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RESEARCH PAPER

Market bottlenecks in soybean agribusiness: A stakeholder analysis in Karnataka

C. DARSHAN* AND N. M. KERUR

Department of Agribusiness Management, College of Agriculture, Dharwad
University of Agricultural Sciences, Dharwad - 580 005, India
*E-mail: darshanmalnad159@gmail.com

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Abstract: Soybean (*Glycine max* L.) is an important global crop, valued for its role as a source of edible oil, vegetable protein and as a raw material in various industrial products. This study investigates the major marketing constraints faced by different stakeholders, *viz*., farmers, wholesalers, processors and commission agents-cum-traders in Belagavi district of Karnataka, using primary data. Bailhongal and Hukkeri taluks, along with their corresponding markets, were purposively selected due to their prominence in soybean production and trade. Farmers were chosen through a multistage sampling technique, while market intermediaries were selected randomly. The study applies Garrett's ranking method to identify and prioritize marketing bottlenecks. Among farmers, malpractices in weighing and unauthorized deductions emerged as the most significant challenge. Wholesalers and commission agents-cum-traders reported unauthorized deductions and wastage during marketing processes as the primary constraints, affecting profitability and financial stability. For soybean processors, the limited availability of raw material during the off-season was the chief concern, impacting production continuity. Improving quality-oriented production, transport and storage facilities, along with the formation of collective farmer groups such as Commodity Interest Groups or FPOs, can help mitigate these constraints and enhance overall marketing efficiency in the soybean marketing system.

Key words: Commodity interest groups, Garrett's ranking method, FPOs, Multistage sampling technique, Marketing efficiency

Introduction

Agriculture remains the backbone of India's economy, providing livelihood to over half of the nation's population and contributing nearly 17.7 per cent to the Gross Domestic Product. Among the key crops, soybean (*Glycine max* L.), also known as soya or soja bean, holds immense global economic importance as an edible seed. It serves as a crucial source of vegetable protein for millions of people and forms an essential input in numerous industrial and chemical products. Being a leguminous crop, soybean functions effectively as an oilseed, although its utility in food preparation and digestion is somewhat limited due to the presence of trypsin inhibitors. The crop's adaptability across a wide range of agro-climatic zones has contributed significantly to its growing prominence.

Often referred to as the "wonder crop" and "Manchurian bean" (Lavanya *et al.*, 2021), soybean is renowned for its remarkable versatility and exceptional nutritional profile. It has diverse applications, particularly in the production of vegetable oil and margarine. Soybean oil is extensively used in pure form for salad dressings and in the manufacture of mayonnaise. This sector provides employment opportunities to approximately six million people across India. The outlook for soybean cultivation in the country has shown encouraging trends, with consistent growth and expansion over the years. In recent decades, soybean production in India has witnessed a sharp increase, outpacing most other oilseed crops except groundnut. Today, India ranks among the leading producers and consumers of soybeans globally. Despite the crop's commercial introduction only in 1971-72, India currently produces around 125.81 lakh tonnes annually from 118.31 lakh hectares, with an average productivity of 1063.39 kilograms per hectare. Madhya Pradesh dominates soybean cultivation, accounting for about 53 percent of the total acreage. In Karnataka, soybean occupies an area of 4.37 lakh hectares, yielding 4.26 lakh tonnes with a productivity level of 973 kilograms per hectare during 2023-24 (Anon, 2024).

Agricultural marketing constitutes a crucial component of the agricultural economy, extending far beyond the realms of production and consumption. It serves as a catalyst for overall economic growth by connecting producers and consumers, ensuring price stability and enhancing value realization. Despite its importance, the marketing system often encounters numerous challenges that restrict its efficiency. In this context, the present study aims to examine the key constraints encountered by different stakeholders, *viz*., farmers, wholesalers, processor and commission agents cum traders in the marketing of soybean in Belagavi district of Karnataka.The findings will help quantify the economic losses associated with marketing constraints and provide valuable insights for developing targeted interventions to enhance marketing efficiency. Ultimately, the results can serve as a foundation for policymakers to design strategies that improve infrastructure, strengthen farmer organizations and promote transparent, equitable and sustainable marketing systems for soybean in the Belagavi district and beyond.

