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Estimation of costs and returns from dairying in Malwa region of Madhya Pradesh@

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ABSTRACT

The study was carried out on 300 milk producing households in Malwa region of Madhya Pradesh to estimate the costs and returns from milk production at farm household level. The individual animal-wise and household-wise costs were estimated using software Milk Production Economics Analysis Package (MILKEcAP:1.0 & 2.0). The findings of the analysis revealed that the overall gross maintenance cost/animal/year in the zone was least (₹ 126.33/animal/day) in case of local cow and highest for crossbred cattle (₹ 169.51/animal/day). The variable costs accounted for nearly 3/4th of the total costs irrespective of category of animals. Feed cost accounted highest to the total costs and it was relatively higher in case of buffalo. The overall cost per litre of milk was highest (₹ 24.84) for buffalo, and lowest for crossbred cow (₹ 22.26). However, due to variability in milk yield, there were wide variability in net economic margins. The net economic margins were almost negligible (₹ 0.62/l) in local cow, comparatively higher in crossbred cow (₹ 2.55/l) and fairly good in buffalo (₹ 5.03/l).

Key words: Capital recovery cost, Malwa region, Milk production, Opportunity cost

Madhya Pradesh, with 10.27% of country's total cattle population, ranks first in India and with 9.26% of total bovine population; rank second in the country (GOI 2014). Livestock sector alone contributes 12.5% to the Gross State Domestic Product and 36.24% to state agriculture GDP (GOMP 2014). The 11 agro-climatic zones and rich biodiversity makes the state conducive for development of dairy. Native breeds of Nimari, Kenkatha and Malvi are known for their superior draught power. Malwa Plateau is located in the western part of Madhya Pradesh. This plateau lies between 20°17' N to 25°8' N latitude and 74°20' E to 79°20' E longitude. The zone covers the districts of Dewas, Dhar (Badnawar and Sardarpur Tehsils.), Indore, Jhabua (Petlawad Tehsil), Mandsaur, Rajgarh, Ratlam, Shajapur, Neemuch, and Ujjain. Zone ranked highest among the 10 agro-climatic zone of the state (GOMP 2016). Buffalo is the dominant bovine species contributing highest to milk production.

The economics of milk production is of utmost importance due to the facts that it identifies causes of inefficiency of the factors of milk production. It is an important aspect for milk producers, consumers and policy makers in order to provide an effective linkage between the milk producers and consumers for fixing the price of milk rationally. With the changing livestock production practices, the methodology of estimation of costs and return has not changed over the period. The existing methods used for the calculation of cost of production of livestock products have been non-systematic as the case of crop sector. In most of the rural production systems, cost of the labour input of family members and feeds grazed on the wastelands are ignored. Similarly, the animal unit standardisation is very old and largely based on labour utilisation. Therefore, the present study was an attempt to estimate the costs and returns based on standardised and more realistic methodology.

MATERIALS AND METHOD

Study area and sampling: The study pertains to the state of Madhya Pradesh. Malwa agro-climatic zone of the state was selected purposively for the study. The zone is advance in livestock production and as per the 19th Livestock Census

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it is having around 1/5th of the bovine population of the state. This region has 42% (highest) crossbred cattle population of Madhya Pradesh and having 1/4th of total buffaloes of MP (GOI 2014). It is the highest milk producing region and accounts nearly 1/4th to the total milk production of 10.78 mt in the state (GOMP 2016).

Multistage sampling procedure was adopted for selection of district, tehsils, and villages. From the Malwa plateau zone, two districts, i.e., Indore and Ratlam were selected randomly. From each selected district, three tehsils were selected. One tehsil was selected purposively with maximum number of milch animals and other two tehsils were selected randomly. From each tehsil, five villages were selected randomly. In order to give representation to both, the peri-urban and rural areas in the sample; out of five, three villages were selected from rural areas (viz, distance of the village from nearest town/district centre >10 km) and two from peri-urban area (viz, distance of the village from nearest town/district centre <10 km). The ultimate sampling unit was dairy farm household. Ten households owning at least one lactating animal each were selected randomly from each selected village. In all, 300 samples were selected for the study.

