Constraint Analysis of Vegetable Production and Marketing in Darrang and Barpeta Districts of Assam, India

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ABSTRACT

India is the second largest vegetables producer in worls with production of 200.445 million tonnes during 2020-21. Assam is in the 11th position among all states of India in vegetable production. Production and marketing of vegetables faces various obstacles due to their seasonality, various factors of production, high degree of perishability. Major parts of production are sold by the farmers to middlemen or commission agents, who dominate the trade and earn huge profits. A large nos. of people in Assam are associated with vegetable farming as well as with trading and their lives and livelihoods are closely associated with this. A proper market system can give remunerative return to these lakhs of people associated with this trade, whereas, the venture is having lot of constraints in its production and marketing related activities. It is because, this study was undertaken to study the challenges faced in production and marketing of vegetables by the producers and market intermediaries in Darrang and Barpeta Districts of Assam, which two are the largest vegetable producing districts in Assam. The study also encompasses the wholesale markets of Darrang and Barpeta Road from where vegetables are marketed to Guwahati and thus the Guwahati wholesale market is also covered. The collected data were analyzed using Garrett's Ranking Technique. There are 25 constraints that has been stated by the 'farmers as producers' while giving their opinion in constraints that they are facing for marketing out of which 6 are in 'High' rank, 15 are in 'Medium' rank and 4 are in 'Low' rank. Similarly, while getting information from 'market intermediaries', there are 14 different constraints that has been mentioned by wholesaler, village trader and retailers, out of which 5 are in 'High' rank, 6 are in 'Medium' rank and 3 are in 'Low' rank. Absence of infrastructural facilities in market yard, lack of cold storage facilities, poor road connectivity coupled with increased cost of transportation brings lot of disadvantages to the market functionaries. Both farmers and market intermediaries are not getting adequate finance to meet their business investment. Frequent price fluctuation, presence of competitive market and absence of proper market intelligence system make the marketing process more complicated for the intermediaries.

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INTRODUCTION

India is now the second largest vegetables producer with 200.445 million tonnes next to China in 2020-21 (Horticultural Statistics at a Glance 2021, MoAFW, GoI). India rank 1st in okra, chili, pepper, onion and bean production while for tomato, potato, peas, cabbage and cauliflower its rank is 2nd (FAOSTAT 2022). As per National Horticulture Board data in 2019, Assam produces 40.60 lakh metric ton of vegetable whose position is 11th among all the states of Assam.

The economy of Assam is mainly agrarian in nature and horticultural sector constituted with the fruits, vegetables and spices sectors are important part of agricultural economy. Many of the small and marginal farmers are involved in production of vegetables apart from series of market players starting from wholesale market to retail market and the life and livelihoods of these people are associated with vegetable sector either in production or in marketing areas. The vendors of wholesale market in Guwahati can be termed as entrepreneurs as they have to undertake high amount of risk because vegetables are highly perishable items (Ahmed and Sharma 2020). The peculiarities of vegetable products result in a very complex marketing mechanism and in this process, farmers are exploited. An efficient vegetable market along with efficient marketing system is crucial to support farmers and earn reasonable returns. Marketing of vegetables faces various obstacles due to their bulky nature, seasonality and high degree of perishability. Major parts of production are sold by the farmers to middlemen or commission agents, who dominate the trade and earn huge profits. It is because of this, the current study was undertaken in 2022-23 to study the challenges faced in marketing of vegetables by the producers and market intermediaries in Darrang and Barpeta Districts of Assam which two are the largest vegetables producing districts in Assam. The study also covers the market intermediaries of wholesale markets in Guwahati, as majority of the vegetables from Darrang and Barpeta are marketed through Guwahati wholesale market.

MATERIALS AND METHODS

The present study is carried out during 2022-23 among the vegetable growers and market intermediaries to understand the constraint faced by them in production of marketing of vegetables in the Barpeta and Darrang District of Assam which are the two biggest contributors of vegetables in Assam. Yadav (2012) reported that Districts of Barpeta, Darrang and Kamrup receive maximum arrivals of vegetables in Assam among all and Kharupetia regulated market of Darrang District is major market for arrivals of vegetables followed by Barpeta municipality market. For the current study, the information was collected from 480 farmers from 80 villages of the two Districts i.e. Darrang and Barpeta Districts. Apart from this, for collecting information from market intermediaries, altogether 140 respondents were interacted covering Balugaon of Kharupetia Primary Market Yard (PMY), Besimari Sub Market Yard (SMY), Koupati Sub Market yard (SMY) and Dalgaon Vegetable Market in Darrang District and Howly Primary Market Yard (PMY), Barpeta Road Sub- Market Yard (SMY), Kalgachia Sub- Market Yard (SMY) and Sarbhog Sub Market Yard (SMY) in Barpeta Districts. The 140 respondent is consisting of 40 primary wholesalers from 8 market areas of the 2 districts; 20 wholesalers from 2 market areas of Guwahati, 32 village traders from 16 clusters of villages of the 2 districts and 48 retailers from different markets.