Objective

To unearth the constraints facedby the different stakeholders in marketing of soybean

Material and methods

Belagavi district was purposively chosen for the present study owing to its significant contribution to soybean cultivation in the state. Within the district, Bailhongal and Hukkeri taluks and corresponding markets were selected deliberately, as they represent the major soybean producing' areas and host important market centres for the crop. Primary data pertaining to marketing constraints were collected from selected farmers, processor and market intermediaries, *viz*., wholesalers and commission agents-cum-traders. A multistage sampling technique was adopted for farmer selection. From six randomly chosen villages (three from each selected taluks) 10 each farmers were randomly selected, making up a total of 60 farmer respondents. Additionally, 10 wholesalers and 10 commission agents-cum-traders were randomly selected from each market, resulting in a total of 40 market intermediaries. One soybean processor from Dharwad, who was considered as the final consumer of raw soybean (ADM Agro Industries) was purposively selected, as it is the prominent soybean processing plant in the Dharwad-Belagavi region. To examine the constraints faced by different stakeholders in soybean marketing, Garrett's Ranking Technique was employed. Under this method, respondents were requested to rank the identified problems and the assigned ranks were subsequently converted into scores using a following formula for analysis.

$$\text{Per cent position} = \frac{100\,(R_{ij}-0.5)}{N_j}$$

where,

Rij = Rank given to i^{th} item by j^{th} respondent

Nj = Number of items ranked by the j^{th} individual.

To assess the relative importance of each constraint, the individual scores provided by respondents were aggregated and the average score for each problem was computed. The issue with the highest mean score was considered the most significant and was assigned the top rank, while the remaining problems were ranked in descending order based on their respective mean scores.

Table 1. Constraints faced by farmers in marketing of soybean (n=60)

Constraints	Garrett Score	Garrett Mean	Rank
Malpractices in weighing and unauthorised deductions	4488	74.8	I
More exploitation by intermediaries	4314	71.9	II
High transport cost and poor transport facilities	3978	66.3	III
Lack of storage facilities and high storage cost	3396	56.6	IV
More Price fluctuations	3264	54.4	V
High commission charges	2364	39.4	VI
Complexity of payment and delay in payments	2316	38.6	VII
Markets are located at distant places	2154	35.9	VIII
Lack of proper method of sale	1914	31.9	IX
Lack of market information	1632	27.2	X

Results and discussion

Table 1 depicts the major marketing constraints faced by soybean farmers in Belagavi district, based on responses from 60 farmers analyzed using Garrett's ranking technique. The results revealed that the foremost challenge was malpractices in weighing and unauthorized deductions with the Garrett mean score of 74.8 indicating farmers' concerns over unfair transactions and financial losses. The second major constraint identified was exploitation by intermediaries with the Garrett mean score of 71.9, which can also be noticed in Fig. 1, suggesting that farmers often receive lower prices due to middlemen's dominance in the marketing chain. The third key issue was high transportation costs and inadequate transport facilities with the Garrett mean score of 66.3, which significantly increase marketing expenses and reduce profit margins. These top three constraints highlight the urgent need for transparent weighing systems, regulated market practices and improved transport infrastructure to enhance soybean marketing efficiency in the region. Lack of proper storage facilities, higher price fluctuations and many other bottle necks were faced by farmers in marketing of soybean. Comparable findings were reported by Basavaraj and Kunnal (2002), who also identified similar challenges encountered by soybean cultivators in the Belagavi district.

Table 2 highlights the key marketing constraints faced by soybean wholesalers, based on a survey of 20 respondents using Garrett's ranking method. The primary challenge identified

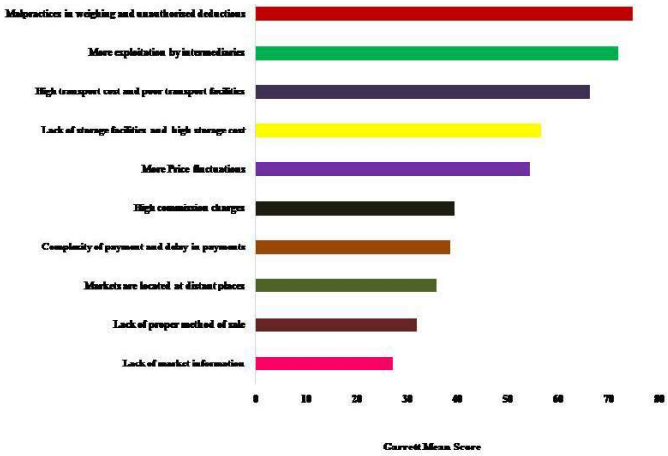

Fig 1. Constraints faced by farmers in soybean marketing

Table 2. Constraints faced by wholesalers in marketing of soybean (n=20)

Constraints	Garrett Score	Garrett Mean	Rank
Unauthorised deductions	1494	74.7	I
Difficulty in selling at right time	1434	71.7	II
High level of mal practices in weighment due to wastage of the produce at various marketing process	308	65.4	III
Lack of capital availability	1096	54.8	IV
Low profit margin	1048	52.4	V
High price fluctuation	756	37.8	VI
Issues in selling the produce on credit basis	704	35.2	VII

