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Evaluating marketing efficiency of rosemary under different value chains in Garhwal Himalayas of Uttarakhand

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Abstract

The objectives of present investigation were to study the marketing efficiency and the value chain of Rosemary in Garhwal Himalayas of Uttarakhand. Mapping activity helped to identify links in the chain where exchanges are made. In value chain I, the price spread of Rosemary dry leaves and stems was high. The lowest cost for dry leaves and marketing margin for dry leaves and stems was in value chain II mainly due to direct selling of produce to retailers at pre-, during- and post- pandemic. Farmer's share in consumer's rupee was higher in value chain II due to less marketing cost and less intermediaries ranging from 9.16 to 11.63 percent for dry leaves and 7.44 to 9.52 percent for stems, at pre-, during- and post-pandemic, respectively with a higher index of marketing efficiency.

Keywords: Value chain, marketing efficiency, marketing margin, price spread, rosemary

Introduction

Medicinal and aromatic plants (MAPs) play an important and leading role in the development of sustainable human life around the world. It has been observed that plants are most important part of the environment same like blood which is the most important part of human body. Vegetation classified under the head 'Medicinal and Aromatic plants' have been vital in ensuring survival of human race. More than 85 percent of herbal medicines used in traditional health care systems are derived from the medicinal plants (Prasad and Bhattacharya, 2003; Phondani *et al.*, 2014; Phondani *et al.*, 2016) [12, 11, 10]. Cultivation of medicinal and aromatic plants are now gradually becoming an important avenue for additional income generation for Indian farmers, particularly those with small land holdings. These plants act as raw materials for various medicines, essential oils and oleoresins. Total global market of herbal products is estimated at \$ 85 billion. Asian countries occupy about 30 percent of the market share in the global herbal market (Singh and Kumar, 2021) [17]. India has rich heritage and long history on the use of MAPs as medicinal and cosmetics, health hygiene, fragrance and food supplements in improving the quality of life. India's plant diversity is one of the richest in the world. India has six systems of medicine namely Ayurveda, Siddha, Unani, Homeopathy, Sowa-Rigpa and Folk which are working on MAPs. India's herbal industry had a turnover of INR 20,000 crore approx. in 2014-15 besides, production of total 5,12,000 MT herbal raw drugs, valued around INR 7,000 crores (CAP, GoUK, 2019) [7].

Uttarakhand is known as 'Herbal State'. Medicinal plants products lead to rapid development of rural economy of the hilly districts of Uttarakhand, if market is captured in a strategic manner. The flora of Garhwal has been already extensively explored by several botanists (Gaur, 1999; Naithani, 1984-85; Bawa, 1995; Bhatt and Vashishta, 2007) [5, 9, 2, 3]. It comprises about 18,000 plants species (Rawat and Vashishta, 2011) [13] of which one is Rosemary (*Salvia Rosmarinus*), that belongs to family Lamiaceae. The word "Rosemary" is derived from Latin *ros* meaning dew and *marinus* meaning sea, literally meaning dew of the sea (Room, 1988) [15]. In hindi, Rosemary is called as 'Gulmehendi'. It is native to the Mediterranean region. The commercial part of Rosemary is leaves and flowering tops. It can be crowned as the queen of herbs.

The study was based on the primary data which was collected from a sample of Rosemary growers, the market intermediaries *i.e.*, Contractors, Processors, Wholesalers, Retailers and Consumers in Garhwal Himalayas of Uttarakhand. The study will be helpful for studying the variability of value chain actors in term of production and marketing.

It will help to reconcile the difference between homegrown and domestic market. Moreover, boosting the value contribution of every stage of the value chain and recognizing the key factors that can diminish fluctuations in the Rosemary supply chain. Hence, the central goal of the research was to examine the Rosemary value chain in Garhwal Himalayas.

Methodology

Descriptive research design was adopted for smooth sailing of all research operations by accumulating the information about different intermediaries. In the present investigation, multi-stage stratified sampling technique was used for the selection of *pattis* and the farmers of Tehri Garhwal district of Garhwal Himalayas as the initial selection was on the basis of area of cultivation under MAPs. Based on the Rosemary cultivation in the second stage four (4) *pattis* i.e., Dharkoti (Dhar Payakoti), Dung Badiyar, Kunjani and Saklana *pattis* of Tehri Garhwal district was selected.

