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Marketing and pricing pattern of milk and milk products in different agroclimatic zones of Rajasthan

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Abstract

The study was conducted in six districts of Rajasthan categorized into three different agroclimatic zones included Hyperarid partial irrigated zone of Bikaner and Jaisalmer districts (zone-I), Semi-arid eastern plain of Jaipur and Ajmer districts (zone-II) and Internal drainage of dry zone of Nagaur and Jhunjhunu districts (zone-III). A total of 540 dairy cattle farmers (180 from each zone) having at least one milch cattle were interviewed by a pretested structured interview schedule. In zone-I and III majority of farmers either sold milk or milk products directly from home or consumed at home whereas in zone-II majority of farmers sold milk to dairy cooperatives. The chi square value indicated highly significant difference between different agroclimatic zones under study in marketing pattern. There was difference in pricing pattern of milk and milk products in different agroclimatic zones. The price of milk and milk products depends on transportation, demand for the product, availability of the product, quality of the product, population, etc. Marketing of milk and milk products mainly relied on unorganized sector and the need to develop dairy cooperatives with proper pricing of milk based on cost structure is needed. The practice of preparing value added milk products at farmer's level should be encouraged to increase income and facilitate easy marketing.

Keywords: Agroclimatic zones, marketing, pricing pattern, milk and milk products

Introduction

In India, income from livestock farming account for 15-40% of total farm household earnings. Dairying is a crucial component of Indian livestock sector and milk being a valuable agricultural produce. Overall development, sustained income growth and rapidly growing urban population have fueled rapid growth in demand for milk and milk products (Kumar *et al.*, 2011) ^[1]. Milk is the main output of livestock sector accounting for 66.7% of the total value of output of livestock. India ranks first in world in milk production with an estimated 209.96 million tons of milk production in 2021 (BAHS, 2021) ^[2]. In spite of this, it is only considered as a subsidiary occupation to agriculture, with very low level of adoption of improved technology for commercial milk production. There is a huge scope for increasing milk productivity which will enhance the competitiveness of dairy producers and raise their income. Supporting the economically weak and specially women to properly raise animals and to know about proper marketing pattern can have a good impact on their income, social status, and the local environment.

Rajasthan lies to the northwest of India, just above the

Tropic of Cancer and located between 23° 30' and 30° 11' North latitude and 69° 29' and 78° 17' East longitude. Rajasthan has varying topographic features though a major part of the state is dominated by parched and dry region. The extensive topography includes rocky terrain, rolling sand dunes, wetlands, barren tracts, or land filled with thorny scrubs, river-drained plains, plateaus, ravines, and wooded regions. Rajasthan is divided into 10 agroclimatic zones namely, IA (Arid western plain), IB (Irrigated northwestern plain), IC (Hyperarid partial irrigated zone), IIA (Internal drainage dry zone), IIB (Transitional plain of Luni basin), IIIA (Semi-arid eastern plains), IIIB (Flood prone eastern plain), IVA (Sub-humid southern plain), IVB (Humid southern plain), V (Humid southeastern plain).

