

A Study on Different Constraints in Red Chilli Value Chain and Suggestions

Janga Allaiah, K S R Paul, V Sitarambabu and K N Sreenivasulu

Department of Agribusiness Management, Institute of Agribusiness Management,
S.V. Agricultural College, Tirupati, ANGRAU

ABSTRACT

Agrarians (farmers) in India facing challenges due to intermediaries in the value chain of red chilli. Intermediaries are individuals or groups that act as middlemen between farmers and end consumers. The investigation was undertaken to isolate the constraints in red chilli value chain in Palnadu district of Andhra Pradesh state using a sample size of 120 respondents. The findings of Garrett ranking analysis revealed that farmers encounter challenges related to pest disease attacks, inadequate rainfall, high input and labor costs and lack of credit facilities. Fluctuations in prices, delayed payments and product quality are significant issues during marketing. Exporters were facing the obstacles like high freight charges and stringent import norms. Processors dealt with high working capital requirements, electricity charges, and price fluctuations. Wholesalers/retailers were hindered by the lack of storage facilities, quality concerns, late payments and transportation costs.

Chilli (*Capsicum annum L.*) comes under the family *Solanaceae*. Chilli is known as the “Universal spice of India”. It is one of the most valuable commercial crops grown in India. Chilli is native to South America and is now grown in all tropical and subtropical nations, including India. Red chillies are known for their therapeutic properties, stimulating the heart and respiratory systems and acting as a diuretic. Red chillies contain beneficial nutrients such as riboflavin (vitamin B-2), niacin (vitamin B-3), magnesium, potassium and various phenolic or antioxidant compounds. Chillies are high in vitamins A and C, low in salt and cholesterol and a good source of potassium, folic acid and vitamin E. The significant chilli cultivating states in India are Andhra Pradesh, Karnataka, Maharashtra, Orissa, Tamil Nadu and Madhya Pradesh (Balaji *et al.*, 2018).

The chilli prices both domestically and internationally are influenced by Guntur Chilli Yard, the largest chilli market in Asia. Andhra Pradesh’s Guntur district contributes 15% of total chilli production in India and the whole state contributes 40%. The principal chilli-growing regions in Andhra Pradesh are Guntur, Prakasam, Kurnool, and Krishna. Different varieties of red chillies are grown

to suit various culinary preferences and market demands. Some popular varieties include Byadgi, Guntur Sannam, Kashmiri and Teja (Gautam *et al.*, 2021).

The cultivation of red chillies in Palnadu district of Andhra Pradesh offers favourable conditions for diversification. The red chillies grown in this region are recognized for their mildness and exquisite flavour. The cultivation practices in Palnadu district focus on maintaining the right balance of mildness and acidity, resulting in red chillies with an exotic full-boiled taste and a fine aroma.

MATERIAL AND METHODS

The study was carried out in Palnadu district of Andhra Pradesh state, which was purposively chosen. In Andhra Pradesh state Palnadu is one of the major chilli growing areas hence project location was purposively chosen. The study used an ex-post facto research design because the manifestations of the variables was presumed to have already happened and additional manipulation was not possible. To analyze the constraints faced by the various stakeholders in the value chain of Red chilli in Palnadu district, a sample of 120 respondents were chosen randomly. With the aid of a systematic interview schedule, primary data was collected.

With the help of Henry Garrett's Ranking Technique, rankings given by respondents were analysed. When respondents were asked to rank the specified constraints, the results of their ranking were converted into score values with the help of the following formula

$$\text{Percent position} = 100 \times \frac{(R_{ij} - 0.5)}{N_j}$$

Where,

R_{ij} = Rank given for i^{th} factor

by j^{th} individual

N_j = Number of factors ranked

by j^{th} individual

With the help of Garrett's Table, scores were created using the predicted percent position. The scores of each individual were then totalled for each constraint element, and the sum of the scores as well as the mean values of the scores were determined. It was decided that the constraint factor with the highest mean value was the most important one.

RESULTS AND DISCUSSION

Constraints faced during production of red chilli

The table 1 presents the constraints faced by farmers during the production of chilli, ranked based on mean scores. The most significant constraint identified was pest disease attack, securing the top rank with a mean score of 61.70. Inadequate rainfall was ranked second, followed closely by high input costs and high

labour costs at the third and fourth positions, respectively. Lack of credit facilities and labour scarcity were also identified as prominent challenges. On the other hand, non-availability of suitable variety, low production of variety and the absence of special schemes for production were ranked lower in severity. These findings provide valuable insights into the key constraints faced by farmers during chilli production, enabling stakeholders to prioritize and address them effectively for sustainable and efficient farming practices (Gohain and Singh, 2018 and Kumar *et al.*, 2019).