Period of study: The period for the study was agricultural year 2012–13 (July 2012 to June, 2013). To capture the seasonality in observation, each month in the season was considered a round; hence there were four rounds in each season. In each of the sample districts, one tehsil was covered in one season, and in each of the sample Tehsils, one village was covered in each month (i.e. round). Four sample villages were thus, covered in four rounds in a season, while the data collection in the fifth sample village was carried out in any one round of the season.

Analytical tools: The study used comprehensive methodology standardized by Sirohi *et al.* (2015) for estimation of costs and return from milk production. The broad steps are outlined below.

Cost of milk production: The overall cost of milk production is an aggregate of expenditure incurred on the fixed and variable items. The fixed items are durable assets with productive life of more than a year, eg. animals sheds, store for feed and fodder, manger, machinery and equipment used in dairy, and the animal itself. The components of variable cost are cost of feed and fodder, labour expenses, expenditure on veterinary and healthcare, other recurring expenditure such as repairing of shed, equipments, machinery, electricity and water charges, cost of artificial insemination (A.I.), natural service etc. The general estimation procedure is mentioned below.

Operating cost (*Paid-out cost*)*:* Expenses on home-grown harvested feed, purchased feed and fodder, hired labour, breeding, veterinary and healthcare, miscellaneous recurring expenses, insurance premium, paid out rent value of land.

Capital cost: Capital recovery cost of civil structure, dairy machinery and equipment and milch animals.

Opportunity cost: Imputed rental value of land, imputed value of family labour, imputed value of grazing feed.

Net cost of production: Taking the cue from Farm Accountancy Cost Estimation and Policy Analysis of European Agriculture, three cost concepts used were Short-term= (Operating cost –Value of dung)/Milk yield; Medium-term=(Operating cost + Capital Cost–Value of dung)/Milk yield; and Long-term =(Operating cost + Capital Cost+ Opportunity Cost –Value of dung)/Milk yield.

The cost of cultivation scheme for principal crops in India also uses various cost concepts. Broadly, Cost A2 conforms to the medium-term cost and Cost C to the long-term cost concept given above.

Returns from milk production: The gross returns are considered to take into account three items, milk, dung and urine (if sold). The sale of calves and/or adult animals was not accounted for since the computation of their cumulative maintenance cost till selling of the animal was beyond the scope of the present study. The following income/profit indicators were computed:

Cash farm income (*Gross margin*)= Gross returns – Operating costs

Farm income (*Net margin*) = Gross returns – Operating costs – Capital costs

Entrepreneurs' profits (*Net economic margin*) = Gross returns – Operating costs – Capital costs- Opportunity cost

The individual animal-wise and household-wise costs were estimated using software Milk Production Economics Analysis Package (MILKEcAP:1.0 & 2.0) developed by Sirohi *et al*. (2015).

RESULTS AND DISCUSSION

Feed consumption pattern: Feed consumption pattern for different categories of animals on dry matter basis (DMI) is given in Table 1. The average dry matter intake of local cattle in the zone was 8.24 kg/day/animal of which more than half was constituted by dry fodder. In a study, Mudgal *et al.* (2003) found that the straw supplied 62.23% of DM and 50.10% of TDN requirement of animals. The second largest component of dry matter was concentrates accounting for around 1/4th of total DMI. The intake of concentration in total was higher in the zone as compared to state average ranging from 1.58 kg to 1.99 kg/day/animal on fresh matter basis (Sharma and Raghuvanshi 2010). The major dry fodders in the zone were wheat straw, soybean straw, maize stalk, sorghum stalk and gram straw while the major green fodders fed were maize, jowar, barseem and bajra in summer, maize, sorghum and collected grasses in rainy season and barseem and lucerne in winter season. The major concentrates fed were cottonseed cake, cotton seed, readymade *Sudana* ration, chunies of maize, soybean and gram, etc. The farmers who were selling milk to Co-operatives or private milk centre, they supply the readymade concentrate mixture of different companies to the farmers.

