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Research Article

"Study Of the Economic Condition of Farmers After Establishment of Sugar Factory"

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ABSTRACT

This study is related to the study of the economic condition of sugarcane farmers of Gurur development block and Balod development block of Balod district. Primary and secondary data have been used in the study. The total sample size in the primary survey is 150 in which data has been collected from 80 respondents from Gurur development block and 70 respondents from Balod development block. The impact of establishment of sugar factory on the economic development of farmers and minimum support price has been studied. In the presented research study, the hypothesis has been tested through SPSS software on the basis of primary survey of agricultural year 2023-24. To do a comparative study of the rate of increase in the price of crops, a comparative study has been done by finding out the rate of increase in the price of sugarcane and paddy crops from the year 2009-10 to 2024-25 on the basis of the report of the Commission for Agricultural Costs and Prices. Sugarcane crop is helpful in earning more income compared to other crops. In order to test the hypothesis in the study, keeping in view the time element, non-parametric method based on Sapiro Wilson's test for normality test, Mann Whitney U test and index and have been used.

Key words- Sugarcane agriculture, sugar factory, agriculture, minimum support price, price increase rate

Introduction:- Agriculture has an important place in India. 80 percent of the country's total population is engaged in agriculture. Sugarcane farming has an important contribution in the agricultural economy of the country. 60 percent of the country's total sugarcane area is cultivated in North India. India ranks second and first in sugar production and consumption respectively. Sugarcane is cultivated in India from 80° north latitude to 32° north latitude. 20°C to 30°C temperature is considered suitable for the production of sugarcane crop. Sugarcane crop requires 100 to 250 cm of rainfall. Sugarcane is cultivated in Chhattisgarh state due to the suitable environment for its production. For agricultural purposes in the state, sugarcane seeds are sown in the months of December-January and sugarcane is harvested in the months of November-December. By sowing seeds once in the sugarcane crop, production is taken three times. Sugarcane produced in India is used for 55% sugar production and 40% jaggery production. A total of 4 cooperative sugar factories are established in Chhattisgarh state. After the establishment of a sugar factory in Balod district, the area under sugarcane cultivation has continuously increased in the district. Sugarcane crop is a monsoon based crop. In Balod district, farmers produce sugarcane and sell it to Maa Danteshwari Sahakari Sugar Factory. The first year of sugarcane cultivation is called sapling crop i.e. the crop of the year in which the seeds are sown is called sapling crop and the subsequent crops are called ratoon crops.

Objective:-

1. To do a comparative study of the income of farmers before and after the establishment of the sugar factory.
2. To study the availability of basic resources after the establishment of the factory.
3. To study the problems of sugarcane farmers.

Research Methodology :-

Study area:- Agriculture is the means of livelihood for 80 percent of the population of Balod district. The total area of the district is 3,52,700 hectares in which agriculture is done in 2,55,800 hectares of land. There are a total of 1148 registered farmers in Maa Danteshwari Cooperative Sugar Factory Karakbhat in Balod district, who cultivate sugarcane in 1170 hectares of agricultural land. The total population of the district is 8,26,165. Gurur block and Balod block have been selected for the study of the impact of setting up of a cooperative sugar factory on agricultural income in Balod district of Chhattisgarh state. In the study, for comparative study of farmers' income after establishment of sugar factory and farmers' agricultural income before establishment of factory, primary data was conducted in 8 villages of Gurur development block of Balod district and 7 villages of Balod development block. Balod district has five development blocks and five tehsils namely Gurur, Balod, Gunderdehi, Doondilohara and Doondi. There are a total of 687 revenue villages in Balod district. Balod district has a literacy rate of 80.28 percent and sex ratio is 1022 which is better than the average literacy and sex ratio of Chhattisgarh state and India.

Collection of data: Primary and secondary data have been collected in this research study.

Primary Data:- In the presented research study, farmers of Balod district have been divided into different categories so that information can be collected from all types of farmers. Agricultural cost and production and agriculture related problems have been collected from 150 sugarcane farmers of the district. For collection, primary data has been collected by using questionnaire, personal interview and inspection through simple random sampling method.

Secondary data:- For secondary data in the study, data has been collected by Maa Danteshwari Cooperative Sugar Factory Karkabhat and District Agriculture and Statistics Department Balod, Report of Agricultural Cost and Price Commission, District Statistical Handbook 2009-10 to 2024-25 and Economic Survey 2022-23 and Janman Magazine.

