



## ANALYSIS OF CONSTRAINTS FACED BY SUGARCANE PRODUCERS FOR JAGGERY IN ANAKAPALLE DISTRICT OF ANDHRA PRADESH – SUGGESTIONS TO OVERCOME THEM

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**ABSTRACT**

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This study investigates the challenges faced by sugarcane growers in Andhra Pradesh, focusing on cultivation, jaggery production, and marketing. The research explores the constraints perceived by farmers and analyzes their suggestions to address these issues and revive the jaggery industry. The methodology involves a comprehensive ex-post facto research design conducted in the Anakapalle district, which has the highest sugarcane cultivation area. Sixty respondents, selected through a random sampling procedure, provided insights into 18 identified problems categorized under sugarcane cultivation, jaggery making, and jaggery marketing. Garrett's ranking technique was employed to prioritize constraints based on severity, revealing labor scarcity, increasing wages, and high capital requirements as prominent issues in sugarcane cultivation. Lack of technical knowledge in jaggery making, limited government support, and low recovery of jaggery from sugarcane were highlighted as major challenges. In jaggery marketing, inadequate prices and middlemen involvement were identified as key concerns. The study concludes with valuable suggestions from sugarcane growers, emphasizing mechanization, Minimum Support Prices (MSP), technical guidance, and improved market information dissemination for sustainable growth in the sugarcane and jaggery sector.

**KEYWORDS:** Sugarcane cultivation, Jaggery production, Agricultural challenges, Technical guidance, Constraints.

### INTRODUCTION

Sugarcane is a highly significant cash crop cultivated in approximately 115 countries worldwide. Brazil leads global sugarcane production, followed by India, China, Thailand, and Pakistan. Despite Brazil's dominance, a considerable portion of its sugarcane is used for ethanol production. Consequently, India is anticipated to emerge as the leading producer of sugar and jaggery. Uttar Pradesh holds the distinction of being the largest producer in India, contributing 45 percent of the total output, with Maharashtra, Karnataka, Tamil Nadu, Gujarat, Bihar, and Andhra Pradesh also playing significant roles. Sugarcane is versatile, capable of yielding three primary products: sugar, jaggery, and khandasari. Jaggery and khandasari, in particular, have become prominent cottage industries, providing employment opportunities for thousands of individuals. Per capita consumption of jaggery and khandasari declined from 8.4 kg per annum during 2000-01 to 3.0 kg per annum in 2006-07. However, increased awareness of the health, nutritional, and medicinal benefits of jaggery has led to a recent rise in per capita consumption, reaching 4.1 kg per annum in 2016-17. In Andhra Pradesh, the districts of Visakhapatnam, Chittoor, and West Godavari have emerged as leaders in sugarcane cultivation. Given that sugarcane cultivation

for jaggery is an essential and unorganized sector supporting the livelihoods of numerous farmers, a study is proposed to identify the primary constraints faced by sugarcane growers in Andhra Pradesh, encompassing cultivation, jaggery production, and marketing. The study will also consider their suggestions to address the existing problems and restore the former glory of jaggery production.

### MATERIAL AND METHODS

The study was conducted at Anakapalle district of Andhra Pradesh during the year 2023 as the locale has the highest area under sugarcane cultivation. Ex-post facto research design was followed for the study. From the selected district, four mandals were purposively selected having highest area under sugarcane cultivation. From each mandal, 15 sugarcane growers for jaggery were selected randomly by using simple random sampling procedure, thus making a total 60 respondents. For the present study the 'problem' was viewed as the unsatisfactory situations in sugarcane cultivation for jaggery as perceived by the sugarcane growers. Based on the exhaustive review of literature, interaction with sugarcane growers for jaggery during pretesting and by taking experts opinion, a total of 18 problems were

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listed and arranged under three categories *viz.*, six under sugarcane cultivation, six under jaggery making and six under jaggery marketing. The sugarcane growers for jaggery were asked to rank each problem based on the magnitude of seriousness. The constraints were prioritized by adopting Garret ranking technique. Suggestion was operationally defined as the requirements expressed by the sugarcane growers for jaggery in order to fulfill their needs. An open-ended schedule was developed to measure the suggestions. The suggestions as expressed by the respondents were keenly observed they were measured using frequency and percentage. Finally, the suggestions were ranked from one to twelve based on the descending order of frequencies obtained.

