Original Research Article

CONSTRAINTS OF~~FACED BY~~SUGARCANE FARMERS DURING CULTIVATION AND MARKETING IN KERALA

Abstract

The study analysed the constraints faced by farmers during cultivation and marketing of sugarcane in Kerala. A multi-stage random sampling technique was adopted for the data collection and information was obtained from 120 sugarcane farmers and 10 marketing intermediaries.The farmers ranked and used Garrett's ranking technique to analyze the main production and marketing constraints. The major production constraints identified were wild animal and rodent attack, followed by shortage of labour and high labour cost, high cost of inputs and delay in harvesting. Price fluctuations of sugarcane and absence of regulated markets were major marketing constraints. Valuable suggestions were implementing effective measures to mitigate wildlife damage, government should purchase farmers products at reasonable price.

Comment [F1]: Reconcile with what you have in the methodology

Comment [F2]: How? Reconcile with your methodology

Comment [F3]: The study recommended the need for an effective measures to mitigate wildlife damage and off-take of product by government.

Keywords: Constraints, sugarcane, production, marketing, suggestion.

Introduction

Sugarcane, (Saccharumofficinarum) belongsto the family Gramineae (Poaceae),it is a crop of significant cultivation inIndian. It holds a prominent position as one of the oldest and commercial sustainable crops in the tropical and subtropical zones of the world.Sugarcane has become a significant agricultural commodity for farmers due to the substantial potential of the domestic market for the production of sugar and sugarcane derivatives.Consequently, the expansion of the sugarcane industry in India would lead to significant economic benefits, such as foreign exchange savings, job creation and income generation, rural development, and improved living standards for rural residents. Sugarcane occupies a prominent position as a cash crop and serves as the primary global source of sugar, contributing to 80% of overall production. Sugar juice is utilized in the processing of white sugar, brown sugar (khandsari), and gur or jaggery. Bagasse and molasses serve as the primary by-products of the sugarcane industry(Shukla *et al.* 2023).

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The global area, production, and productivity of sugarcane were 26.08 million hectares, 19.22 million tonnes, and 65.5 tonnes, respectively (FAO, 2022).

In India, sugarcane was cultivated in an area of 5.83 million hectares in 2022-23, with production of 494.22 million tonnes and productivity of 84.01 tonnes per hectare (GOI, 2023). In India, Uttar Pradesh is the leading producer of sugarcane, followed by Maharashtra, and Karnataka.

The area, production and productivity of sugarcane in Kerala was 931 hectares, 1,01,240 tonnes and 108 tonnes per ha, respectively (GOK, 2023).In Kerala, Idukki district is the leading producer of sugarcane, accounting for 93 per cent of the state production.

The rising cost of cultivation of sugarcane was reported as the major limitation confronted by the sugarcane farmers in various states (Upreti and Singh, 2017), which may be one reason for the declining area of the sugarcane crop in Kerala. Hence, the farmers need to ensure the prudent use of inputs to reduce the cost of cultivation and increase profitability.

Material and methods

The study was based on primary data. Idukki district was purposively selected as they were the major producer of sugarcane in Kerala.In Idukki district, Devikulam block was ~~purposively selected~~selected which stood in the first position of acreage and production of sugarcane. In Devikulam block, two gram panchayats Marayoor and Kanthalloor were selected. A Complete list of sugarcane farmers was collected from the respective Krishi Bhavans. From each panchayat, 60 farmers and 10 market intermediaries were randomly selected, thus making sample size of 140 farmers.

Garrett's Ranking Ttechnique

The analysis of constraints in sugarcane production and marketing used Garrett's ranking technique, where the rankings assigned by each respondent were converted into percent positions by using a formula.

$$\textbf{Per cent Position} = 100\ (R_{ij}-0.5)/N_j$$

Where,

R_{ij} = Rank given for the i^{th} variable by j^{th} respondent

N_j = Number of variables ranked by j^{th} respondent

(Garrett and Woodworth, 1969)

Garrett's Ttable was used to ~~for~~ convert~~ing~~ the estimated percent positions into scores. For each constraint, a mean score was calculated, and the means were arranged in descending

Comment [F6]: Because it was the major producer

Comment [F7]: Is Idukki district under Kerala?

Comment [F8]: delete

Comment [F9]: Recast

Comment [F10]: The presentation of this chapter is not explicit. Your reader may want to know the link between Kerala, Devikulam block, two gram panchayatsMarayoor and Kanthalloor,KrishiBhavansandIdukki district?

What was the number of farmers and marketers selected per community?

What was the tool used in data collection? E.g questionnaire, FGD, Interview etc.

Comment [F11]: In analysing constraint in sugarcane production and marketing, the Garrett's ranking technique was adopted. The ranking assigned by each respondent was converted into percentage position.

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order. The constraint that possessed the greatest mean score value was considered the most important and was assigned a rank of ~~as~~ one. The remaining mean scores were ~~have been~~ arranged in descending order.