The study is conducted based on primary data, which was gathered through the personal interview method with the help of a well-structured and pre-tested schedule. The collected data were analyzed using Garrett's ranking technique. Garrett's ranking technique was employed to find out and rank the major constraints faced by the respondents. It provides the change of orders of constraints into numerical scores. The benefit of this technique is that the constraints are arranged based on their importance from the point of view of respondents. Hence, the same number of respondents on more constraints may have been given different ranks. Garrett's formula for converting ranks into percent was given by,

Percent position = 100 (Rij - 0.5) / Nj
Where Rij = Rank given for the ith factor by the jth respondent
Nj = A number of factors ranked by the jth respondent

The percent position of each rank was then converted into scores by using the Garrett table given by

Garrett and Woodworth (1969). For each factor, the individual scores were added together and divided by the total number of respondents for whom scores were added. These mean scores for all the factors were arranged in descending order, ranks were given, and the most important factors were identified. Finally, these problems were clubbed into high, medium and low severity categories as follow (Chauhan and Mehta 2002).

Mean $\overline{(X)}$ plus standard error and above: High
Mean $\overline{(X)}$ plus/ minus standard error: Medium
Mean $\overline{(X)}$ minus standard error: Low

RESULTS AND DISCUSSION

There are 25 constraints that has been stated by the 'farmers as producers' while giving their opinion in constraints that they are facing for marketing as given in Table1. While categorizing the constraints, it is found that production related constraints have scored in 'low' category than that of marketing related aspects. This means, farmers are facing more challenges in marketing compared to production related aspects. There are 6 major constraints that are mentioned by the farmers in order of severity viz. inadequate facilities in market yard, lack of adequate cold storage facilities, higher cost of transportation, lack of adequate finance, high price fluctuation and competitive market due to excess supply in peak season as per their average scores of 84.65, 83.60, 81.33, 80.21, 76.44 and 75.99 respectively. The first two important challenges are related to lack of infrastructural facilities, which primarily is expected from Govt side by the respondents. The next immediate constraints are related to

Table 1. Ranking of factors affecting the marketing constraints of producers - Sellers of vegetables in Darrang and Barpeta Districts of Assam.

Sl. No.	Constraints	Garett score	Average	Rank	Level of severity
1	Inadequate facilities in market yard	40634	84.65	I	
2	Lack of adequate cold storage facilities	40126	83.60	II	
3	Higher cost of transportation	39038	81.33	III	
4	Lack of adequate finance	38503	80.21	IV	High
5	High price fluctuation	36691	76.44	V	
6	Competitive market due to excess supply in peak season	36477	75.99	VI	
7	High interest charge by money lender	35165	73.26	VII	
8	Damage during transit	34998	72.91	VIII	
9	Lack of support price and regulation	34621	72.13	IX	
10	Labor scarcity and high wage rate	32735	68.20	X	
11	Absence of market information system	25407	52.93	XI	
12	Misleading information on prevailing prices	25362	52.84	XII	
13	High marketing charge	25293	52.69	XIII	Medium
14	Unauthorised deduction	24901	51.88	XIV	
15	Inadequate transport facilities	23658	49.29	XV	
16	Damage on display during sale	22372	46.61	XVI	
17	Long distance to wholesale market	21609	45.02	XVII	
18	Lack of proper grading of marketed produce	20429	42.56	XVIII	
19	Lack of processing unit	20295	42.28	XIX	
20	Mal-weightment	19703	41.05	XX	
21	Improper market connecting roads from village	19478	40.58	XXI	
22	Unpredictable performance of hybrid seeds production	11702	24.38	XXII	Low
23	Superfluous middlemen	11063	23.05	XXIII	
24	High dependency on chemical fertilizers for crop production	10354	21.57	XXIV	
25	Damages due to unpredictable weather	9872	20.57	XXV	
	Total	660486			
	Mean	26419.44			
	Standard deviation	9922.50			
	Measurement of level of severity				
A	High = Mean + Standard error	36341.94			
B	Medium = Mean +/- Standard error	-			
C	Low = Mean - Standard error	16496.94			

higher cost of cultivation and marketing for which farmers need finances, which currently they are not getting and this leads to worsened situation when they do not get remunerative price because of high price fluctuation and competitive market. A standardized pricing policy together with minimum support price particularly at peak season is very important to protect farmer's investment in vegetable farming.