### Garrett's Ranking Technique

To find out the major constraint faced by the respondent, Garrett's ranking technique was used. The prime advantage of this technique over simple frequency distribution is that the constraints are arranged based on their severity from the point of view of respondents. Hence, the same number of respondents on two or more constraints may have been given different rank. Garrett's formula for converting ranks into percent is:

$$\text{Percentage position} = 100 * (R_{ij} - 0.5) / N_j$$

where,  $R_{ij}$  = Rank given for  $i$ th item by  $j$ th nursery owner.

$N_j$  = Total number of constraints ranked

With the help of Garrett's table, the percent position estimated is converted into scores. Then for each constraint, the scores of each individual are added and then the total value of scores and mean values of score is calculated. The constraints having the highest mean

value is considered to be the major constraint. The final ranking of the constraints in order to fix their relative priority was done on the basis of their mean score.

## RESULTS AND DISCUSSIONS

### A) Constraints as perceived by the sugarcane growers in sugarcane cultivation

It can be observed from the table 1 that, among constraints perceived by the respondents under sugarcane cultivation, "Non-availability of labour with (mean score = 63.3 ) ranked first and "Day by day increase in labour wages" (mean score = 53.11) ranked second followed by "High Capital requirement" (mean score = 47.75), "Lack of technical guidance"(mean score = 44.46) , "Severe pest and disease incidence damages the crop" (mean score = 43.86) and "Non-availability of improved varieties" (mean score = 42.50) were perceived as major problems by a large majority of sugarcane growers as third, fourth ,fifth and sixth ranks respectively.

Sugarcane, as a heavy field crop involving a lot of work, necessitates a lot of hard labour to carry out various field operations, especially during harvesting. As a result, the manpower involved in sugarcane field operations demands high salary rates and is hesitant to engage in sugarcane. As a result, sugarcane worker wages are increasing day by day, putting additional burden on sugarcane farmers who cultivate sugarcane for jaggery. High capital requirements present a significant obstacle, limiting access to necessary resources. The lack of technical guidance hinders efficient cultivation practices, while severe pest and disease incidence damage the crop. Moreover, the non-availability of improved varieties restricts farmers ability to enhance productivity. Hence

**Table 1. Constraints as perceived by the sugarcane growers in sugarcane cultivation**

(n = 60)

S. No.	Constraints	GS	GMS	R
1	Non- availability of labour	3798	63.30	1
2	Day by day increase in labour wages	3187	53.11	2
3	High capital requirement	2865	47.75	3
4	Lack of technical guidance	2668	44.46	4
5	Severe pest and disease incidence damages the crop	2632	43.86	5
6	Non- availability of improved varieties	2550	42.50	6

the above trend is seen.

**B) Constraints as perceived by the sugarcane growers in jaggery making**

The major problems associated with jaggery making were presented in table 2 that “Lack of technical knowledge & skills in jaggery making” (mean score = 54.91) was ranked first and perceived as the most problematic by a large majority of sugarcane growers. It was followed by “Lack of support from government for jaggery” ( mean score = 52.81), “Limited resources for processing”(mean score =52.05), “Year-round maintenance of the equipment” (50.28), “Lack of organizations/associations of sugarcane growers for jaggery” (mean score = 54.91), “Lack of organizations/associations of sugarcane growers for jaggery” (mean score = 43.10) and “Low recovery of jaggery from the

sugarcane” (mean score = 35.98) were ranked second, third, fourth, fifth, sixth respectively by sugarcane growers for jaggery.

The lack of technical knowledge and skills in jaggery making is identified as a significant hurdle, emphasizing the need for training and capacity-building programs. Additionally, the lack of government support for jaggery indicates the importance of policies and initiatives to facilitate the growth and development of the jaggery industry. Limited resources for processing and the year-round maintenance of equipment pose operational challenges that require attention and investment. The absence of organizations/associations for sugarcane growers hinders collective action and collaboration. Finally, the low recovery of jaggery from sugarcane highlights the need for improved extraction techniques to maximize yield.