Research hypothesis:- Hypothesis refers to an estimate which is to be tested. Thus, hypothesis is a pre-thought idea which can be tested in the study. The hypotheses of a research study are as follows-

1. H_0 - On the basis of agricultural profit, there is no significant difference in the profit of the sugar factory before and after its establishment.

H_{01} - On the basis of agricultural profit, there is no significant difference in the profit of the sugar factory before and after its establishment.

2. H_{02}-There is no significant difference in the growth rate of MSP of sugarcane and paddy crops.

H_{12}-There is a significant difference in the growth rate of MSP of sugarcane and paddy crops.

Problems of farmers:- Since sugarcane farming is an annual crop, it takes one year for farmers to recover the amount invested. Sugarcane farming requires more labour force. Due to non-availability of labourers when required, unnecessary time is taken in harvesting and other works which affects the production and quantity of sugarcane. When they sell sugarcane to Danteshwari Cooperative Sugar Factory, they have to bear high transportation cost. If the sugarcane crop is not sold on time, the sugarcane starts drying up due to which the weight of the sugarcane decreases. Sugarcane crop requires more investment as compared to other crops, due to which the loan is not available on time when required. Due to lack of supporting resources for selling sugarcane to the factory, farmers are discouraged from sugarcane farming. Farmers have to face many problems due to not receiving the sale amount of sugarcane on time.

literature survey

Kumar Rajeev 2021 "Study of socio-economic status of sugarcane farmers and their agricultural problems in western Uttar Pradesh" - In the study, the impact of agricultural production and productivity has a direct impact on the economic lifestyle of farmers. Due to low productivity of agriculture, farmers face economic problems and due to high productivity, economic development of farmers increases. To increase agricultural productivity, the study of the researchers shows that to increase agricultural production and productivity, farmers should be divided into different categories and the government should benefit the classified farmers through appropriate schemes to solve their problems. The researcher has concluded that by studying the impact of agricultural production on lifestyle and classifying agriculture on the basis of different categories for agricultural development, production and productivity can be increased.

Verma Lalit Kumar and Solanki Arun 2020 "Cost and Returns Analysis of Sugarcane Production in Baghpat district of Western Uttar Pradesh, India" In the presented research paper, the researcher has studied the production cost of sugarcane farming. In the study, the per hectare agricultural cost of sugarcane farming has been classified into fixed cost, variable material cost, wage cost, interest on capital, etc. and its contribution to the total cost has been studied. It has been told by the researcher that the cost of sugarcane cultivation is high due to the large size of the agricultural land and the cost of cultivation is favourable in marginal agricultural land. The study found that labour cost is high in sugarcane cultivation cost.

An Economic Appraisal of Manufacturing and Marketing of Jaggery in Andhra Pradesh state, India Sugar Tech (July-Sept 2011) 13(3):236–244 DOI 10.1007/s12355-011-0093-1 - In the present study, the production and marketing of jaggery in Andhra Pradesh has been evaluated. In the study, the production and marketing system of jaggery has been analyzed by Chi square test and Beck phase at break-

even point. In the study, efforts should be made to reduce labour cost and middlemen in the cost of jaggery production so that profitability can be increased.

Upreti Priyanka and Singh Alka December 2017 "An Economic Analysis of Sugarcane Cultivation and its Productivity in Major Sugar Producing States of Uttar Pradesh and Maharashtra. The researcher has done a comparative study of the productivity and production of sugarcane farmers of Maharashtra and Uttar Pradesh. The researcher has used the Cobb Douglas production function. In the presented research, the production, productivity, cost and profitability of sugarcane farming have been studied. In the analysis of the study, it was seen that the cost in Maharashtra is twice as compared to Uttar Pradesh, due to which the farmers of Uttar Pradesh get more profit. Production and productivity per hectare of agricultural land is higher in Maharashtra than in Uttar Pradesh.

