and to improve the economic conditions of sugarcane farmers in Andhra Pradesh.

Keywords: sugarcane, cash crop, sugar industry

Introduction
The India is one of the largest sugarcane producers in the world. The sugarcane is an important cash crop grown in India. The sugarcane cultivation and development of sugar industry runs parallel to the growth of human civilization and is as old as agriculture. The importance and use of sugarcane and sugar in the country economic milieu is deep rooted and immense in the current day rural economy set up sugarcane cultivation and sugar industry has been focal point for economic development in rural areas by mobilizing rural resources generating employment and higher income, transportation and communication facilities. The sugarcane growing may be broadly classified into two agro climatic regions tropical and sub-tropical. The sub-tropical zone includes four States are Uttar Pradesh, Bihar, Punjab and Haryana. The tropical zone includes five States are Maharashtra, Andhra Pradesh, Tamil Nadu, Gujarat and Karnataka.

Nearly 45 million growers are involved in the cultivation of sugarcane and sugarcane crop based industry provides employment to more than 3.50 lakh skilled and unskilled workers in the manufacturing of sugar, khandarsari and gur. In India, during 2013-14, the area under sugarcane crop was 4.608 million hectares with a total production of 289.6 million tons and 62.8 tones productivity in India. The sugar industry is the second largest agro industry in India, next to textiles. In Andhra Pradesh, Sugarcane is grown in 2.40 lakh hectares and 136 lakh tons of sugarcane is produced in the state. It is largely grown in Visakhapatnam, West Godavari, East Godavari, Chittoor, Krishna, Vizayanagaram, Srikakulam and Nellore Districts with 90 per cent of the area under this crop.

The popular sugarcane varieties in the study area were Co7805, 83V15, 86V96 and 298. The major objectives are examine the socio-economic background of sample sugarcane farmers, to examine the cost and returns structure of sugarcane cultivation and the important problems of sugarcane cultivation at micro level in the study area.

Methodology

The nature of data used for study is both primary and secondary data. The discussion on methodology includes selection of the study area, sample households, tools of analysis. Multistage sampling technique is use in the sample selection process. The levels are selection of district, selection of sample villages and selection of sample farmers. The State of Andhra Pradesh is one of the major sugarcane growing States in India. In this State there are farmers whose sells the harvested sugarcane to the sugar factories and at the same time there are farmers who process the sugarcane manufacture Gur and sell to wholesalers.

In Andhra Pradesh State, Visakhapatnam district is one of the major sugarcane growing district in Andhra Pradesh. Further, in Visakhapatnam district there are three sugar factories and one huge famous Gur marketing yard at Anakapalli. In view of these two facts the Visakhapatnam district is selected for the study. For the purpose of selection of villages the command area of each sugar factory is the base. From the command area of each sugar factory two villages are selected. A total of six villages are selected. Further, for Gur farmers selection, the command area of the major Gur wholesale market is considered. A total of six villages under Gur cultivation are selected.

For the purpose of selection of farmers the total sugarcane cultivators list is ascertained from village records possessed by the village secretary a government official. This data is the base for the selection of farmers. The population of sugarcane cultivators is stratified based on the size of the holding and from this sample farmers are selected. There are few sugarcane cultivators who have large operational holding. Therefore they are purposively eliminated. For purpose of selection of the sample farmer's marginal farmers, small farmers and medium farmers are considered. To know the difference in cost and returns of owner cultivator and tenant cultivator, proper care is taken to have representation of tenant farmers in the sample. In Visakhapatnam district sugarcane cultivation is of two types viz., plant and ratoon. Therefore while selecting the sample proper care is taken to have representation of both these groups in the sample. The data collected from the sample farmers pertained to the agricultural year 2013-2014 comprises, *viz.* general information, size of holdings, cropping pattern followed, inputs used, input prices, output obtained, output price and opinions about various problems faced by the farmers in crop production.

Cost Concepts

Cost A_1:-

It included wages of hired human labour, cost of bullock labour, cost of tractor power, cost of seed material, value of farm yard manure and fertilizer value of plant protection chemicals, irrigation charges, interest on working capital, depreciation on farm machinery implements, equipment's, farm buildings etc.

Cost A_2:- It consists of cost **A** plus rent paid for leased in land.

Cost A:- Cost **A** consists of cost A_1 plus cost A_1

Cost B_1:- Cost **B** consists of Cost A_2 plus interest on fixed capital invested in the business excluding the value of the land

Cost B:- cost B consists of cost B_1 plus cost B_2

Cost C_1:- Cost C_1 consists of cost B_1 plus imputed value of family labour

Cost C_2:- Cost C_2 consists of cost B_2 plus imputed value of family labour

Cost C:- Cost C consists of Cost C_1 plus cost C_2

The distributions of sample farmers such as caste, age and education levels are discussed. The sample farmers of a caste, age and education levels are presented in Table – I.

Table I: Distribution of sample farmers by Caste, Age and Educational Status**.**

1		2		3	
Caste	**Number**	**Age**	**Number**	**Education**	**Number**
OC	52(23.11)	15-25	61(27.11)	Illiterate	76(33.77)
BC	65(28.88)	25-45	102(45.33)	Primary	84(37.33)
SC	68(30.22)	45-65	48(21.33)	Secondary	57(25.33)
ST	40(17.77)	Above 65	14(6.22)	Higher	8(3.55)
TOTAL	225(100)	Total	225(100)	Total	225(100)

Source: Filed Data

From the Table-1 shows that 28.88 per cent of the sample farmers belonged to backward castes, 23.11 per cent belong to the forward caste, 30.22 per cent belong to the schedule caste and the remaining 17.77 per cent were from schedule tribes. The majority of the sample farmers were of the age group 25-45 accounting for 45.33 per cent, 27.11 per cent between age group 15-25, 21.33 per cent between 45-65 and 6.22 per cent in above 65 years. It is evident that 37.33 per cent of the sample farmers in were primary level. Slightly less than 33.77 per cent was having illiterate the groups. However, secondary educated sample farmers 25.33 per cent and 3.55 per cent higher education level. Majority of the sample farmers were of the age group 25-45 and with low levels of education.