**Table 2. Constraints as perceived by the sugarcane growers in jaggery marketing**

(n = 60)

S. No.	Constraints	GS	GMS	R
1	Lack of technical knowledge & skills in jaggery making	3295	54.91	1
2	Lack of support from government for jaggery	3169	52.81	2
3	Limited resources for processing	3123	52.05	3
4	Year-round maintenance of the equipment	3017	50.28	4
5	Lack of organizations/associations of sugarcane growers for jaggery	2586	43.10	5
6	Low recovery of jaggery from the sugarcane	2159	35.98	6

**C) Constraints as perceived by the sugarcane growers in jaggery marketing**

Table 3 represents the constraints in jaggery marketing and found that majority of the sugarcane growers perceived “Lack of remunerative price for jaggery” (mean score = 54.5) and “More middlemen involvement” ( mean score = 51.78) as the major problems and ranked first and second respectively. A moderate majority of the respondents expressed “Lack of market information” (mean score = 49.40) and “low profit margin for jaggery”(mean score = 48.38) as major problems and ranked third and fourth. “Delay in payment of installments by jaggery merchants”(mean score = 47.18) and “Lack of jaggery storage facilities” (mean score = 45.08) were ranked as fifth and sixth by slightly majority of sugarcane growers.

Majority of sugarcane growers, as indicated by the significant concern among farmers regarding the inadequate compensation they receive for their jaggery produce. The perceived low profitability of jaggery is a major obstacle for sugarcane growers, as it directly affects their income and financial sustainability followed by increased presence of intermediaries, which can lead to higher costs and reduced profitability. The presence of multiple middlemen in the supply chain can result in lower prices for farmers and a lack of transparency in the marketing process. Other reasons like low profit margin for jaggery, delay in payment of installments by jaggery merchants also might have contributed from low returns for jaggery. Farmers also might have felt the lack of storage facilities forced them to go for immediate sales without better realization of prices.

**Table 3. Constraints as perceived by the sugarcane growers in jaggery marketing**

(n = 60)

S. No.	Constraints	GS	GMS	R
1	Lack of remunerative price for jaggery	3270	54.5	1
2	More middlemen involvement	3107	51.78	2
3	Lack of market information	2964	49.40	3
4	Low profit margin for jaggery	2903	48.38	4
5	Delay in payment of installments by jaggery merchants	2831	47.18	5
6	Lack of jaggery storage facilities	2705	45.08	6

#### **Suggestions Given by Sugarcane Growers to Overcome their Problems**

In order to enhance sugarcane cultivation, jaggery production, and marketing, valuable suggestions have been provided by sugarcane growers.

Sugarcane growers felt that "Viable mechanization to replace manual labor" as one of the major suggestions and it was ranked first among all the suggestions given by the respondents. The issue of labour-intensive work, which has been identified as a significant concern among farmers engaged in sugarcane cultivation for jaggery production, is likely to have influenced the suggestion of utilizing specialized agricultural machinery for both

the cultivation of sugarcane and the production of jaggery. "MSP and remunerative prices for jaggery" was suggested by second majority (88.33%) of the farmers. "Provision of technical guidance and information" was mentioned by 80.00 percent of sugarcane growers and ranked third. It was followed by "Subsidized provision of machinery and equipment for jaggery production" (75.00%) ranked fourth, "Reduction in commission rates charged by agents" (63.33%) ranked fifth.

Other suggestion given by the respondents were "Timely dissemination of market information" (61.66%), "Prompt availability of necessary inputs" (58.33%), "Need for advanced machinery to make different jaggery

**Table 4. Suggestions given by sugarcane growers to overcome their problems**

S. No.	Constraints	GS	GMS	R
1	Viable mechanization to replace manual labor	60	100.00	1
2	MSP & remunerative prices for jaggery	53	88.33	2
3	Provision of technical guidance and information	48	80.00	3
4.	Subsidized provision of machinery and equipment for jaggery production	45	75.00	4
5	Reduction in commission rates charged by agents	38	63.33	5
6	Timely dissemination of market information	37	61.66	6
7	Prompt availability of necessary inputs	35	58.33	7
8	Need for advanced machinery to make different jaggery forms	33	55.00	8
9	Credit with low rates of interest	32	53.33	9
10	Transparent marketing channels	30	50.00	10

forms” (55.00%), “Credit with low rates of interest” (53.33%) and transparent marketing channels (50.00%) respectively.

In conclusion, the article has examined the significant constraints faced by sugarcane producers engaged in jaggery production and provided practical suggestions to overcome these challenges. By implementing these suggestions, sugarcane producers can optimize their production processes, increase their profitability, and establish a sustainable future for the jaggery industry. It is imperative for stakeholders to collaborate and take proactive steps towards implementing these recommendations to ensure a vibrant and prosperous future for sugarcane producers in the jaggery sector.

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