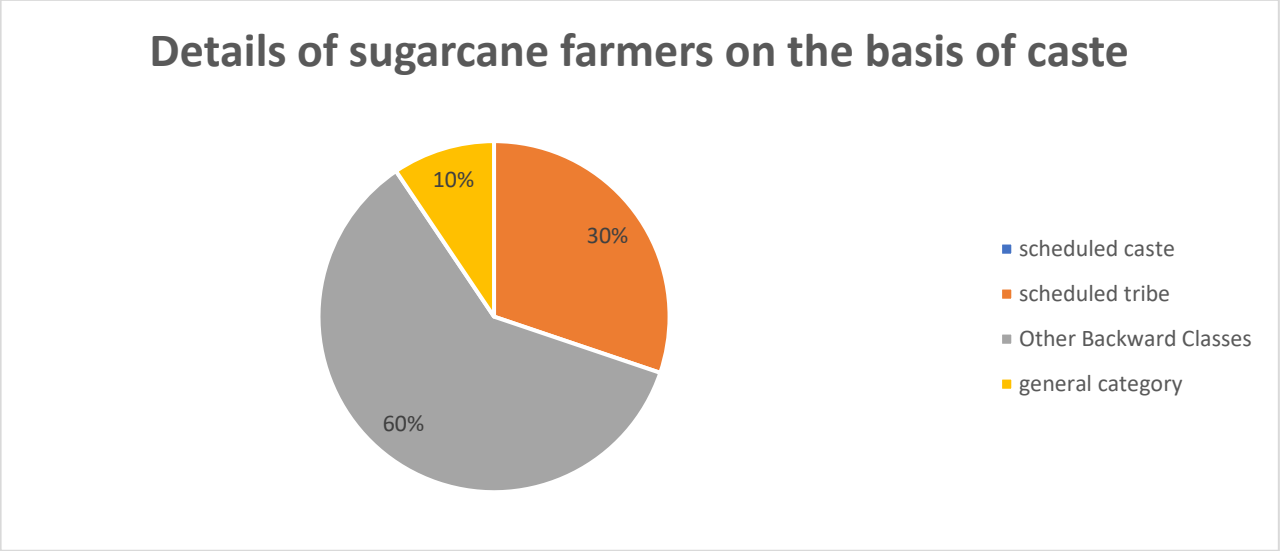
TESHU KUMAR H. L. SINGH, SUBHASH KUMAR JAWLA AND SHARAD SACHAN- Cost and returns of sugarcane production at different size groups of farms in district Meerut (U. P.), India. In the present study, the production cost and profit of ratoon crop and planted crop have been studied from the year 2009 to 2011 in Daurola and Hastinapur development blocks of Meerut district by collecting data using survey method, convenient general random sampling method. In the study, the production cost and profit per hectare of sugarcane has been studied. The cost and profit per quintal of sugarcane ratoon crop and plantation has been compared and it has been observed that farmers get more profit in ratoon crop. The study concluded that more profits can be earned by investing less in sugarcane crop and making optimal use of sugarcane resources.

Table No. 1 Details of caste category of sugarcane farmers

S.No.	caste group	surveyed area		Total
		Gutut Block	Balod block	
1	scheduled caste	32	12	44
2	scheduled tribe	13	19	32
3	Other Backward Classes	29	35	64
4	general category	6	4	10
6	Total	80	70	150

Primary data regarding sugarcane cultivation was collected from a total of 150 respondents in the study area which included all types of varieties. In the study there are total 44 farmers from Scheduled Caste category out of which 32 are from Gurur development block and 12 from Balod development block, there are 32 farmers from Scheduled Tribe category out of which 13 are from Gurur development block and 19 are from Balod development block. In the study area, the maximum number of respondents are from Other Backward Classes group in which 29 farmers are from Gurur development block and 35 are from Balod development block. The least number of farmers are from General category whose total number is 10, of which 6 are from Gurur development block and 4 are from Balod development block.

Graph No.-1



According to the above table, 43% of the farmers are from Other Backward Classes, which shows that the number of sugarcane farmers from Other Backward Classes is higher in the surveyed area. 21 percent of the farmers are from the Scheduled Tribe category, 29 percent of the surveyed farmers are from the Scheduled Tribe group and only 7 percent of the farmers are from the General category which is the lowest. Thus it is clear that farmers from all categories are included in the surveyed area.

Study of the difference in profit before and after establishment of sugar factory-

Before the establishment of the sugar factory, the farmers used to cultivate other crops but after the establishment of Maa Danteshwari Cooperative Sugar Factory, they started cultivating sugarcane which would have brought about a change in their agricultural income. Maa Danteshwari Sahakari Sugar Factory was established in the year 2009-10. The study examines the difference between the agricultural income of farmers in the year 2009 and agricultural profit in the agricultural year 2023-24. In the study, the inflation index has been taken into account before comparing the profit of the year 2009 with the profit of the year 2023-24. The index of the year 2009-10 is 148 and that of 2023-24 is 348.