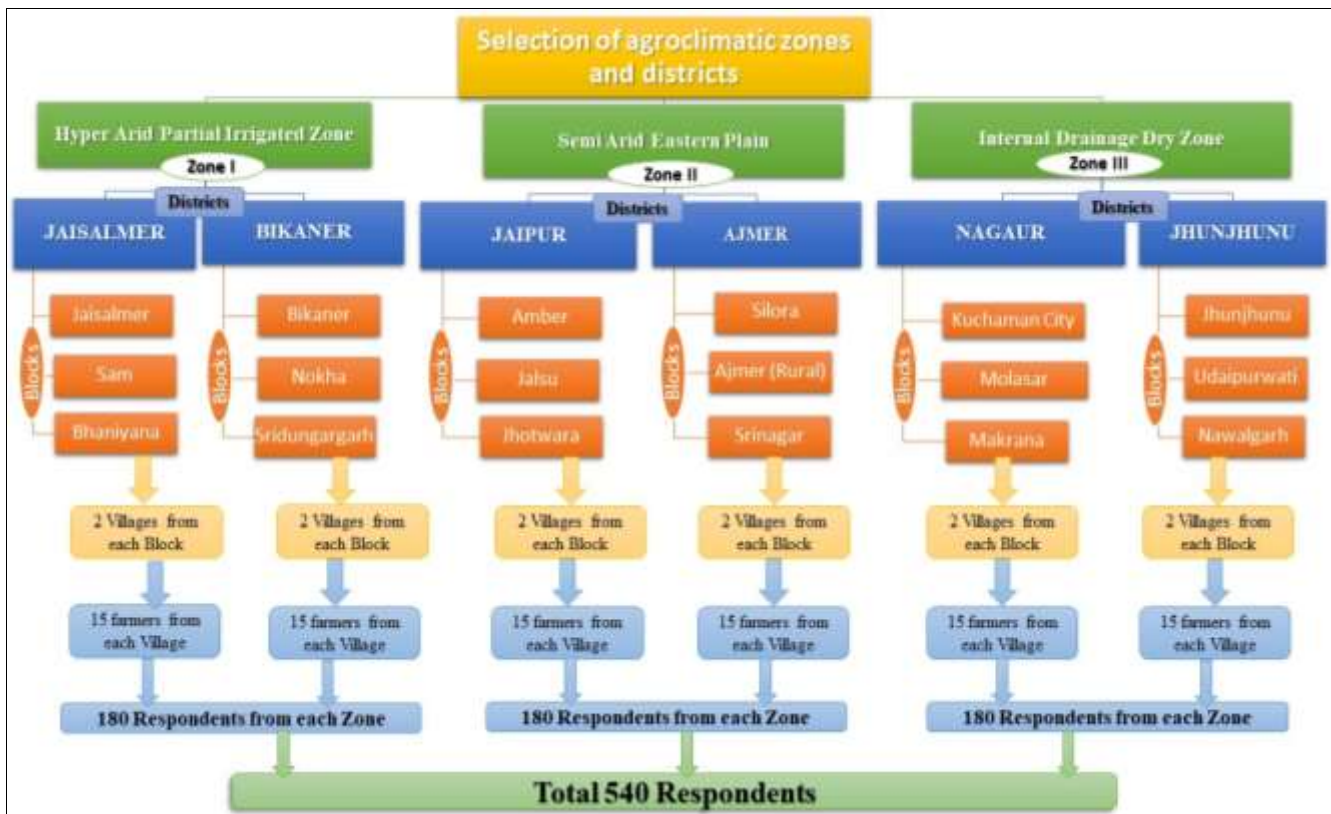
Materials and Methods

Selection of agro-climatic zones and districts

The study conducted in six districts of Rajasthan categorized into three different agro-climatic zones, which included hyper arid partial irrigated zone of Jaisalmer and Bikaner districts (zone-I) in the extreme west, semi-arid eastern plain of Jaipur and Ajmer districts (zone-II) and

internal drainage of dry zone of Nagaur and Jhunjhunu districts (zone-III). A total of 540 dairy cattle farmers (180

from each zone) having at least one milch cattle were interviewed by a pretested structured interview schedule.



Statistical analysis

The data were analyzed by using standard statistical procedure (Snedecor and Cochran, 2004) [3]. The statistical methods like frequency, percentage, mean, standard error, chi-square test and correlation coefficient analysis has been used by standard statistical methods.

Result and discussion

Marketing and transportation of milk and milk products

In zone-I the total milk production from selected households was 5654.4 liters per day, with an average production of 31.41 liters per household per day. Out of total milk produced, 26.11% of farmers consumed milk at home followed by 25.56% were selling to middlemen, 25% selling direct door-to-door or to a neighbour, 12.78% selling to a cooperative society and 10.56% were selling to a sweetshop. In zone II, the total milk production was 55788.8 liters per day, with an average production of 309.94 liters per household per day. Out of total milk produced, 39.44% of farmers were selling milk to cooperative society followed by 23.33% to middlemen, 17.22% were selling direct door-to-door or to neighbour, 11.67% consumed at home and 8.33% were selling to sweet shops. In zone III, the total milk production was 19352 liters per day, with an average production of 107.51 liters per household per day. Out of total milk produced, 31.67% sold direct door to door or to a neighbour followed by 21.67% sold to middlemen, 21.67% consumed at home, 17.22% sold to a cooperative society and 7.78% to a sweet shop. Overall, 24.63% of respondents were selling direct door-to-door or to a neighbour followed by 23.52% selling to middlemen and 23.15% were selling to cooperative societies. The chi square value indicates a