Sample farmers were selected on the basis of convenience and judgment based on the area and population from each *patti*, with a total of seventy (70) farmers. The farmers were contacted individually, telephonic conversations, group meetings and WhatsApp for collection of details on cultivation, marketing, post-cultivation activities, value chain of MAPs etc. with the help of a well-structured and detailed questionnaire. The intermediaries involved in value chain of MAPs namely contractors, wholesalers, processors and retailers were selected for the study on the basis of their MAPs revenue turnover from the area under study.

The objectives of present investigation were to study the marketing efficiency and the value chain of Rosemary in Garhwal Himalayas of Uttarakhand. For that purpose, a sample of 70 farmers, 10 contractors, 3 each of processors and wholesalers and 5 retailers were selected of Garhwal Himalayas. In addition, consumers were selected through convenience sampling, on the basis of their satisfaction and opinion about the Rosemary products. Thus, a total of 91 respondents were included in the sample survey.

Price Structure and Cost Analysis

Price Spread

Relevant information was calculated from the intermediaries viz. farmers, contractors, wholesalers, processors, retailers and consumers in the Rosemary value chain. In the process of marketing of Rosemary products, the difference between retail price paid by the consumer and that received by the grower was defined as price spread. Profits of different intermediaries engage in moving the produce from the initial point of production till it reached the ultimate consumer was documented.

Marketing Margin

The margin of market intermediaries includes profits and returns, which is due from handling and storage. Following formula was adopted to analyse the marketing margins.

$$MM_i = P_{mi} - (P_p + M_{ci})$$

Where,

MM_i: Marketing margins of the ith middleman

P_{mi}: The selling price of the ith middleman

P_p: Purchasing price

M_{ci}: Marketing cost of the ith middleman

Farmer's Share in Consumer's Rupee

This refers to the farmer's net price to the retail price of the produce expressed in percentage. Following formula was adopted to determine farmer's share in consumer's rupee.

$$F_s = (F_p / C_p) \times 100$$

Where,

F_s: Farmer's share in consumer's rupee (percentage)

F_p: Price received by the farmer (₹/unit)

C_p: Price paid by the consumer (₹/unit)

Marketing Efficiency

The most commonly used measures are conventional output to input ratio (conventional approach), Shepherd's ratio of price of goods marketed to the cost of marketing (Shepherd, 2003) and Acharya's modified marketing efficiency formula (Acharya and Agarwal, 2004) [1].

Conventional method

$$ME = (C_p - F_p) / M_c$$

Where,

ME: Marketing Efficiency

C_p: Price paid by the consumer (₹/unit)

F_p: Price received by the farmer (₹/unit)

M_c: Total marketing cost

Shepherd's approach

$$ME = C_p / M_c$$

Where,

ME: Marketing Efficiency

C_p: Price paid by the consumer (₹/unit)

M_c: Total marketing cost

Acharya's approach

$$ME = C_p / (M_c + MM)$$

Where,

ME: Marketing Efficiency

C_p: Price paid by the consumer (₹/unit)

M_c: Total marketing cost

MM: Total marketing margin

Results and Discussion

Mapping of the Rosemary Sub-Sector

The mapping activity pinpointed the junctures in the chain where goods are traded. The interconnections in the chain demonstrated the actions taken and roles assumed by the different players in the value chain. In this section, the various value chains implemented by the sample farmers are examined.