There are 15 different constraints that has been categorized into medium ranges having average value ranging from 40.58 to 73.26, which can be classified based on their nature into (a) Financial (high interest charge by money lender); (b)Transportation (damage during transit, inadequate transport facilities, long distance to wholesale market, improper market connecting roads from village); (c) Marketing Policy related issues (lack of support price and regulation, labor scarcity and high wage rate, absence of market information system, misleading information on prevailing prices, high marketing charge, unauthorized deduction); (d) Market Practice (damage on display during sale, lack of proper grading of marketed produce) and (e) Infrastructures related issues (lack of

processing unit, mal-weightment). These constraints have direct impact on the market performance and profitability of the producers. The other constraints mentioned by the producers are in 'low' category and mostly of production related issues.

While getting information from market intermediaries, there are 14 different constraints that has been mentioned by wholesaler, village trader and retailers as mentioned in Table 2.

It has been found that high transportation cost in carrying the commodities puts the wholesalers in difficult situation to earn profit in a competitive market and this has rightly quoted by the respondent as 'high' challenges with highest average score of 78.54. Further, lack of critical infrastructural facilities in market yard puts the market intermediaries in a difficult situation to work properly. This has opined by the respondent as 'inadequate facilities in market yard' and 'lack of cold storage facilities' which are the two immediate constraints given by respondents in order in 'High' category with average score of 78.40 and 78.37 respectively. This is relevant as the entire

Table 2. Ranking of factors affecting the marketing constraints of market functionaries of vegetables in Darrang and Barpeta Districts of Assam.

Sl. No.	Constraints	Total	Average	Rank	Level of severity
1	High transportation cost	10996	78.54	I	
2	Inadequate facilities in market Yard	10976	78.40	II	
3	Lack of cold storage facilities	10972	78.37	III	
4	Inadequate information on demand and supply	10964	78.31	IV	High
5	Lack of adequate market information/ intelligence	10962	78.30	V	
6	Unlawful charges during transportation at different check-gates	8692	62.09	VI	
7	Financial problem	8363	59.74	VII	
8	lack of proper grading specification	8286	59.19	VIII	Medium
9	Damage on display	7521	53.72	IX	
10	Labor scarcity and high wage rate	7513	53.66	X	
11	Damage on transit	7484	53.46	XI	
12	Irregular supply of produce	3677	26.26	XII	
13	lack of processing unit	3510	25.07	XIII	Low
14	Lack of packing materials and poor quality of materials	3139	22.42	XIV	
	Total	113055			
	Mean	8075.357			
	Standard deviation	2882.943			
	Measurement of level of severity				
A	High = Mean + Standard error	10958.3			
B	Medium = Mean +/- Standard error	-			
C	Low = Mean - Standard error	5192.414			

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business of the intermediaries mainly of wholesalers depends on the infrastructure availability of the market complex to ease their business operation. The wholesalers of both Barpeta Road and Kharupetia involves in sale of vegetables to different states of India as well as to neighbouring countries like Bhutan, Nepal, Bangladesh and thus an adequate market information system is very essential which is lacking as mentioned by the respondent with average score of 78.30. Top of it, inadequate information on demand and supply puts the wholesalers in difficult situation to make a proper marketing plan to sale their commodities in different parts of India and abroad and to source the produce from farmers and other market intermediaries.

There are 6 other constraints in 'medium' category which are almost same with the type of constraints opined by producers. Among all others, constraints of 'unlawful charges during transportation at different check-gates' is having the highest average score under 'medium' category. It has been informed by the respondent that they have to bear additional expenses during transit and because of this price of vegetables become high at end market. The other constraints like financial problem (average score 59.74), lack of proper grading specification (average score 59.19), damage on display (average score 53.72), labor scarcity & high wage rate (average score 53.66) and damage on transit (average score 53.46) are also some of the important constraints faced by the wholesalers and retailers which is hampering their profitability. Out of three constraints of 'low' category, 'irregular supply of produce' is found to be one noticeable point given by respondent. There are abundance of production and supply which is seen particularly in peak season, however, supply during off season period and in the cases when wholesalers and supplies have definite supply to be met within committed time, this type of constraints occur.

CONCLUSION

Understanding key challenges in vegetable value chain is very important to safeguard the interest of the stakeholders involved into the sub sector starting from farmers to all market intermediaries. After interacting with all stakeholder, this study reveals that absence of infrastructural facilities in market yard, lack of cold storage facilities, poor road connectivity coupled with increased cost of transportation brings lot of disadvantages to the market functionaries. Both farmers and market intermediaries are not getting adequate finance to meet their business investment. Frequent price fluctuation, presence of competitive market and absence of proper market intelligence system make the marketing process more complicated for the intermediaries. Support of MSP to farmers particularly in peak season, streamlining functioning of market yard, creation of more no of market yard, improving market intelligence, improving infrastructural facilities of market yard, adequate financing facilities to producer and market intermediaries may some of the remedial measures that may address the constraints faced by the farmers and market intermediaries. Adequate Govt interference, strong involvement of marketing board, modification of APMC Act to address the constraints areas will be of utmost important areas.

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