



PROBLEMS OF SUGARCANE FARMERS

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ABSTRACT

Sugarcane cultivation in India faces challenges that impact farmers' economic viability and sustainability. This study examines issues such as labour shortages, lack of high-yielding varieties and fertilizers, stagnant yields, and pest problems. Using Stratified Random Sampling, 640 farmers from Krishna District, Andhra Pradesh, were surveyed. Data analysis shows significant challenges including labour shortages and poor access to quality inputs. Solutions include modernizing farming practices, improving input availability, implementing pest management, and promoting diversification. Supportive policies, better market access, and credit facilities are also crucial for enhancing farmers' economic conditions and sustainable agricultural development.

Keywords: Sugarcane cultivation, problems, labour shortages, high-yielding varieties

Sugarcane farming plays a crucial role in agricultural economies worldwide, serving as a vital source of income for millions of farmers and contributing significantly to global sugar production. Sugarcane production demands extensive labour, with approximately 3300 man-hours required for various tasks, and labour expenses accounting for 60 percent of total cultivation costs. Manual labour predominates most operations in cane farming, with machinery primarily limited to field preparation. The high cost associated with labour and inputs has resulted in a decline in sugarcane cultivation area in Andhra Pradesh, with average yields fluctuating between 74.9 tons per hectare (2004-05) and 66 tons per hectare (2014-15). The significant fluctuations, particularly the sharp decrease in cultivation area from 1,21,685 hectares in 2015-16 to 54,946 hectares in 2020-21, underscore a pressing issue faced by sugarcane farmers in Andhra Pradesh. Such a decline signifies a myriad of challenges, including land accessibility, soil health degradation, labour shortages, and economic viability concerns, all of which directly impact the livelihoods of farmers dependent on sugarcane cultivation. The persistent decrease in cultivation area highlights the urgency of understanding the underlying problems contributing to this trend.

Sugarcane cultivation is fraught with various challenges that undermine the economic viability and sustainability of this sector. Understanding the severity and implications of these challenges is crucial for devising effective interventions to improve the economic conditions of sugarcane farmers and promote sustainable agricultural development in the region. This study holds significant importance in several key areas. Firstly, it sheds light on the pressing challenges faced by sugarcane farmers, ranging from labour shortages to issues related to input availability and pest management. By identifying these challenges, the study provides valuable insights for policymakers, agricultural extension services, and other stakeholders to develop targeted interventions aimed at addressing these issues and improving the economic conditions of sugarcane farmers. Furthermore, the study contributes to the broader understanding of agricultural sustainability by highlighting the complexities and interdependencies within the sugarcane farming sector. By promoting sustainable practices and enhancing farmers' livelihoods, the study ultimately plays a pivotal role in fostering rural development and food security in the region. Additionally, the findings of this study can serve as a basis for further research and analysis, facilitating ongoing efforts to optimize agricultural production and mitigate challenges in sugarcane farming.

Review of Literature

Rani & Mani (2015) aimed to assess the flow of agricultural credit for sugarcane cultivation and identify challenges in institutional agricultural lending. Their study, focusing on farmers with sugarcane as their primary crop, revealed that Villupuram district had the largest sugarcane cultivation area in Tamil Nadu. The credit provided to sugarcane farmers significantly improved their asset position and net income per hectare compared to non-borrowers. However, the study also highlighted issues with delayed loan disbursement, primarily due to documentation problems, particularly in the context of long-term lending.

Jagannadha Rao & Sreedevi (2016) assessed the performance of a tractor-mounted mechanical two-row bud chip seedling planter for sugarcane cultivation at the Regional Agricultural Research Station (RARS) in Anakapalle, Andhra Pradesh. The planter demonstrated a field capacity of 0.16 hectares per hour at an optimized speed of 1.4 km/h. The study found no significant differences in yield and quality parameters between the bud chip planting method and conventional methods, except for single cane weight and root spread area. Economically, the bud chip method offered substantial savings in labour costs, seed quantity, and planting time compared to traditional planting methods.