highly significant difference between different agroclimatic zones in the marketing of milk. In zone-I majority (54.44%) of farmers either sold milk or milk products directly from home or consumed them at home followed by 26.67% by bike, 15% by van and 3.89% by cycle. In zone II, 37.78% sold milk directly from home followed by 32.78% by bike, 23.33% by van and 6.11% by cycle. In zone III, 47.22% sold directly from home, 31.11% transported by bike, 18.89% by van and 2.78% by cycle. In Zone II, the majority of farmers were selling milk to cooperative societies. These findings are similar to those of Kumar *et al.* (2000) [4], who reported that the majority of farmers sold milk to cooperative societies in Nainital. In zones I and III, the majority of farmers sold milk direct door-to-door or to neighbours and middlemen. These findings are similar to those of Jhala and Singh (2002) [5], who reported that in Baran district of Rajasthan, 60% of households sold their milk directly and 20.62% through vendors.

Pricing pattern

The majority of farmers sold milk in both forms as whole milk and by converting it into value-added products i.e. ghee, sweets, etc. except 3.89% (zone II) and 9.44% (zone III), who sold milk only as whole milk. The price of milk and milk products varies in different agroclimatic zones. The price of whole milk was highest in zone-II (Rs 43/litre) followed by in zone-I (Rs 37/ litre) and in zone-III (Rs 39/ litre). The price of ghee in zone-I was 850 rs./ litre (highest), in zone-II it was 790 rs./ litre and in zone-III it was 820 rs./ litre. The price of milk and milk products depends on transportation, demand for the product, availability of the product, quality of the product, population, etc.

Table 1: Marketing and utilization pattern of milk and milk products followed by dairy farmers in three agro-climatic zones of Rajasthan

S. No.	Practices	Zone I	Zone II	Zone III	Overall	Significant (χ^2 value)
1.	Use a share of milk for home consumption					9.04*
	Yes	47 (26.11)	21 (11.67)	39 (21.67)	107 (19.81)	
	NO	133(73.89)	159 (88.33)	141 (78.33)	433 (80.19)	
2.	Various channels of milk disposal					50.785**
	Selling to middleman	46 (25.56)	42 (23.33)	39 (21.67)	127 (23.52)	
	Sweetshop	19 (10.56)	15 (8.33)	14 (7.78)	48 (8.89)	
	Consumed at home	47 (26.11)	21 (11.67)	39 (21.67)	107 (19.81)	
	Direct door to door/ neighbour	45 (25)	31 (17.22)	57 (31.67)	133 (24.63)	
	Selling to cooperative society	23 (12.78)	71 (39.44)	31 (17.22)	125 (23.15)	
3	Pattern of milk utilization and disposal					NS
	Whole milk	0 (0)	7 (3.89)	17 (9.44)	24 (4.44)	
	Converted to value added products	0 (0)	0 (0)	0 (0)	0 (0)	
	Both	180 (100)	173 (96.11)	163 (90.56)	516 (95.56)	
4	Prevalent price of whole milk (Rs/lit)	37	43	39		NS
5.	Prevalent price of milk products					NS
	Ghee (Rs/lit)	850	790	820		
	Khoa (Kalakand) (Rs/kg)		520			
6.	Transportation of milk/ milk products					NS
	Bike	48 (26.67)	59 (32.78)	56 (31.11)	163 (30.19)	
	Van	27 (15)	42 (23.33)	34 (18.89)	103 (19.07)	
	Cycle	7 (3.89)	11 (6.11)	5 (2.78)	23 (4.26)	
	Nil	98 (54.44)	68 (37.78)	85 (47.22)	251 (46.48)	

Note: NS = non-significant, * = significant ($p \leq 0.05$) and ** = highly significant ($p \leq 0.01$).

(Figures in parenthesis indicate percentage)

Conclusion

Marketing of milk and its products were mostly unorganized, there is need to develop dairy cooperatives at village level with right pricing of milk, taking into account the cost structure of milk production.

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