



IDENTIFY MARKETING CHANNELS AND PRICE SPREAD IN MARKETING OF PEARL MILLET IN RAJASTHAN

¹Mohit Sharma, ¹Dr. Hari Singh, ¹G.L. Meena, ¹L. Sharma ²N.L. Meena, ³H.L. Bairwa

¹M.Sc. student, ¹Associate professor, ¹Associate professor, ¹Associate professor, ²Associate professor, ³Associate professor

Department of Agricultural Economics and Management

Rajasthan College of Agriculture, MPUAT, Udaipur, Rajasthan, India

ABSTRACT: Millets have been gaining momentum as of multiple ecological, economic and health benefits. Rajasthan is the top producer of pearl millet possess a huge potential to become a millet hub of world. The marketing of pearl millet is an important aspect to understand the dynamics of income, the farmers generated and consumer behaviour toward this crop. This study has been undertaken to investigate the marketing channels of pearl millet across the selected districts of Rajasthan, estimating their price spread and market efficiency. The findings of study revealed that market was more efficient and sounder in Barmer district than Alwar district and Processing & value addition in pearl millet can bridge the price gap and will helpful in enhancing access of pearl millet to consumers market more efficiently.

Keywords: Marketing channels, Price spread, pearl millet, Rajasthan

INTRODUCTION

Food is meant to “provide a balance proportion of vital mineral, nutrients and calories that are the pre-requisite as basic needs of human body to be function in an efficient way. There has seen a continuous shifting pattern in both production and consumption pattern of people. Despite positive impacts of green revolution on India’s food security, it could not be successful in addressing malnutrition in children, and had led to increasing numbers of stunted growth and under development (prevalence of undernourished in the population stands at 16.3%, child stunting is at 35.5%, child wasting is at 19.3% and child mortality rate is 3.3%, Global hunger index-Report,2022). Food reached to the plates of millions of people in an affordable, accessible and convenient way but not as standards of nutritional index (the purpose of food is to sustain vital functioning of body). Noteworthy in India a large number of pregnant women’s, lactating mothers and adolescent girls has been suffering from anaemia (Anaemia is a major public health concern in India with 58.6% of children, 53.2% of non-pregnant women, and 50.4% of pregnant women being affected by the condition, ICMR 2023). In the 21century, climate changes, water scarcity, increasing world population and geopolitical conflicts lead to raising food prices and other socioeconomic impacts, that have been expected to generate a great threat to agriculture and food security worldwide, especially to the poorest and other vulnerable section of society that would be most impacted due to food shortage and limited affordability across the globe. These impacts pose a challenge to conventional production system, solely based on wheat and rice. There is a need to diversified cereals in both production and consumption aspects where pearl millet and other millets will be helpful to fight malnutrition and end hunger that are enshrined in our core commitments for SDG-2. Rajasthan being the top producer of pearl millet and possess highest area under production (56%), holds a huge potential in becoming a millet hub for the world. Nutritional superiority, climate resilient nature and tendency of low input requirements making this crop more

promising over other cereal crops especially in Rajasthan (more than 61% area is under arid and semi-arid category). It is full of nutritional index (high contents of Fe, Ca, Mg, and dietary fibres with low glycaemic index), needs low inputs and water requirement make this crop more promising over other cereals in arid and semi-arid tactic of Rajasthan. It is important in both ensuring food and nutritional security with climate resilience characteristics.

NEED OF THE STUDY

Both production and marketing of crop are the complementary aspects. Better marketing supplement with better production makes farming more remunerative to farmers. There have been various studies conducted in Rajasthan and others states too, mostly analyzed its production side. The studies revealed cost of production in different standards from time to time till recent. But there are very few studies in context of marketing side so it gave a new opportunity to find the significant outcomes. Being a nutritive and climate resilient crop, it has comparatively better economic returns & performance index than any other cereal crop. Millets had been designated as our traditionally staple food crops. That's importance and benefits have somehow fading with the pace of globalization and availability of diverse food crop. The future of foodgrain crops is now again shifting toward millets so more research and development of this outstanding crop in multiple prospects is the need of hour. This study will be helpful in understanding the dynamics of marketing aspect of pearl millet in Rajasthan.

RESEARCH METHODOLOGY

Sample: Two districts Alwar and Barmer along with corresponding APMCs markets were purposively selected as secured highest area and production of pearl millet for the year 2022-23. A sample of 50 market intermediaries was undertaken across the study area, 25 from each district comprising 5 from each category of producer, wholesalers, primary trader, Retailer, and processors.