Constraints faced by the exporters in the red chilli value chain of Palnadu district

The Table 2 presents the constraints faced by exporters in the chilli value chain, ranked based on mean scores. High freight charges emerged as the most significant constraint, securing the top rank with a mean score of 60.4. Stringent norms imposed by importing countries followed closely behind, ranked second. High chemical residues in the produce were identified as the third major challenge. The heavy documentation process and poor support from government agencies were also recognized as notable obstacles. Inability to meet certification standards and poor logistics at shipyards and airports were relatively lower-ranking concerns. These findings emphasize the challenges faced by exporters in terms of transportation costs, compliance with import regulations, and maintaining product quality. Addressing these constraints and streamlining logistics and government support can contribute to improving the overall export process in the chilli value chain (Shennewad and Shelke, 2013 and Prabhavathi *et al.*, 2013).

Table: 1 Constraints faced by the farmers during production of red chilli

S.No	Problems Faced	Mean Score	Rank
1	Pest Disease Attack	61.7	1
2	Inadequate Rain Fall	58.72	2
3	High Input Cost	57.72	3
4	High Labour Cost	56.28	4
5	Lack of Credit Facilities	51.18	5
6	Labour Scarcity	48.28	6
7	Non-Availability of Suitable Variety	25.53	7
8	Low Production of Variety	24.50	8
9	No Special Scheme for Production	19.70	9

Table: 2 Constraints faced by the exporters of red chilli value chain

S.No	Problems Faced	Mean Score	Rank
1	High freight charges	60.4	1
2	Stringent norms by importing countries	58.2	2
3	High chemical residues in produce	51.2	3
4	Heavy documentation process	36	4
5	Poor support from government agencies	32	5
6	Unable to meet certification standards	28.5	6
7	Poor logistics at shipyard and airports	24.8	7

Table: 3 Constraints faced by the commission agents of red chilli value chain

S.No	Problems Faced	Mean Score	Rank
1	Price fluctuations	60.4	1
2	High transportation cost	58.2	2
3	Late payment	42.8	3
4	Non availability of chilli	37.4	4

Constraints faced by the commission agents in the red chilli value chain of Palnadu district.

The Table 4 presents the constraints faced by commission agents in the chilli value chain, ranked based on mean scores. Price fluctuations emerged as the most significant constraint, securing the top rank with a mean score of 60.4. High transportation costs followed closely behind, ranked second. Late payment was identified as the third major challenge, while non-availability of chilli was mentioned but lacked a mean score and rank. These findings highlight the difficulties faced by commission agents in dealing with price volatility, managing transportation costs and ensuring timely payments. The non-availability of chilli can also disrupt their operations. Addressing these constraints through effective price management strategies, optimizing transportation logistics and establishing mechanisms for prompt payments can help commission agents navigate the challenges in the chilli value chain and ensure smooth operations.

Constraints faced by the processors in the red chilli value chain of Palnadu district. the Table 4 presents the constraints faced by processors in the chilli value chain, ranked based on mean scores. The highest mean score was given to the constraint of high working capital requirement, securing the top rank with a score of 58.2. High electricity charges ranked second with a mean score of 50.6, followed

by high price fluctuations at the third position with a score of 48.2. High quality variations were identified as the fourth major challenge with a mean score of 36.8. High transportation costs ranked fifth, while shortage of labor and non-availability of support from the government were ranked sixth and seventh, respectively. These findings shed light on the significant constraints faced by processors, including financial requirements, operational costs, and issues related to product quality and labor availability. Recognizing and addressing these challenges can support processors in improving their operational efficiency, managing costs, and maintaining consistent product quality in the chilli value chain.

Constraints faced by the whole seller/retailer in the red chilli value chain of Palnadu district Table 5 shows the average ranked constraints faced by wholesalers/retailers in the chili pepper value chain. The biggest limitation was lack of storage facilities, with an average score of 60.4. Poor quality followed with an average of 53.8. Late payment was identified as the third largest challenge, with an average score of 49.8. High transportation costs ranked fourth in terms of severity with an average score of 38.9. These results highlight significant challenges facing wholesalers and retailers, such as the need for proper warehousing, maintaining product quality, ensuring on-time payments and controlling transportation costs.

By addressing these constraints, processors can improve operational efficiency, ensure product quality and maintain sound business relationships in the chili pepper value chain.

Understanding and addressing these constraints can lead to sustainable and efficient

practices throughout red chilli value chain in Palnadu district. By focusing on key areas such as pest control, price stability, transportation, logistics and product quality, stakeholders can together overcome challenges and support the development of red chilli value chain in the study area.

Table: 4 Constraints faced by the processors of red chilli value chain

S.No	Problems Faced	Mean Score	Rank
1	High working capital requirement	58.2	1
2	High electricity charges	50.6	2
3	High price fluctuations	48.2	3
4	High Quality variations	36.8	4
5	High transportation cost	28	5
6	Shortage of labour	23.8	6
7	Non availability of support from government	18.6	7

Table: 5 Constraints faced by the whole seller/retailer of red chilli value chain

S.No	Problems	Mean Score	Rank
1	Lack of storage facility	60.4	1
2	Lack of quality	53.8	2
3	Late payment	49.8	3
4	High transportation cost	38.9	4

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