Traditional value chains and marketing efficiency of Rosemary

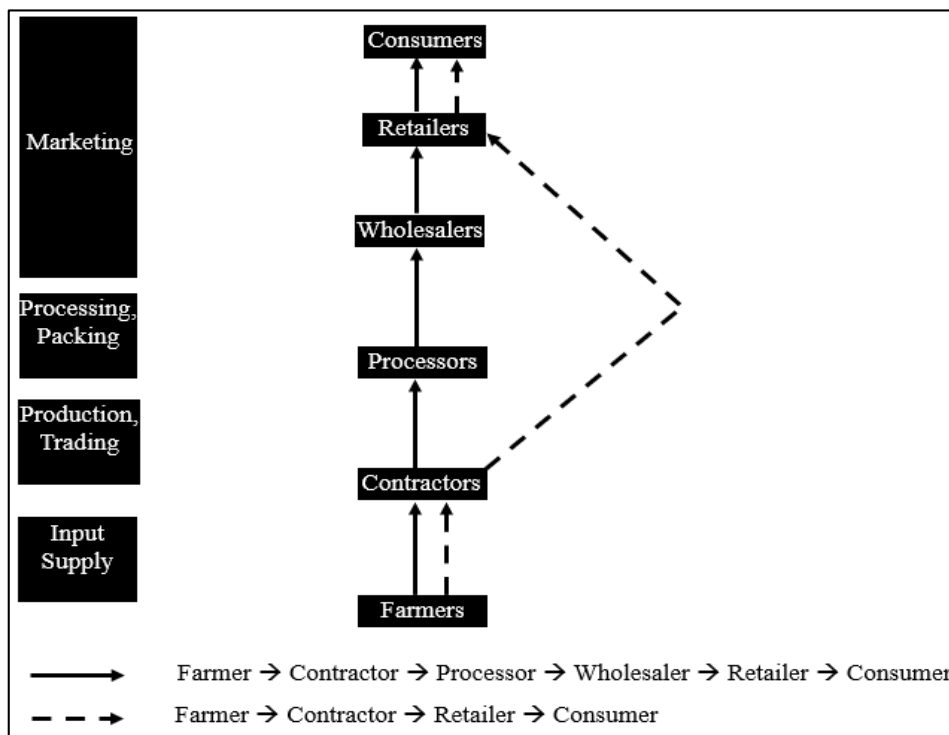


Fig 1: Overall traditional value chain of Rosemary in Tehri Garhwal district

The objective of this value chain is to enhance the consumption of the final products of Rosemary for the markets in Tehri Garhwal district. The chain is depicted in Fig. 1.

The sub sector map (Fig. 2 and 3) shows how Rosemary currently flows *via* several alternative value chain paths from farm to various end market consumers in Tehri Garhwal district. Two primary value chains operate within this district.

- In the I value chain, producers supply raw material of Rosemary to the contractors, who in turn deliver to the processors. Wholesalers approach the processors and in turn distribute it directly to retailers (Fig. 2).
- In the II value chain, producers sell raw material of Rosemary to the contractors, who distribute it directly to the retailers (Fig. 3).



Fig 2: Value chain I of Rosemary



Fig 3: Value chain II of Rosemary

Analysis of the economic viability of traditional value chains of Rosemary

Price structure and cost analysis

In value chain I, the price spread for produce of Rosemary dry leaves and stems through distribution channels of trade has been presented in Table 1. The table clearly shows that in value chain I, the farmers were getting ₹ 125, 203 and 295 per kg at pre-, during- and post-pandemic, respectively for their dry leaves and ₹ 2.75, 3.5 and 8.0 per kg at pre-, during- and

post-pandemic, respectively for Rosemary stems. In value chain II, as depicted in Table 1.1 the farmers were getting ₹ 175, 253 and 350 per kg at pre-, during- and post-pandemic, respectively for their dry leaves and ₹ 3.0, 3.75 and 8.5 per kg at pre-, during- and post-pandemic, respectively for Rosemary stems. The price spread is high in value chain I due to involvement of large number of intermediaries that increases the price spread.

Table 1: Price Structure and Cost Analysis of Rosemary Value Chains (Rs/kg)

Actors	Activities	Price Structure and Cost Analysis of Rosemary Value Chain I (Rs/kg)					
		Pre- pandemic		During- pandemic		Post- pandemic	
		Dry Leaves	Stems	Dry Leaves	Stems	Dry Leaves	Stems
Producer	Sale price	125.00	2.75	203.00	3.50	295.00	8.00
Contactor	Purchase price	125.00	2.75	203.00	3.50	295.00	8.00
	Sale price	212.50	5.00	320.00	5.53	478.00	12.96
Processor	Purchase price	212.50	5.00	320.00	5.53	478.00	12.96
	Sale price	850.00	20.00	1536.00	26.54	1912.00	51.84
Wholesaler	Purchase price	850.00	20.00	1536.00	26.54	1912.00	51.84
	Sale price	1190.00	28.00	2273.28	39.28	2638.56	71.54
Retailer	Purchase price	1190.00	28.00	2273.28	39.28	2638.56	71.54
	Sale price	2070.00	49.00	4205.00	73.00	4565.00	124.00
Consumer Price		2070.00	49.00	4205.00	73.00	4565.00	124.00
Price Spread		1945.00	46.25	4002.00	69.50	4270.00	116.00
Price Structure and Cost Analysis of Rosemary Value Chain II (Rs/kg)							
Producer	Sale price	175.00	3.00	253.00	3.75	350.00	8.50
Contactor	Purchase price	175.00	3.00	253.00	3.75	350.00	8.50
	Sale price	875.00	10.50	1138.50	10.50	1820.00	29.75
Retailer	Purchase price	875.00	10.50	1138.50	10.50	1820.00	29.75
	Sale price	1505.00	31.50	2208.69	50.40	3822.00	99.96
Consumer Price		1505.00	31.50	2208.69	50.40	3822.00	99.96
Price Spread		1330.00	28.50	1955.69	46.65	3472.00	91.46