Upreti & Singh (2017) examined the trends in sugarcane production, costs, returns, and profitability in Uttar Pradesh and Maharashtra. Their analysis revealed that although the expansion of cultivation area led to increased production, productivity levels remained stagnant. Costs, particularly in Maharashtra, rose significantly; however, profitability improved due to higher output values. The study underscored the importance of efficiently managing inputs such as labour, machinery, and fertilizers to boost sugarcane productivity in India.

Chavhan et al. (2018) explored the training needs and challenges faced by sugarcane growers, particularly in the use of fertilizers, pesticides, and insecticides. Their research offered insights into the demographic profile of the respondents, showing that most were in the middle age group and had completed education up to the higher secondary level.

Sankhwar & Ramachandra (2019) investigated sugarcane cultivation in the Bhawal Khera block of Uttar Pradesh. They reported an average landholding size of 1.78 hectares and a high illiteracy rate of 80.88 percent among farmers. The cropping intensity was 250 percent, primarily involving wheat and sugarcane. About 56.22 percent of households had irrigated land, predominantly using tube wells. While sugarcane production exhibited positive growth, farmers continued to face challenges, including insufficient supplies of insecticides and pesticides.

Kumar et al. (2020) investigated the challenges faced by sugarcane farmers. The study revealed that a significant majority of respondents encountered high input costs (81.67 percent) as an economic constraint and the persistent use of traditional practices (74.16 percent) as a socio-cultural barrier. Additionally, technical issues were prominent, with 85.00 percent of farmers lacking knowledge about insect pests and 90.84 percent unfamiliar with improved implements. Post-harvest challenges were also identified, notably the non-availability of juice extractors in rural areas, affecting 88.33 percent of the respondents.

Singh et al. (2021) conducted research to identify the constraints affecting the adoption of improved production and integrated pest management (IPM) technologies in sugarcane cultivation. The study found that the most prevalent constraint was irregular or unseasonal heavy rainfall. Other significant challenges included the unavailability of safe biopesticides, irregular electricity supply, fertilizer shortages, and issues with labour availability. Technical constraints involved difficulties in adopting natural enemies and IPM practices, as well as challenges in identifying harmful pests and diseases. Economic constraints highlighted the high costs of insecticides, farm machinery, labour, fertilizers, and sugarcane seed setts.

Singh et al. (2022) examined the growth rates and instability of sugarcane in Uttar Pradesh over a 71-year period using semi-log regression and instability indices. Their findings indicated positive and statistically significant growth rates for sugarcane production, with the highest annual growth rate at 2.25 percent. The study revealed that production instability was higher compared to the instability in area and productivity, highlighting the necessity for enhanced production technologies to mitigate fluctuations. Conversely, the greater stability in productivity and area suggests a lower risk in the raw sugarcane supply to sugar industries.

Wadghane & Madguni (2023) address the critical issue of water scarcity, emphasizing the need for accessible water and efficient water management. Their study finds a negative correlation between available water resources and consumption. However, sub-indicators such as access to water, water usage, and capacity demonstrate positive correlations with the Agricultural Water Productivity Index (AWPI).

Objectives and Methodology

The study aims to investigate the multifaceted challenges confronting sugarcane farmers, thereby hindering their economic viability and agricultural sustainability. These challenges include labour shortages, unavailability of high-yielding varieties and fertilizers, stagnant yields compared to other crops, and perceived pest problems.

The study employs primary data collection through direct engagement with sugarcane farmers to understand their specific challenges. Stratified Random Sampling ensures a representative sample of 640 farmers from Krishna District, Andhra Pradesh, chosen for its significant sugarcane cultivation and the researcher's familiarity. Four mandals with varying sugarcane cultivation levels are selected, with four villages randomly chosen in each. From each village, 40 farmers are sampled, representing different farm sizes: marginal, small, semi-medium, and medium-large. Data analysis involves percentages to assess prevalent challenges.

