The Pharma Innovation Journal 2023; 12(6): 3064-3067

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; 12(6): 3064-3067

www.thepharmajournal.com
Received: 09-03-2023
Accepted: 13-04-2023

Vakkalagadda Srikanth
MBA Agribusiness Student, Department of Agricultural Economics, Sam Higginbottom University of Agricultural, Technology & Sciences, Prayagraj, Uttar Pradesh, India

Dr. Ameesh John Stephen
Assistant Professor, Department of Agricultural Economics, Sam Higginbottom University of Agricultural, Technology & Sciences, Prayagraj, Uttar Pradesh, India

Corresponding Author:
Vakkalagadda Srikanth
MBA Agribusiness Student, Department of Agricultural Economics, Sam Higginbottom University of Agricultural, Technology & Sciences, Prayagraj, Uttar Pradesh, India

Study on supply chain management of sugar cane in Krishna district of Andhra Pradesh

Vakkalagadda Srikanth and Dr. Ameesh John Stephen

Abstract
Supply chain management is a critical aspect of the agribusiness sector as it plays a significant role in ensuring the effective and efficient movement of agricultural products from the farm to the consumer. The sugarcane supply chain in Andhra Pradesh is no exception, and it faces several challenges that impact its overall performance. This study aimed to explore the supply chain management of sugarcane in Andhra Pradesh, with a focus on identifying the key challenges and opportunities for improvement. The sugarcane industry is one of the most significant industries in India, with Andhra Pradesh being one of the leading states in sugarcane production. Supply chain management plays a crucial role in the success of the sugarcane industry as it involves the coordination of activities between various players, from farmers to sugar mills to end consumers. The aim of this study is to analyse the supply chain management practices of the sugarcane industry in Andhra Pradesh and identify potential areas of improvement. The study utilizes a mixed-method approach consisting of both quantitative and qualitative data collection methods. The data collection includes a survey of sugarcane farmers and interviews with sugar mill representatives, wholesalers, and retailers. The study analyses the data using descriptive statistics and content analysis to identify the current practices and challenges in the sugarcane supply chain in Andhra Pradesh. The findings indicate that the sugarcane supply chain in Andhra Pradesh is characterized by various challenges such as lack of transparency, inadequate infrastructure, and insufficient coordination among players. The study further identifies several potential areas for improvement, including the use of technology for supply chain management, improving logistics and transportation infrastructure, and strengthening the coordination among different players in the supply chain. The study identified several opportunities for improving the sugarcane supply chain in Andhra Pradesh, including the development of better storage facilities, improvement of road infrastructure, the establishment of information systems, and the development of direct linkages between farmers and consumers.

Keywords: Supply chain management of sugarcane, quantitative and qualitative and sugar industry, sugar mill representatives, descriptive statistics, content analysis

1. Introduction
India is the second-largest producer of sugarcane in the world, following Brazil. In 2020-21, sugarcane was cultivated over an area of 4.85 million hectares in India, yielding a production of 399.25 million tons and a productivity rate of 82.20 tons per hectare. When it comes to sugarcane cultivation, Andhra Pradesh ranks 9th in terms of area, 8th in terms of production, and 7th in terms of productivity in the country. In Andhra Pradesh, sugarcane is a significant cash crop, covering approximately 0.55 million hectares of cultivated land. The state produced 4.12 million tons of sugarcane with a yield of 74.88 tons per hectare in 2020-21 (GOI, 2021). The major sugarcane-growing districts in Andhra Pradesh are Visakhapatnam, West Godavari, and Krishna. Among them, Visakhapatnam holds the top position in both area (0.5 lakh hectares) and production (2.0 million tons) of sugarcane in Andhra Pradesh for the year 2017-18. Krishna district, known as a coastal district of Andhra Pradesh, cultivates a variety of crops throughout the year and is often referred to as a "museum of crops" by agronomists. Agriculture is the primary occupation in Krishna district, engaging 40.07% of the total working population, according to the 2001 census. In this district, most sugarcane farmers sell their produce to nearby sugar industries. The sugar industry is a significant agricultural-based sector in India and has experienced organized growth since the introduction of the Sugar Industry Protection Act in 1932. India's sugar industry is well-developed and caters to a consumer base of billions of people, making it the second-largest producer of sugar globally. Moreover, the industry provides employment to half a million skilled and semi-skilled workers, contributing to the overall employment of over 5 million people and acting as an

engine of rural development and socio-economic progress. However, in the supply chain management of sugarcane in Krishna district, various challenges arise, with the lack of adequate transportation infrastructure being a key issue. This deficiency results in delays and spoilage of the crop, as specialized vehicles and equipment required for sugarcane transportation are not readily available in the region.

2. Objectives of study

1. To identify the marketing efficiency and marketing margins.
2. To estimate the marketing channel of sugarcane and sugar in the selected area.