Table Number-2

Particular	Number	Mean Rank	Sum of rank	Average income
Before establishment of sugar factory	150	77.45	11617	21297.36
After establishment of sugar factory	150	223.55	33533	74740.03

It is clear from the above analysis that before the establishment of the sugar factory, farmers used to cultivate other crops. The average agricultural profit of the farmer before the establishment of the sugar factory was Rs 21297.36 in the year 2023-24 and the mean rank of profit before the establishment of the factory is 77.45 and the sum of the ranks is 11617. The average agricultural profit after establishment of sugar factory is Rs. 74740.03. The mean rank of profit after establishment is 223.55 and the sum of ranks is 33533. Thus it can be said that the profit after establishment of sugar factory is more than the profit before establishment. The agricultural profits of the farmers are directly or indirectly affected by their standard of living, family lifestyle, food habits, educational status, position in society etc.

Significance test of the difference in profit before and after establishment of the factory

Table Number-3

Particular	Result
Mann-Whitney U	292.000
Wilcoxon W	11617.000
Z	-14.638
Asymp. Sig. (2-tailed)	.000

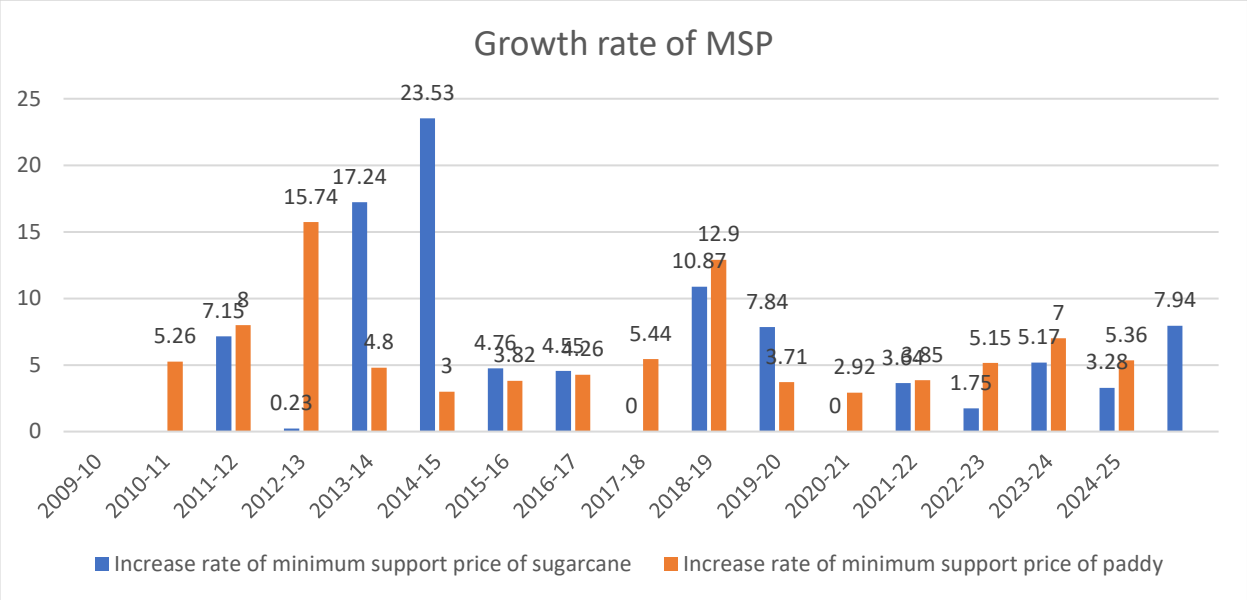
It is clear from the actual analysis that the value of Mann-Whitney U test is 292.000 and the value of Wilcoxon W is 11617.000 and the value of study study is -14.638. The value of p-value in the test is 0.000 which is less than 0.05. Hence the null hypothesis (There is no significant difference in the profit before and after the establishment of the sugar factory on the basis of agricultural profit.) is rejected. The alternative hypothesis (there is no significant difference in the profit before and after establishment of the sugar factory on the basis of agricultural profit) is accepted. Thus, it can be said that after the establishment of the sugar factory, the income of the farmers has increased.