Sources of data: The study was mainly based on primary data i.e., collected by personal interview of market intermediaries including producer and required secondary data on M.S.P. and other aspects have taken from AGMARKNET, and MoA&FW reports 2022-23.

Analytical tools

Marketing cost: Marketing cost was calculated by actual data collected from the market intermediaries. Cost of marketing comprised loading, unloading, transportation charges, weighing charges, commission charges, packaging charges, market fee etc, and calculated by using following formula.

$$C = C_f + C_{m1} + C_{m2} + C_{m3} + \dots + C_{mi}$$

Where,

C = Total cost of marketing of the commodity.

C_f = Cost paid by the producer from the time the produce leaves the farm till its selling.

C_{mi} = Cost incurred by the *i*th middleman in the process of buying and selling of pearl millet.

Marketing margin: The marketing margin represents the cost of all utility addition activities and functions done by marketing functionaries. This pricing covers the expenditures and earnings of middlemen executing marketing functions. The marketing margin is the difference between the price received by market intermediary and its purchase price with utility addition.

This amount was received by marketing intermediaries during the marketing process.

$$MT = \sum_{i=0}^n \frac{S_i - P_i}{Q_i}$$

Where,

MT = Total marketing margin

S_i = Sale value of pearl millet for *i*th firm

P_i = Purchase value of pearl millet paid by the *i*th firm

Q_i = Quantity of the pearl millet handled by *i*th firm

$i = 1, 2, \dots, n$ (number of firms involved in the marketing channel).

Marketable surplus

It is residual quantity of pearl millet (qtl) left with the farmer after meeting his family requirement, household consumption and other farm need etc.

Marketable surplus (qtl) = Total production - Total consumption

Marketed surplus

It was quantity of produce (qtl) that farmer actually sold in market, irrespective of his requirements for family consumption and other need.

Price spread

It refers to the difference between price paid by the consumer and price received by pearl millet farmer for an equivalent quantity of produce. This price spread consists of marketing costs and market margins of the intermediaries. It gives idea about relative efficiency of various marketing systems and channels.

Price spread = Consumer price – price received by farmer

$$P_s = C_f - P_f$$

Where,

P_s = Price spread

C_f = Consumers price

P_f = Price received by farmer

Producers share in consumer's rupee

It is the ratio of net price received by farmer to the price paid by consumer. It was estimated as:

$$P = \frac{\text{Net price received by producer}}{\text{Price paid by consumer}} \times 100$$

Market efficiency (Acharya method)

output

$E = \frac{\text{output}}{\text{Input}}$

Input

Where,

E = Marketing Efficiency,

O = Output of the marketing system (value added, that is, difference between consumer's price and producer's price) and I = Inputs used in the marketing process (marketing cost).

RESULTS AND DISCUSSION

4.1 Marketing channels: There are several marketing channels identified across the both districts among that only three were more prominent as they channelised about 95 per cent of the produce.

- Channel-I: Farmer – wholesaler – consumer
- Channel-II: Farmer – wholesaler - Retailer – Consumer
- Channel-III: Farmer – Primary trader – Processor – Consumer

District wise analysis found that in Alwar district farmers used all three channels for sold his produce. Among that channel-I conveyed 38.51 per cent, channel-II 51.67 per cent (largest share) and channel-III 5.58 per cent. While in case of Barmer district farmers used only two channels out of which channel-I used for conveying 56.92 per cent (largest share) and channel-II for conveying 26.15 per cent of produce.

4.2 Marketing cost, Marketing margin and price spread:

- The price spread in channel-I was found more in Alwar district than Barmer. In case of Alwar district the total marketing cost incurred in channel-I was 7.48 per cent, market margin was 9.74 per cent and price spread was 17.22 per cent. In case of Barmer district in channel-I the total marketing cost incurred was 6.17 per cent, marketing margin was 4.84 per cent and price spread was 11.01 per cent.
- The price spread in channel-II was found more in Alwar district than Barmer. In case of Alwar district the total marketing cost incurred was 9.63 per cent, marketing margin was 13.40 per cent and overall price spread was 23.03 per cent. In case of Barmer district total marketing cost was 7.78 per cent and marketing margin was 6.82 and overall price spread was 14.60 per cent.
- The marketing channel-III was found only in Alwar district. The total marketing cost incurred was 18.00 per cent, marketing margin was 26.35 per cent and overall price spread was 44.35 per cent.
- In channel-III the price spread was very high as compared to other channels due to processing of pearl millet and value addition that ultimately enhance its economic value and earn profit to concerned market intermediaries.