3. Research methodology

Research refers to the human endeavour that involves intellectual application to investigate various matters. The primary objective of applied research is to uncover underlying phenomena and develop methods and systems that advance human knowledge across a broad range of scientific disciplines related to our world and universe. This chapter deals with the study which includes the research plan, selection of study area, sampling techniques, model specialization, data collection and analytical procedure. The study is conducted in Krishna district of Andhra Pradesh, which is the most important district in terms of Supply Chain Management of Sugar Cane

4. Sampling procedure

Selection of the State: Andhra Pradesh state was selected purposively for the study, since the researcher is from the same state. The results will be useful to the farmers and development to professionals of Andhra Pradesh.

Selection of the district: Krishna district was purposively selected for the study as it has highest area under Maize cultivation and production in addition to higher potential.

Selection of Blocks: Krishna district consists of 50Mandals. The list of blocks was collected from the Department of Agriculture, Krishna district and three blocks were selected purposively based on the maximum number of sugarcane farmers. The Blocks namely, Vuyyuru, Thotlavalluru and Pamidimukkala were purposively selected for research purpose.

Selection of the Village

A complete list of the village of selected Mandal was obtained from the Mandal development office of the concerned Mandal. Out of total 5% number of villages selected randomly for the present study.

Selection of respondents: A complete list of all farmers was obtained from growers and the selections of farmers are based on farmer's productivity.

Methods of data collection

Selected respondents were collected personally contacting them and interviewing with the help of scheduled questionnaires.

Primary data

Primary data pertaining to the family composition, education level, occupation, age difference, farm size, farming experience etc. was collected directly from the respondents.

Secondary data

Secondary data relevant to the study was collected from the published websites, Reports and
Agricultural office, government& non-governmental institution of the particular study Area.

Market functionaries/ intermediaries

The also intended to study market functionaries, intermediaries at various level of marketing costs and margins. A sample of five pre harvest contractors, five wholesalers, five retailers were selected.

Nature and source of data

Period of study: The data was collected for the agriculture year 2022-2023.

Method of Primary data collection: The primary data has been collected by survey method through personal interview on well-structured and pre tested schedules.

Method of secondary data collection: The secondary data with respect to production and marketing of dairy products has been collected from report and records of the firm plant and block headquarters.

Analytical tools and techniques

Identification of marketing channels

There are different marketing channels identified in the Supply chain of sugarcane in the study area, and there are different market intermediaries, middlemen and different agencies involved in the marketing channels.

Channel 1

Producer → Sugar Mill → Wholesaler → Retailer → Consumer.

Channel 2

Producer → sugar Mill → Wholesaler → Consumer.

Channel 3: Producer → Sugar Mill → Consumer.

Marketing Margin

The term marketing margin refers to the different in prices for a commodity at different stages of the marketing system. In the widest sense marketing margin is the difference in price received by the producer and the price paid by ultimate consumer. Marketing margins include all cost of assembling processing, storage transportation, handling, wholesaling and retailing in the process of marketing moving of produce from the farmer to the ultimate consumer

Marketing Margin or selling price-Actual cost

Marketing efficiency

Marketing efficiency of any activity or process is defined as the ratio of input and output. It was measured by following equation;

MME (RP/ (MC+MM)-1

Where,
ME-Measurement of marketing efficiency.
RP Retail price.
MC-Marketing cost.
MM = Marketing margins.

The given data shows the consumer purchase price, total marketing cost and margin, and marketing efficiency for three different marketing channels for sugarcane. The marketing efficiency is calculated by dividing the total marketing cost and margin by the consumer purchase price and multiplying by 100. In channel I, the consumer purchase price is Rs. 3,800 per quintal, while the total marketing cost and margin is Rs. 1,005 per quintal. This results in a marketing efficiency of 305.39, which indicates that the marketing efforts in this channel are generating a high return on investment. In channel II, the consumer purchase price is higher at Rs. 4,100 per quintal, while the total marketing cost and margin is lower at Rs. 402 per quintal. This results in a marketing efficiency of 220.29, which is lower than channel I but still indicates that the marketing efforts are generating a positive return on investment. In channel III, the consumer purchase price is the highest at Rs. 4,300 per quintal, while the total marketing cost and margin is slightly higher than channel II at Rs. 454 per quintal. This results in a marketing efficiency of 216.92, which is slightly lower than channel II.

Table 1: Marketing efficiency of Sugarcane

Channel	Consumer purchase price (Rs/q)	Total Marketing cost &Margin (Rs/q)	Marketing efficiency
I	4,300	3311	1.29
II	4,100	2859	1.43
III	3,800	2359	1.61

The given data shows the consumer purchase price and total marketing margin for three different marketing channels for sugarcane. The marketing margin is the difference between the consumer purchase price and the cost of production, transportation, storage, and other costs incurred by the different players involved in the supply chain. In channel I, the consumer purchase price is Rs. 3,800 per quintal, but the total marketing margin is not provided in the given data. Therefore, we cannot determine the marketing margin for this channel. In channel II, the consumer purchase price is higher at Rs. 4,100 per quintal, and the total marketing margin is also provided at Rs. 402 per quintal. This indicates that the marketing margin in this channel is the difference between the consumer purchase price and the total marketing cost of Rs. 3,698 per quintal. This marketing margin can be used by the different players in the supply chain to cover their costs and generate a profit. In channel III, the consumer purchase price is the highest at Rs. 4,300 per quintal, and the marketing margin is not provided in the given data. Therefore, we cannot determine the marketing margin for this channel.