Table Number-4

S.NO.	Year	Minimum Support Price of Sugarcane	Increase rate of minimum support price of sugarcane	Minimum Support Price of paddy	Increase rate of minimum support price of paddy
1	**2009-10**	129.84		950	
2	**2010-11**	139.12	**7.15**	1000	**5.26**
3	**2011-12**	145	**0.23**	1080	**8**
4	**2012-13**	170	**17.24**	1250	**15.74**
5	**2013-14**	210	**23.53**	1310	**4.8**
6	**2014-15**	220	**4.76**	1360	**3**
7	**2015-16**	230	**4.55**	1410	**3.82**
8	**2016-17**	230	**0**	1470	**4.26**
9	**2017-18**	255	**10.87**	1550	**5.44**
10	**2018-19**	275	**7.84**	1750	**12.9**
11	**2019-20**	275	**0**	1815	**3.71**
12	**2020-21**	285	**3.64**	1868	**2.92**
13	**2021-22**	290	**1.75**	1940	**3.85**
14	**2022-23**	305	**5.17**	2040	**5.15**
15	**2023-24**	315	**3.28**	2183	**7**
16	**2024-25**	340	**7.94**	2300	**5.36**

There is a difference in the increase in wheat purchase and paddy support price in the last 15 years. In the year 2010-11, the increase in paddy support price was 7.15 percent while the increase in paddy support price was 5.26 percent. The support price of paddy crop has increased by more than 3 percent every year but the minimum support price of sugarcane has not increased every year. The growth rate of sugarcane support price in the year 2016-17 and 2019-20 is 0 percent. The highest increase in support price is in sugarcane crop in the year 2013-14 with a growth rate of 23.53 percent and in paddy crop the growth rate is 15.74 percent in 2012-13. The growth rate of sugarcane support price in the year 2011-12 was 0.23 percent and the lowest increase in paddy was 2.92 percent in 2021-21. Thus it is clear that the cropping pattern is affected due to the unequal rate of increase in the price of paddy and sugarcane crops. The government should increase the price of crops proportionately keeping in mind the cropping pattern.

Graph No.-2



It is clear from the above analysis that there is a difference in the rate of increase in the price of sugarcane and paddy. In most of the years, the growth rate of sugarcane crop is higher than the growth rate of paddy crop, however, in some years, the growth rate of paddy price is higher than the growth rate of sugarcane price. The maximum difference in the rate of increase in the price of sugarcane and paddy is 18.78 percent in the year 2013-14. The minimum difference in the rate of increase is 7.3 percent in the year 2015-16. Due to change in support price of paddy and sugarcane crops, the crop pattern and interest of farmers gets affected.

Details of the rate of increase in the support price of sugarcane and paddy

Table No.-5

Particular	Number	Mean rank	Sum of rank	Average incomm
Increase rate of minimum support price of sugarcane crop	15	14.87	223	6.53
Increase rate of minimum support price of paddy crop	15	16.13	242	6.08

In the above table, the rate of increase in the support price of sugarcane and paddy crops has been analyzed. The mean rank of the increase in the minimum support price of sugarcane crop is 14.87 and the mean rank is 223. The mean rank of the increase in the price of paddy crop is 16.13 and the sum of ranks is 242. The average increase in the price of sugarcane and paddy crop is 6.53 percent and 6.08 percent respectively.

Significance test of the difference in the rate of increase of MSP of sugarcane and paddy

Table No.-6

Particular	Result
Mann-Whitney U	103.000
Wilcoxon W	223.000
Z	-.394
Asymp. Sig. (2-tailed)	.713
Asymp. Sig. (2-tailed)	.713

The analysis shows that the value of Mann-Whitney U test is 103.000 and the value of Wilcoxon W test is 223.000. The P-Value of this test is .713 which is greater than 0.05. Hence the null hypothesis (there is no significant difference in the growth rate of MSP of sugarcane and paddy crops) is accepted. The alternative hypothesis (there is a significant difference in the rate of increase of MSP of sugarcane and paddy crops) is rejected. Thus, it can be said that there is no difference in the increase in the minimum support price of sugarcane and paddy crops, i.e., there is equality in the rate of increase.

Conclusion and suggestions:- The establishment of sugar factory has increased the income of farmers. The establishment of sugar factory has provided direct and indirect employment opportunities in the area. With the establishment of the sugar factory, farmers have abandoned cultivation of other crops and are now cultivating sugarcane, which has increased their annual agricultural income and improved their standard of living. In cultivation of other crops, farmers are not engaged in agricultural work for the whole year but in sugarcane cultivation, farmers get employment throughout the year. To maintain balance in the crop pattern, it is necessary that the bonus provided by the government should be given equally to all crops. The rate of increase in the minimum support price of sugarcane and paddy is almost the same, accordingly the amount of bonus should also be equal. The loan system should be made easy for sugarcane farmers so that farmers do not have to take help from private sector for loan because the interest rate in private sector is higher. The government should provide benefits and basic services related to sugarcane farmers so that farmers are encouraged to take up sugarcane farming more and more. The Government should provide additional funds to farmers who change cropping patterns to increase sugarcane cultivation area.

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