Cost drivers along the Rosemary value chain

The Table 2 revealed that marketing cost was the least in value chain II for dry leaves with ₹ 27.25, 37.25 and 33.75 per kg at pre-, during- and post-pandemic, respectively, mainly due to direct selling of produce to retailers *i.e.*, due to less number of market intermediaries. However, value chain I was lower at ₹ 3.91, 4.32 and 6.75 per kg at pre-, during- and post-pandemic, respectively for stems.

Margin for intermediaries

The details of margin of intermediaries are given in Table 2. The marketing margin was lower in value chain II for dry leaves and stems.

Farmer's share in consumer's rupee

The farmer's share in consumer's rupee is another major of channel efficiency. From the Table 2, it could be concluded that the farmer's share in consumer's rupee was relatively high ranging from 9.16 to 11.63 percent for dry leaves and 7.44 to 9.52 percent for stems, respectively, at pre-, during-

and post-pandemic, respectively in value chain II as compared to value chain I. It was mainly due to direct procurement of raw material of Rosemary from farmers to retailers via contractors. It shows that, by avoiding one or more intermediaries and by minimizing the marketing cost farmers could gain considerably in terms of their share of the rupee paid by the end user.

Marketing efficiency

The results of the marketing efficiency are presented in Table 2. The analysis depicted that the marketing efficiency high in value chain II (1.13, 1.12 and 1.10 for dry leaves and 1.11, 1.08 and 1.09 for stems at pre-, during- and post-pandemic, respectively). This would imply that efficiency was higher when sold through lesser number of intermediaries.

Table 2 revealed that according to conventional method and Shepherd's approach, value chain I was more efficient for Rosemary stems at pre-, during- and post-pandemic. While, it was more efficient in value chain II for Rosemary dry leaves at pre- and post-pandemic.

Table 2: Marketing Efficiency for different value chain of Rosemary

S. No.	Marketing Cost Drivers	VC1						VC2					
		Pre-pandemic		During- pandemic		Post- pandemic		Pre- pandemic		During- pandemic		Post- pandemic	
		Dry Leaves	Stems	Dry Leaves	Stems	Dry Leaves	Stems	Dry Leaves	Stems	Dry Leaves	Stems	Dry Leaves	Stems
1	Cost incurred by the Producer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Cost incurred by the Contractor	5.42	0.00	5.00	0.00	4.80	0.00	4.00	0.00	6.25	0.00	6.00	0.00
3	Cost incurred by the Processor	5.38	1.25	6.25	2.12	9.25	3.50	0.00	0.00	0.00	0.00	0.00	0.00
4	Cost incurred by the Wholesaler	15.75	0.80	17.25	0.70	18.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Cost incurred by the Retailer	18.17	1.86	24.53	1.50	31.00	2.25	23.25	4.25	31.00	10.00	27.75	9.00
Total Marketing cost of the intermediaries		44.72	3.91	53.03	4.32	63.05	6.75	27.25	4.25	37.25	10.00	33.75	9.00
S. No.	Margin												
1	Margin of the Producer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Margin of the Contractor	82.08	2.25	112.00	2.03	178.20	4.96	696.00	7.50	897.25	6.75	1464.00	21.25
3	Margin of the Processor	632.12	13.75	1209.75	18.89	1424.75	35.38	0.00	0.00	0.00	0.00	0.00	0.00
4	Margin of the Wholesaler	324.25	7.20	720.03	12.04	708.56	18.70	0.00	0.00	0.00	0.00	0.00	0.00
5	Margin of the Retailer	861.83	19.14	1907.19	32.22	1895.44	50.21	606.75	16.75	1039.19	29.90	1974.25	61.21
Total Margin of the intermediaries		1900.28	42.34	3948.97	65.18	4206.95	109.25	1302.75	24.25	1936.44	36.65	3438.25	82.46
S. No.	Farmer's Share in Consumer's Rupee												
1	Farmer's price (selling price)	125.00	2.75	203.00	3.50	295.00	8.00	175.00	3.00	253.00	3.75	350.00	8.50
2	Consumer's price (purchase price)	2070.00	49.00	4205.00	73.00	4565.00	124.00	1505.00	31.50	2208.69	50.40	3822.00	99.96