Results and Discussion

Problem of continuous adoption of traditional practices

The data from Table - 1 reveals that a significant majority (69.20 per cent) of respondents acknowledge the problem of continuous adoption of traditional, labour-intensive cultivation practices, with 62.20 per cent agreeing and 7.00 per cent strongly agreeing. In contrast, 18.30 per cent disagree and 12.50 per cent strongly disagree, indicating that a notable minority does not see these practices as problematic. This consensus among the majority suggests a recognized need for modernization in agricultural practices, potentially through the adoption of new technologies, education and training programs for farmers, and supportive government policies. Addressing these traditional practices' challenges could be pivotal for enhancing agricultural efficiency and productivity.

Table –1

PROBLEM OF CONTINUOUS ADOPTION OF TRADITIONAL PRACTICES, i.e., LABOUR-INTENSIVE NATURE OF CULTIVATION PRACTICES

	Opinion of the respondents				Total
	Strongly agree	Agree	Disagree	Strongly disagree	
Number of respondents	45 (7.00)	398 (62.20)	117 (18.30)	80 (12.50)	640 (100.00)

Note: Figures in the parenthesis represent percentages to row total.

Source: Computed from the Primary Data.

Problem of unavailability of high-yielding varieties

The data from Table - 2 indicates a significant concern among respondents about the unavailability of high-yielding varieties, with 55.90 per cent strongly agreeing and 34.70 per cent agreeing, summing up to a substantial 90.60 per cent who recognize this issue. Additionally, 8.80 per cent of respondents are neutral, while a mere 0.60 per cent disagree. This overwhelming majority underscores a critical need for improved access to high-yielding varieties to enhance agricultural productivity.

Table –2

PROBLEM OF UNAVAILABILITY OF HIGH-YIELDING VARIETIES

	Opinion of the respondents				Total
	Strongly agree	Agree	Neutral	Disagree	
Number of respondents	358 (55.90)	222 (34.70)	56 (8.80)	4 (0.60)	640 (100.00)

Note: Figures in the parenthesis represent percentages to row total.

Source: Computed from the Primary Data.

Problem of shortage of labour

The data from Table - 3 highlights a pronounced concern regarding the shortage of labour, with a significant 90.00 per cent of respondents strongly agreeing and an additional 5.60 per cent agreeing, totaling a compelling 95.60 per cent acknowledgment of this issue. In contrast, only 4.10 per cent disagree and a minimal 0.30 per cent strongly disagree, indicating negligible opposition. This overwhelming consensus points to labour shortage as a critical challenge in agriculture, necessitating urgent interventions. Solutions might include mechanization, incentives to attract labour, and policy measures to address workforce shortages, thereby ensuring sustained agricultural productivity and efficiency.

Table – 3

PROBLEM OF SHORTAGE OF LABOUR

	Opinion of the respondents				Total
	Strongly agree	Agree	Disagree	Strongly disagree	
Number of respondents	576 (90.00)	36 (5.60)	26 (4.10)	2 (0.30)	640 (100.00)

Note: Figures in the parenthesis represent percentages to row total.

Source: Computed from the Primary Data.

Problem of fertilizer shortages

The data from Table - 4 shows that the problem of fertilizer shortages is not widely perceived as critical among the respondents. Only 0.50 per cent strongly agree and 36.10 per cent agree that this is a problem, totaling 36.60 per cent. In contrast, a majority of 58.30 per cent disagree and 5.20 per cent strongly disagree, indicating that 63.50 per cent do not see fertilizer shortages as a significant issue. This suggests that while some farmers experience challenges with fertilizer availability, the majority do not perceive it as a major problem, possibly due to adequate supply or effective management practices. Addressing the

minority's concerns might still be beneficial, but broader agricultural policies may not need to prioritize this issue as urgently as others.

Table – 4
PROBLEM OF FERTILIZER SHORTAGES

	Opinion of the respondents				Total
	Strongly agree	Agree	Disagree	Strongly disagree	
Number of respondents	3 (0.50)	231 (36.10)	373 (58.30)	33 (5.20)	640 (100.00)

Note: Figures in the parenthesis represent percentages to row total.

Source: Computed from the Primary Data.