4.3 Market efficiency (Acharya method):

- In channel-I, net price received by farmer in Alwar district for per quintal of pearl millet was ₹1906.20 (80.47%), while in Barmer district was ₹ 2098.58 (88.99%) with market efficiency of 4.67 and 8.08 respectively. This indicates that in Barmer district farmers get much better price for the produce and market is sound & more efficient.
- In channel-II, net price received by farmer in Alwar district for pearl quintal of pearl millet was ₹ 1906.20 (74.82%), while in Barmer district was ₹ 2098.58 (85.40%) with market efficiency of 3.25 and 5.84 indicating that in channel-II farmers in Barmer district got much better price and sound market.
- In channel-III, net price received by farmer in Alwar district was ₹ 1979.03 (55.66%) with market efficiency of 1.25.
- The market channel-III was prevailed only in Alwar district (not found majorly in Barmer district). Its market efficiency was lowest i.e., 1.25 yet was good for farmers toward fetching more price than other two channels in Alwar district. This highlights the importance of processing for pearl millet in the perspective of farmers and millet-based food industries holding opportunities for employment and value-added supply chain.

Tabl 1: Sale pattern of marketed surplus for pearl millet by respondent famers across districts, Rajasthan, 2022-23 (in qtl/farm)

Sr. No.	Particulars	Alwar	Barmer	Aggregated
	Marketed surplus	32.09 (100)	1.3 (100)	16.70 (100)
1	Channel-1	12.36 (38.51)	0.74 (56.92)	6.55 (39.22)
2	Channel-2	16.58 (51.67)	0.34 (26.15)	8.46 (50.65)
3	Channel-3	1.79 (5.58)	0.0	0.90 (5.39)
4	Others	1.36 (4.23)	0.22 (16.92)	0.69 (4.13)

(Figures in parentheses are the percentages to their respective totals)

Table 2: District wise marketing cost incurred by farmer in different channels (₹/qt)

Sr. No.	Particulars	Alwar			Barmer	
		Channel-1	Channel-2	Channel-3	Channel-1	Channel-2
1	Packing charge	13.60 (24.90)	13.60 (24.90)	13.60 (29.31)	14.78 (32.03)	14.78 (32.03)
2	Loading charge	16 (29.30)	16 (29.30)	16 (34.48)	13.58 (29.43)	13.58 (29.43)
3	Transportation charge	25 (45.79)	25 (45.79)	16.80 (36.20)	17.78 (38.53)	17.78 (38.53)
4	Commission charge	0	0	0	0	0
5	Market fee	0	0	0	0	0
	Total cost incurred by producer (₹)	54.60 (100)	54.60 (100)	46.40 (100)	46.14 (100)	46.14 (100)

(Figures in parentheses are the percentages to their respective totals)

Table 3: District wise marketing cost incurred by APMCs wholesaler (₹/qtl)

Sr. No.	Particulars	Alwar		Barmer	
		Channel-1	Channel-2	Channel-1	Channel-2
1	Labour (₹)	21.60 (17.61)	21.60 (17.61)	24.51 (24.70)	24.51 (24.70)
2	Grading charge & sorting (₹)	18.44 (15.03)	18.44 (15.03)	17.46 (17.59)	17.46 (17.59)
3	Shop rent (₹)	12.65 (10.31)	12.65 (10.31)	10.26 (10.33)	10.26 (10.33)
4	License charge (₹)	0.25 (0.20)	0.25 (0.20)	0.42 (0.42)	0.42 (0.42)
5	Shop maintenance charge (₹)	17.63 (14.37)	17.63 (14.37)	12.63 (12.72)	12.63 (12.72)
6	Transportation charges (₹)	48.32 (39.40)	48.32 (39.40)	23.27 (23.44)	23.27 (23.44)
7	Market fee (₹)	10.26 (8.36)	10.26 (8.36)	8.74 (8.80)	8.74 (8.80)
8	Storage (₹)	0.86 (0.70)	0.86 (0.70)	1.24 (1.25)	1.24 (1.25)
9	Losses (₹)	1.64 (1.34)	1.64 (1.34)	0.74 (0.74)	0.74 (0.74)
	Total (₹)	122.65	122.65	99.27	99.27

(Figures in parentheses are the percentages to their respective totals)

Table 4: District wise marketing cost incurred by retailer (₹/qtl)

Sr. No.	Particulars	Alwar	Barmer
		Channel-2	Channel-2
1	Shop rent (₹)	17.89 (26.28)	20.61 (45.00)

2	License fee (₹)	0.12 (0.17)	0.43 (4.55)
3	Shop maintenance (₹)	33.80 (49.65)	9.45 (20.63)
4	Transportation (₹)	0.12 (0.18)	0.74 (16.16)
5	Miscellaneous (₹)	16.23 (23.84)	14.56 (31.80)
	Total (₹)	68.07 (100)	45.79 (100)