The intake was comparatively higher in Indore district and the composition was also different in the district. It was by and large balance containing dry fodder, green fodder and concentrates. However, in Ratlam district of

region, the green fodder was less (0.80 kg/animal/day). Overall as well as in Ratlam district, the intake was more in rainy season followed by winter and summer season. The higher intake in rainy season may be due to easily availability of green fodder.

The average dry matter intake of crossbred cattle in the region was estimated 10.34 kg/day/animal of which highest was contributed through dry fodder (6.04 kg) followed by concentrates (2.65 kg) and green fodder (1.42 kg). Overall in the region, the intake was almost same in rainy and winter season. However, the proportion of green fodder and concentrates was more in rainy season as compared to winter season. In Indore district, the average DMI was highest in summer season followed by winter season while

Table 1. Feed consumption pattern for different categories of animals (DMI in kg/animal/day)

DMI source	Indore				Ratlam				Malwa agro-climatic zone			
	Summer	Rainy	Winter	Overall	Summer	Rainy	Winter	Overall	Summer	Rainy	Winter	Overall
					Local cattle							
Dry fodder	5.48	2.35	5.98	4.04	3.92	5.81	4.95	4.74	4.56	3.78	5.24	4.43
Green fodder	1.44	3.4	0.79	2.29	0.78	1.01	0.64	0.80	1.05	2.41	0.68	1.47
Concentrates	2	2.42	1.35	2.11	1.77	2.26	2.09	2.00	1.86	2.35	1.88	2.05
Grazing	0	0.21	0	0.1	0.83	0.00	0.35	0.46	0.49	0.12	0.25	0.30
Total	8.92	8.38	8.12	8.54	7.30	9.08	8.04	8.00	7.97	8.67	8.06	8.24
					Crossbred cattle							
Dry fodder	6.34	2.97	7.34	5.64	5.30	6.62	6.72	6.25	5.60	4.91	6.92	6.04
Green fodder	1.30	4.05	0.81	2.01	1.27	1.42	0.86	1.11	1.28	2.65	0.84	1.42
Concentrates	3.13	2.58	2.18	2.54	2.68	3.09	2.58	2.71	2.81	2.85	2.45	2.65
Grazing	0.00	0.00	0.24	0.10	0.63	0.00	0.19	0.29	0.45	0.00	0.21	0.22
Total	10.77	9.60	10.58	10.30	9.89	11.13	10.35	10.36	10.14	10.41	10.42	10.34
					Buffalo							
Dry fodder	6.92	3.32	7.76	6.30	5.42	7.02	7.05	6.50	6.13	5.82	7.21	6.43
Green fodder	1.37	3.90	1.20	1.90	1.13	0.89	0.99	1.01	1.24	1.86	1.04	1.32
Concentrates	1.86	3.30	2.40	2.30	1.85	2.22	3.14	2.48	1.85	2.57	2.97	2.42
Grazing	0.00	0.00	0.31	0.07	1.63	0.00	0.13	0.60	0.86	0.00	0.17	0.41
Total	10.15	10.51	11.67	10.57	10.03	10.14	11.32	10.59	10.09	10.26	11.39	10.58

Table 2. Maintenance cost of animal and milk production (Local cow)