Pest problems

Table - 5 presents data regarding respondents' opinions on pest problems in agriculture. The majority of respondents, comprising 78.00 per cent, disagree with the notion that pest problems pose a significant challenge. Additionally, 11.20 per cent are neutral on the issue, while 9.50 per cent agree that pest problems are a concern. A small percentage of respondents, 1.20 per cent, strongly disagree with the assertion that pests are problematic in agriculture. This data suggests that while some respondents acknowledge pest issues, the majority either do not view them as a major concern or are uncertain about their impact. However, it's essential to consider that pest problems can have significant implications for crop yields and agricultural sustainability, and addressing them effectively remains crucial for ensuring food security and livelihoods in the agricultural sector.

Table - 5
PEST PROBLEMS

	Opinion of the respondents				Total
	Agree	Neutral	Disagree	Strongly disagree	
Number of respondents	61 (9.50)	72 (11.20)	499 (78.00)	8 (1.20)	640 (100.00)

Note: Figures in the parenthesis represent percentages to row total.

Source: Computed from the Primary Data.

Problem of no change in yield over a period of time

Table-6 illustrates respondents' opinions on the issue of stagnant yields compared to crops where yields are increasing annually. The data indicates that a significant portion of respondents, 75.80 per cent in total, either strongly agree (34.10 per cent) or agree (41.70 per cent) that this is a problem. Meanwhile, 17.00 per cent remain neutral on the issue, with smaller percentages disagreeing (4.40 per cent) or strongly disagreeing (2.80 per cent). This suggests a prevalent recognition among respondents that the lack of yield improvement over time, in contrast to other crops, is a notable concern in agriculture. Addressing this issue may require strategies such as crop diversification, adoption of improved farming practices, and investment in research and development to boost yields and ensure the sustainability of agricultural production.

Table – 6
PROBLEM OF NO CHANGE IN YIELD OVER A PERIOD OF TIME WHEN COMPARED TO OTHER CROPS WHERE YIELD IS BEING INCREASED YEAR TO YEAR

	Opinion of the respondents					Total
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	
Number of respondents	218 (34.10)	267 (41.70)	109 (17.00)	28 (4.40)	18 (2.80)	640 (100.00)

Note: Figures in the parenthesis represent percentages to row total.

Source: Computed from the Primary Data.

Conclusion

The findings from the study highlight various challenges faced by sugarcane farmers, including concerns about labour shortages, unavailability of high-yielding varieties and fertilizers, stagnant yields compared to other crops, and perceived pest problems. While there is widespread recognition of issues such as labour shortages and stagnant yields, opinions vary regarding the severity of challenges such as fertilizer shortages and pest problems. Addressing these challenges requires a multi-faceted approach, including modernizing farming practices, improving access to quality inputs, implementing effective pest management strategies, and promoting diversification and value-added products. Additionally, supportive agricultural policies and improved market access are essential for enhancing the economic conditions of sugarcane farmers and ensuring sustainable agricultural development.

Given the concerns about labour shortages and the labour-intensive nature of traditional cultivation practices, promoting the adoption of modern farming techniques and machinery could enhance productivity while reducing dependency on manual labour. Addressing the concerns regarding the unavailability of high-yielding varieties and fertilizer shortages is crucial. Providing farmers with access to quality seeds and fertilizers through government subsidies, agricultural extension programs, and improved distribution channels can significantly improve crop yields and overall profitability. Addressing the concern of stagnant yields compared to other crops is vital for enhancing the economic conditions of sugarcane farmers. Investing in agricultural research and development to develop high-yielding sugarcane varieties, coupled with extension services to educate farmers on best agronomic practices, can help increase yields and improve farmers' incomes. Implementing supportive agricultural policies, including price stabilization mechanisms, access to credit, and market infrastructure development, can provide a conducive environment for sugarcane farming. Additionally, improving market access through better transportation and storage facilities can help farmers fetch better prices for their produce. By addressing these challenges and implementing appropriate interventions, policymakers, agricultural extension agencies, and other stakeholders can work towards improving the economic conditions of sugarcane farmers, enhancing their livelihoods, and promoting sustainable agricultural development.

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