(Figures in parentheses are the percentages to their respective totals)

Table 5: Marketing cost incurred by Primary trader in Alwar district (₹/qtl)

Sr. No.	Alwar	
	Particulars	Channel-3
1	Labour	16.26 (10.63)
2	Weighing	3.40 (2.22)
3	Grading & sorting	26.80 (17.53)
4	Packaging charge	26 (17.00)
5	Facility maintenance	80.42 (52.60)
6	Total	152.88 (100)

(Figures in parentheses are the percentages to their respective totals)

Table 6: Marketing cost incurred by processor in Alwar district (₹/qt)

Sr. No.	Alwar	
	Particulars	Channel-3
1	Processing	286.12 (64.93)
2	Packing	34.36 (7.80)
3	Transportation	42.63 (9.68)
4	Storage	48.23 (10.94)
5	Tax	16.81 (3.81)
6	Rent	12.45 (2.82)
7	Total	440.6 (100)

(Figures in parentheses are the percentages to their respective totals)

Sr. No.	Particular	Alwar			Barmer	
		Channel-1	Channel-2	Channel-3	Channel-1	Channel-2
1.a	Gross price received by Farmer	1960.80 (82.78)	1960.80 (76.96)	2025.43 (56.96)	2144.72 (90.94)	2144.72 (87.28)
1.b	Expenses incurred by Farmer	54.60 (2.36)	54.60 (2.19)	46.40 (1.30)	46.14 (1.96)	46.14 (1.88)
1.c	Net price received by farmer (Producer share in consumer rupee)	1906.2 (80.47)	1906.2 (74.82)	1979.03 (55.66)	2098.58 (88.99)	2098.58 (85.40)
2.a	Price paid by primary trader	-	-	2025.43 (56.96)	-	-
2.b	Expenses incurred by primary trader	-	-	152.88 (4.30)	-	-
2.c	Margin of primary trader	-	-	176.43 (4.96)	-	-
3.a	Price paid by wholesaler	1960.80 (82.78)	1960.80 (76.97)	-	2144.72 (90.94)	2144.72 (87.28)
3.b	Expenses incurred by wholesaler	122.65 (5.18)	122.65 (4.76)	-	99.27 (4.21)	99.27 (4.04)
3.c	Margin of wholesaler	230.67 (9.74)	180.65 (7.02)	-	114.32 (4.85)	97.36 (3.96)
4.a	Price paid by retailer	-	2264.01 (88.86)	-	-	2341.35 (95.28)
4.b	Expenses incurred by retailer	-	68.04 (2.67)	-	-	45.79 (1.86)
4.c	Margin of retailer	-	160.80 (6.31)	-	-	70.19 (2.86)
5.a	Price paid by Processor	-	-	2354.55 (66.22)	-	-
5.b	Expenses incurred by processor	-	-	440.60	-	-
5.c	Margin of Processor	-	-	760.65 (21.39)	-	-
6	Price paid by consumer	2368.72 (100)	2547.75 (100)	3555.8 (100)	2358.31 (100)	2457.33 (100)
7	Total marketing cost	177.25 (7.48)	245.29 (9.63)	639.88 (18.0)	145.41 (6.17)	191.20 (7.78)
8	Total marketing margin	230.67 (9.74)	341.36 (13.40)	937.08 (26.35)	114.32 (4.84)	167.55 (6.82)
9	Price spread	407.92 (17.22)	586.65 (23.03)	1576.96 (44.35)	259.73 (11.01)	358.75 (14.60)
10	Market efficiency (Acharya method)	4.67	3.25	1.25	8.08	5.84

Table 7: Marketing cost, Marketing margin and price spread in all marketing channels of pearl millet

(Figures in parentheses are the percentages to their respective totals)

CONCLUSION

The study about marketing aspect of pearl millet revealed the facts that despite the provisions of MSP farmer did not get the remunerative price of their produce. Producer selling price were far lagging behind the MSP price. The market demands were not so high as lack of organized forward market linkages and consumer ignorance.

Improving Market Access: Developing better infrastructure and transportation networks can help farmers access larger markets and sell their produce at competitive prices.

Strengthening Market Linkages: Establishing efficient market linkages and information networks can empower farmers with better bargaining power and reduce dependency on intermediaries.

Government Support and Policies: Enhanced government support through subsidies, improved MSP procurement, and policies favouring millets can encourage farmers to continue cultivating pearl millet.

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