Table 3. Constraints faced by commission agents cum traders in marketing of soybean (n=20)

Constraints	Garrett Score	Garrett Mean	Rank
Unauthorised deductions	1165	58.25	I
Difficulty in selling at right time	1067	53.35	II
High level of mal practices in weighment due to wastage of the produce at various marketing process	1063	53.15	III
Lack of capital availability	1039	51.95	IV
Low profit margin	1021	51.05	V
High price fluctuation	989	49.45	VI
Lack of storage facilities	936	46.8	VII
Issues in selling the produce on credit basis	902	45.1	VIII
Lack of market information	838	41.9	IX

was unauthorized deductions during transactions with the Garrett mean score of 74.8, reflecting concerns over reduced profitability. The second major constraint was the difficulty in selling produce at the right time with the Garrett mean score of 71.7, indicating that mistimed sales can lead to losses. The third significant issue was malpractices in weighment and wastage during marketing processes with the Garrett mean score of 65.4, which affect fairness and efficiency in trade, which was also highlighted by Manohar and Naik (2023) in their study. These top constraints emphasize the need for transparent transactions, timely market access and proper handling practices to improve the marketing conditions for soybean wholesalers. Lack of capital availability, lower margins, higher price fluctuations and many other bottlenecks were faced by wholesalers in marketing of soybean.

Table 3 summarizes the main marketing constraints faced by commission agents-cum-traders of soybean, based on a survey of 20 respondents analyzed using Garrett's ranking method. The most critical constraint identified was unauthorized deductions, with a Garrett mean score of 58.25, which could negatively impact their profitability and financial stability. The second major challenge was difficulty in selling the produce at the right time with the Garrett mean score of 53.35, highlighting the importance of timely sales to avoid potential losses. The third key issue was malpractices in weighment with the Garrett mean score of 53.15, indicating concerns over accuracy and fairness in transactions. Other challenges included limited capital, low profit margins, price fluctuations, inadequate storage, credit sale issues and insufficient market information. These findings suggest that addressing the top constraints *viz*., deductions, timing of sales and fair weighing practices could improve the efficiency and profitability of soybean marketing for commission agents. Comparable observations were also reported by Haruna (2012) in a study on the tomato value chain, which examined similar marketing constraints.

Table 4 outlines the major constraints encountered by soybean processors in marketing soybean, based on a survey of the selected respondent. The primary constraint identified

Table 4. Constraints faced by soybean processor in marketing of soybean

Constraints	Garrett Score	Rank
Non availability of required quantity of raw material during off season	77	I
Non availability of required qualitative raw material	63	II
Lack of labour availability	54	III
Complexity of payment and delay in payments	46	IV
Issues in selling the produce on credit basis	37	V
Lack of storage facilities	23	VI

was the non-availability of the required quantity of raw material during the off-season, with a Garrett score of 77, indicating difficulties in sourcing sufficient soybean when supply is limited, disrupt production and operations. The second key challenge was the non-availability of raw material of the desired quality with the Garrett score of 63, suggesting that obtaining soybean meeting quality standards is a concern, potentially affecting the quality of processed products. The third major issue was insufficient labour availability, which was also highlighted by Jamanal and Murthy (2024) in their study, with a Garrett score of 54. Other constraints included delays and complexity in payments, difficulties in selling on a credit basis and limited storage facilities which was also pointed out by Yadawad *et al* (2022). in their study on marketing of improved variety (CSV 29R) sorghum.

Overall, the most pressing challenges for soybean processors are related to the availability of adequate and quality raw material and labour shortages. Addressing these issues could substantially enhance the efficiency and effectiveness of soybean marketing for processors. Similar findings were reported by Thomas *et al.* (2015) in a study on green chilli marketing in Kaushambi district, Uttar Pradesh.

Conclusion

The identified marketing bottlenecks have important implications for shaping future agricultural policies and strategies in the region. Soybean, often called the **"wonder crop"**, is valued for its versatility and high nutritional content. Among farmers, the most critical challenge is malpractices in weighing and unauthorized deductions from their produce. For wholesalers and commission agents-cum-traders, the primary concern is unauthorized high deductions resulting from wastage during various marketing processes, which can negatively impact profitability and financial stability.

In the case of soybean processors, the main constraint is the insufficient availability of raw material during the off-season, affecting production continuity. Addressing these challenges could be facilitated by ensuring quality-focused production and by improving transportation and storage infrastructure. Additionally, organizing farmers into collective groups such as Farmer Interest Groups (FIGs), Commodity Interest Groups (CIGs) or federating them as Farmer Producer Organizations (FPOs) can help reduce unauthorized deductions and enhance overall efficiency in soybean marketing.

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