Results and discussion

Constraints faced by the sugarcane farmers during cultivation

The major constraints faced by the farmers in the cultivation of sugarcane were listed out and ranked based on the responses from the farmers in the study area. The farmers encountered various constraints *viz.*, attack of wild animals and rodents, non-availability of labour and high labour cost, high cost of inputs, delay in harvesting, heavy rainfall and unawareness about the recommended package of practices. The major constraint reported by the sugarcane farmers was the attack of wild animals and rodents with a Garrett score of 64.92. Sugarcane farmers reported that the attack of wild boars and wild buffaloes was severe in the study area. Due to the attack of these animals, farmers are reluctant to expand sugarcane cultivation in more areas. A study conducted by theKerala Forest and Wildlife Department during 1999 also reported that crop damage due to the attack of wild animals is severe in Marayoor area. Shortage ~~of labour~~ and high cost of labour ~~cost~~ was the second most important constraint identified by the farmers, ~~which has~~with a Garrett score of 58.78. Deshmukh *et al.* (2021) also observed that labour shortage during the peak periods and high wage rates were the major constraints faced by the sugarcane farmers in the Kabirdham district of Chhattisgarh. Patel and Vyas (2014) also made similar findings that the shortage of labour was the second most important constraint faced by the sugarcane farmers in the Navasari district of Gujarat. The other constraints identified by the farmers were high cost of inputs (50.53), delay in harvesting (34.60), heavy rainfall (24.24) and lack of awareness on ~~unaware about the~~ recommended ~~package of~~best practices (2.21). Karim *et al.* (2016) reported that ~~the~~ high input price ~~of inputs~~ was one of the constraints faced by sugarcane farmers in the Joypurhat sugar mill area of Bangladesh. Deshmukh *et al.* (2021) observed that the lack of ~~a~~ recommended package of practices is one of the constraints encountered in sugarcane production in the Kabirdham district of Chhattisgarh.

Comment [F13]: How related is this area to Idukki district?

Comment [F14]: It would have been nice to see the distribution of constraint for each community that makes up the study area.

Constraints faced by the sugarcane farmers during marketing

When it comes to marketing, price fluctuation of sugarcane was the most important constraint faced by the farmers with a Garrett's score of 65.29. The absence of regulated

markets was the second most important constraint reported by the farmers and had a Garrett's score of 55.38.

Table 1. Constraints faced by the sugarcane farmers during cultivation

Comment [F15]: The Garrett's Ranking technique should have been explained in the methodology, this will guide the reader to understand the rage of ranking.

Sl. No.	Constraint	Garrett's score	Garrett's Ranking
1	Wild animal and rodent attack	64.92	I
2	Shortage of labour and high labour cost	58.78	II
3	High cost of inputs (setts and fertilizers)	50.53	III
4	Delay in harvesting	34.60	IV
5	Heavy rainfall	24.24	V
6	Unawareabout the recommended package of practices	2.21	VI

The other notable marketing constraints reported by the sugarcane farmers were low ~~cultivators are less~~price of sugarcane(53.09), inadequate storage facilities (30.23) and poor transportation facilities (23.40). ~~Less~~lowprice of sugarcane, limited market options and inadequate storage and transportation facilities were the major constraints identified by past researchers in the marketing of sugarcane in various states (Karim, *et al.* 2016; Deshmukh *et al.* 2021; Balas and Prajapati, 2023).

Table 2.Constraints faced by the sugarcane farmers during marketing

Sl. No.	Constraint	Garrett's score	Garrett's Ranking
1	Price fluctuations of sugarcane	65.29	I
2	Absence of regulated markets	55.38	II
3	Less price of sugarcane	53.09	III
4	Inadequate storage facilities	30.23	IV
5	Poor transportation facilities	23.4	V

Conclusion

addressing the identified constraints is crucial for enhancing the productivity and sustainability of sugarcane cultivation.Sugarcane farmers in the study area face several major constraints, including wild animal attacks, high labor costs, input costs, harvest delays, heavy rainfall, and lack of recommended best practices. The attack of wild animals and rodents was ~~is~~ the major ~~ost significant~~ constraint identified in production while price fluctuation was the most significant ~~. Sugarcane farmers face most significant~~ marketing constraint~~which is price fluctuation~~.Certain areas are unwilling to expand sugarcane farming because of these constraints.Implementing effective measures to mitigate wildlife damage. sugarcane farmers providing production inputs at subsidized rates, implementing a village information center or kiosk in each village, and ensuring the government purchases products at a fair price.

Comment [F16]: Recast

Comment [F17]: Recast, this should serve as your recommendation. It should flow as a statement.

Reference

Balas, N., and Prajapati, M. R. Identifying production and marketing constraints faced by sugarcane farmers: A study in Gujarat. The Pharma Innovation Journal. 2023; 12(7): 1712-1714.

Deshmukh, M. K., Gauraha, A. K. and Chandrakar, M. R. Constraints in the cultivation and marketing of sugarcane production in Kabirdham district of Chhattisgarh, India. The Pharma Innovation Journal. 2021; 10(6): 449-451.

FAO [Food and Agriculture Organization] 2022. Agricultural Production Statistics [online]. Available. Agricultural production statistics 2022 (fao.org). [15 November, 2023]

Garrett, H. E. and Woodworth, R. S. 1969. Statistics in Psychology and Education. Vakils, Feffer and Simons Pvt Ltd., Bombay, 329.

GOK [Government of Kerala]. 2023. Agricultural statistics. [online]. Available: www.agriculture.kerala.gov.in. [23 November, 2023].

GOI (Government of India) 2023. Agricultural statistics. [online]. Available: https://sugarcane.icar.gov.in/index.php/en/. [15 November 2023]

Karim, S. M. R., Pal, S. K., Afrad, M. S. I., Rahman, M. H. and Miah, M. N. A. Problems faced by the farmers in sugarcane cultivation under Joypurhat Sugar Mills. Bangladesh Journal Sugarcane.2016; 37: 76-82.

Patel, A. G., and Vyas, H. U. Constraints faced by Sugarcane Growers in adoption of improved technology. Gujarat. Journal ofExtension Education. 2014; 25(1): 114-116.

KFRI [Kerala Forest Research Institute] 1999. Studies on crop damage by wild animals in Kerala and evaluation of control measures [online]. Available: https://docs.kfri.res.in/KFRI-RR/KFRI-RR169.pdf. [10 January 2024].