Table 2: Marketing Margin of Sugarcane

S. No	Channel	Marketing Margin of Sugar Rs/q
1	I	1000
2	II	800
3	III	500

Table 3: Market margin of market intermediaries involve in market of Sugarcane

S. No	Particulars	Amount (In Rs/t)
A	Marketing charges paid by producer-cum-processor	
1	Price received by cane producer	2966
2	Processing cost of Sugar	534
3	Cost of production of Sugar	3500
4	Sale price of producer	3800
5	Net price received by producer	300
B	Marketing charges paid by wholesaler	
1	Purchase price	4100
2	Marketing cost	202
3	Profit margin	134
4	Sale price	4502
C	Charges paid by retailer	
1	Purchase price	4300
2	Marketing cost	254
3	Profit margin	98.4
4	Sale price	4754
C	Consumers purchase price	4754
D	Producers share in consumer's rupee	

Conclusion

In conclusion, the study provides valuable insights into the marketing of Sugarcane in Krishna district and highlights the need for policy interventions to improve the marketing system's efficiency and farmers' income and promote sustainable agriculture. The study's findings and recommendations highlight the need for a multi-stakeholder approach involving farmers, government agencies, non-governmental organizations, and other private actors to develop a more efficient and transparent Sugarcane marketing system. Further research and analysis are also required to explore the feasibility and potential impact of these recommendations, especially in the context of changing market dynamics and consumer preferences. Ultimately, this study contributes to the existing literature on agricultural marketing and can serve as a valuable resource for scholars,

policymakers, and practitioners working in this field.

Reference

1. Shinde Namadev A. Economics of sugarcane based inter-cropping systems in raita taluk's (Agri.) Thesis submitted to the University of Agricultural Sciences, Dharwad. 2008.
2. Amit Kumar Dwivedi. An Empirical study on Gur jaggery) Industry. Maharashtra Sugar. 2010;8(2):51.
3. Murli P, Balakrishnan R. study on labour scarcity in sugar industries, Bhartiya Sugar. 2011;12(4):15s.
4. Rao IVYR, Babu GSK. An economic analysis of production and marketing of Jaggery in Andhra Pradesh. Indian Journal of Agricultural Marketing. 2012;26(2):54-63.
5. Pusappa KN. Economics of sugarcane cultivation in Andhra Pradesh. Ph.D. Thesis submitted to Andhra University, Visakhapatnam. 2013.
6. Shivnaikar M, Guledagudda SS, Prakash Mokashi. Economics of sugarcane cultivation under organic and inorganic farining in Bagalkot district of Karnataka International Journal of Commerce and Business Management. 2014. p. 84-87.
7. Teshu Kumar. Singh HL, Shubhash Kumar, Jwala, Sharad Sachan. Cost and return of sugarcane production at different size group of farms in district Meerut UP. Annals of Agri-bio research. 2014;19(3):561-565.
8. Krishnakant, Siddharth, Prakash, Tripathi, Meena A. Cost of cultivation of sugarcane crop in Meerut district of Uttar Pradesh, International Journal of Forestry and Crop Improvement. 2015;6(1):41-48.
9. Arti, Chandan Kumar Pal. Growth rate of area, production, productivity of sugarcane crop in Uttar Pradesh. Research Journal of Agricultural Sciences. 2017;8(2):423-425.
10. Rao IVYR. Estimating the economic efficiency in production and value chains of jaggery in Andhra Pradesh, India. Indian Journal of Agricultural Marketing. 2017;31(2):31-41.
11. Bhingardeve, Kolgane, Deshmukh. Opinion and suggestion of farmers in adoption of intercrop in sugarcane from Kolhapur district International Journal of trend in Scientific Research and Development. 2018.
12. Geetha P, Tayde AS, Chandrashekher, Selven Kumar. Agronomic response weed smoothing efficiency and economic feasibility of sugarcane and legume intercropping system in tropical India. Society for Sugar Research and Promotion. 2018. p. 018-0689.
13. Priyanka Upreti, Alka Singh, Jha GK, Nithyashre ML. An economic analysis of price behavior, efficiency and market integration of sugar in India. Indian Journals. 2017. p. 54-58.
14. Vahid Jamadar, Arbaz Sawar, Hemant Pol, Niraj Deshpandey, Sandeep Sawant, Vishnu Patil. Sugar cane cutting machine. International Advanced Research; c2017.