Average Size of Land Holding of Sample Farms

The scale and efficiency of production and income earning capacity depends upon the size of the holding. The land holding particulars of the sample farmers are presented Table-II.

Table II: Average size of landholding of sample farms (Area in hectares)

S. No	Particulars	Small	Marginal	Large
1	Irrigated dry land	1.55	2.76	3.75
2	Irrigated land	1.42	2.28	2.36
3	Total area	2.97	5.04	6.11
4	Area under Sugarcane	1.27	2.55	3.68

Source: Field Data

The average size of holding varied from 2.97 hectares in the case of small farms to 5.04 hectares on marginal farms and 6.11 hectares on large farmers. Of the 2.97 hectares operated by small farmers, the share of irrigated land was 1.42 hectares and that of irrigated dry land was 1.55 hectares. On marginal farms, the irrigated land constituted 2.28 hectares and the irrigated dry land 2.76 hectares. In the study area, the main sources of irrigation were canals, tanks, tube wells and filter points. The area under sugarcane which was a selected enterprise for an economic analysis ranged from 1.27 hectares on small farms, 2.55 hectares on marginal farmers and 3.68 hectares on large farms. This constituted 42.77 per cent of the total area on small farms, 50.59 per cent marginal farmers and 60.23 per cent on large farms. The costs and returns structure of sugarcane are presented in Table-III.

Table III: Costs and Returns Structure of sugarcane in Andhra Pradesh

S. No	Particulars	Small	Medium	Large	Overall
1	Costs				
	Costs -A	39457.55	35457.51	42153.55	39022.87
	Costs -B	61452.12	59781.34	64789.43	62007.63
	Costs -C	66789.78	64582.17	69789.25	67053.73
2	Returns				
	Gross Returns	82557.75	79589.00	84525.11	83890.62
	Net Returns	15767.97	15006.83	19735.86	16836.88
3	Returns per Rupee of Expenditure	1.22	1.21	1.24	1.22

Source: Field Data

The Table-III indicated that in sugarcane cropping system, large farmers had expanded comparatively higher total cost in sugarcane cultivation than small farmers and medium farmers. This might be due to high variable costs, however fixed costs were less. The net returns realized were higher for large farmers medium farmers and small farmers. This might be due to better management practices and efficient utilization of labour by large farmers. 'The returns per rupee of expenditure were observed to be more in case large farmers, as compared to medium farmers and small farmers whereas for the system as a whole it was 1.22 in the study area.

Problems in Production and Marketing

An opinion survey was carried out for the sample of 225 farmers regarding the problems faced by them in the production and marketing of sugarcane. The important problems as indicated by the sugarcane growers are presented in Table-IV.

Table IV: Problems in Production and Marketing in Sugar Cane Farmers in Andhra Pradesh

S. No	Particulars	% to the Total Sample farmers
I	**Production Problems**	
1	Shortage of labour	100
2	Non availability of quality seed Material.	93
3	Scarcity of fertilizers	76
4	Incidence of pests and diseases	83
5	Power cuts and irregular supply of electricity	100
II	**Marketing Problems**	
1	Cutting permit	55
2	High transportation costs	85
3	Lack of proper roads	33
4	Low product price	65

Source: Field Data

From the Table-IV shows that all the growers were unanimous in their opinion about the problems of scarcity of labour during peak seasons and irregular power supply. The scarcity of fertilizers was the other problem of concern as 76 per cent of the selected farmers reported the same. 93 per cent of the farmers had complaints regarding non-availability of quality seed material. Incidence of pests and diseases though was not a serious problem, yet 83 per cent of farmers opined this particular problem. With respect to problems of marketing, majority of farmers (85 per cent) expressed their concern about high transportation cost. About 65 per cent of the sample farmers indicated low price for the output as one of the problems of sugarcane cultivation. The delay in getting cutting permit was the problem for 55 per cent of the farmers 33 per cent of the sample farmers expressed their concern about the inadequacy of infrastructural facilities (roads). Taking into consideration, the technical analysis of cost and returns, the problems of sugarcane farmers as pointed out sample farmers the following suggestions are

given to sustain sugarcane cultivation and to improve the economic conditions of sugarcane farmers.

- The Mahatma Gandhi National Rural Employment Guarantee Act has to be grounded strictly during non-agriculture season i.e. from April-June.
- In view of huge labour cost, appropriate capital intensive techniques (machinery to plant sugarcane stems, de-weeding and harvesting machines) are to be supplied by the Government on subsidy basis or made available. The farmers who can afford them will purchase. Once they are available in the village, farmers can hire them as they are doing in case of tractors and crushing machines.
- The sugarcane farmers need to be educated on recent techniques of cultivation and Farm Management by Government extension department functioning at mandal level.
- The sugarcane mills are to be strictly instructed to purchase cane immediately after harvest without loss of weight.
- The most important recommendation is proper review of government policy of MSP. Present MSP is Rs.2100 per ton of sugarcane. This need to be increased to Rs.3500 per ton.
- Uninterrupted power supply need be ensured at least 8 hours in a day so that necessary irrigation from wells will be possible which affect the output.

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