Farmer's share in consumer rupee		6.04	5.61	4.83	4.79	6.46	6.45	11.63	9.52	11.45	7.44	9.16	8.50
S. No.	Marketing Efficiency (Acharya's approach)												
1	Value of goods sold (Consumer Rupee) (A)	2070.00	49.00	4205.00	73.00	4565.00	124.00	1505.00	31.50	2208.69	50.40	3822.00	99.96
2	Total Marketing Cost (B)	44.72	3.91	53.03	4.32	63.05	6.75	27.25	4.25	37.25	10.00	33.75	9.00
3	Total Margin (C)	1900.28	42.34	3948.97	65.18	4206.95	109.25	1302.75	24.25	1936.44	36.65	3438.25	82.46
4	Total Marketing Cost + Total Margin (B+C)	1945.00	46.25	4002.00	69.50	4270.00	116.00	1330.00	28.50	1973.69	46.65	3472.00	91.46
5	Index of Marketing Efficiency (A/(B+C))	1.06	1.06	1.05	1.05	1.07	1.07	1.13	1.11	1.12	1.08	1.10	1.09
S. No.	Marketing Efficiency (Conventional method)												
1	Value of goods sold (Consumer Rupee) (A)	2070.00	49.00	4205.00	73.00	4565.00	124.00	1505.00	31.50	2208.69	50.40	3822.00	99.96
2	Net price received by farmers (B)	125.00	2.75	203.00	3.50	295.00	8.00	175.00	3.00	253.00	3.75	350.00	8.50
3	Total Marketing Cost (C)	44.72	3.91	53.03	4.32	63.05	6.75	27.25	4.25	37.25	10.00	33.75	9.00
4	Index of Marketing Efficiency (A-B)/C)	43.49	11.83	75.47	16.09	67.72	17.19	48.81	6.71	52.50	4.67	102.87	10.16
S. No.	Marketing Efficiency (Shepherd's approach)												
1	Value of goods sold (Consumer Rupee) (A)	2070.00	49.00	4205.00	73.00	4565.00	124.00	1505.00	31.50	2208.69	50.40	3822.00	99.96
2	Total Marketing Cost (B)	44.72	3.91	53.03	4.32	63.05	6.75	27.25	4.25	37.25	10.00	33.75	9.00
3	Index of Marketing Efficiency (A/B)	46.29	12.53	79.29	16.90	72.40	18.37	55.23	7.41	59.29	5.04	113.24	11.11

Conclusion

The results of the study showed that Rosemary marketing is a lucrative venture. Therefore, Rosemary chosen in Garhwal Division have proven to be more effective. Two primary traditional value chains operate of Rosemary. In the I value chain, producers supply raw material of Rosemary to the contactors, who in turn deliver to the processors. Wholesalers approach the processors and in turn distribute it directly to retailers. In the II value chain, producers sell raw material of Rosemary to the contractors, who distribute it directly to the retailers.

With reference to the price spread along the Rosemary value chain, the price spread was high in value chain I. Estimate of cost drivers along the Rosemary value chain revealed that value chain II had the lowest cost for dry leaves and value chain I had the lowest cost for Rosemary stems at pre-, during- and post-pandemic, respectively. However, the value chain II had the lowest marketing margin both for dry leaves and stems, with higher share of farmer's share in consumer's rupee ranging from 9.16 to 11.63 percent for dry leaves and 7.44 to 9.52 percent for stems, at pre-, during- and post-pandemic, respectively and a higher index of marketing efficiency.

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