Cost component	Indore				Ratlam				Malwa agro-climatic zone			
	Rainy	Winter	Summer	Annual	Rainy	Winter	Summer	Annual	Rainy	Winter	Summer	Annual
CRC on fixed assets	5.7	3.69	8.15	5.85	7.69	6.54	9.00	7.74	8.65	6.53	5.74	7.22
CRC on animal	21.34	15.01	33.32	23.22	20.98	21.53	20.71	21.07	25.92	21.19	19.7	22.8
Land rent	0.06	0.12	0.06	0.08	0.03	1.3	0.31	0.55	0.21	0.05	0.97	0.32
Total fixed cost	27.10	18.82	41.53	29.15	28.70	29.37	30.02	29.36	34.78	27.77	26.41	30.34
Dry fodder	9.76	18.29	20.93	16.33	21.47	14.95	15.44	17.29	17.71	14.62	15.89	16.17
Green fodder	16.65	6.12	9.86	10.88	10.24	9.21	10.01	9.82	9.95	13.99	8.34	11.07
Grazing	0.82	0.00	0.00	0.27	0.00	1.92	3.45	1.79	2.03	0.48	1.38	1.32
Concentrate and supplements	44.01	25.19	30.66	33.29	43.01	37.53	27.39	35.98	30.77	44.08	35.45	36.69
Total feed cost	71.24	49.60	61.45	60.76	74.72	63.61	56.29	64.87	60.46	73.17	61.06	65.25
Hired Labour	6.11	0.00	0.00	2.04	4.24	1.66	4.41	3.44	2.59	5.33	1.2	3.28
Family Labour	37.27	29.05	26.88	31.07	27.63	39.75	61.77	43.05	47.36	33.27	36.75	39.84
Veterinary and miscellaneous expenses	1.54	2.02	2.47	2.01	1.96	0.93	1.76	1.55	2.05	1.71	1.24	1.74
Total variable cost	116.16	80.67	90.80	95.88	108.55	105.95	124.23	112.91	112.46	113.48	100.25	110.11
Gross cost	143.26	99.49	132.33	125.03	137.25	135.32	154.25	142.27	147.24	141.25	126.66	140.45
Value of dung	14.68	12.06	12.72	13.57	12.18	15.62	15.36	14.39	14.27	13.64	14.62	14.12
Net cost	128.58	87.43	119.61	111.46	125.07	119.70	138.89	127.89	132.97	127.61	112.04	126.33
Milk yield (l/day)	6.06	3.14	5.95	5.05	5.86	5.64	4.41	5.30	5.05	5.98	4.94	5.36
Cost of milk production (₹/l)	21.22	27.84	20.10	22.07	21.34	21.22	31.49	24.11	26.33	21.34	22.68	23.57

in Ratlam district, it was highest in rainy season followed winter season.

The overall average DMI of buffalo in the region was 10.58 kg/day/animal. It was highest in winter season (11.39 kg) and lowest in summer season (10.09 kg). The similar pattern was observed across the districts of region. However, the composition was considerably different. Indore district, the consumption of green fodder was more as compared to Ratlam, while in Ratlam, concentrates were more.

In nutshell, it was found that there was misallocation of livestock feed resources. The low productive local cattle were fed almost equal quantity of concentrated and green fodder as it was fed to high productive cross-bred cattle and buffalo. The misallocation of livestock feed resources was also reported in the earlier studies (Sharma *et al.* 2014).

Cost of milk production

Local cattle: The seasonal and annual estimate of cost of milk production from local and crossbred cows and buffaloes has been given in Table 2. The daily net cost of maintenance for local cattle was estimated ₹ 126/animal. It was higher in Ratlam (₹ 128) as compared to Indore (₹ 111). The variable costs accounted for more than 3/4th of total maintenance cost. Among the variable costs, the feed was major constituent followed by labour. The maintenance cost was lowest in winter season. The high cost of maintenance in Indore was because of higher fixed costs while in Ratlam it was both because of high labour cost as well as high fixed costs. The possible reason of high labour cost may be due to lean season the entire family labour engages in diary operations. The cost of production was higher (₹ 24.11/l) in Ratlam as compared to Indore.

Crossbred cattle: The daily net cost of maintenance for crossbred cattle in Malwa region as a whole was estimated ₹ 170/animal and it was almost same in both the districts (Table 3). Feed cost accounted highest (42.95%) followed by fixed costs (32.59%) and labour cost (23.20%). The proportion of feed costs in total cost was relative higher in summer season due to higher prices of feed and fodder. The findings differs from the study conducted by Kumari *et al.* (2016) in Bihar where it was found that the cost of production was more in winter than summer and rainy may be due to difference in feeding patter. The cost of milk production for crossbred cattle in the region was estimated to be about ₹ 22–23/l.

Buffalo: The average net cost of maintenance for buffalo was estimated ₹ 135–140/animal/day. In a study of Indore district of Madhya Pradesh, Verma (2007) estimated maintenance cost of ₹ 21,368 which comes around ₹ 59/ day. It indicates that maintenance cost is increasing very rapidly during the period. A recent study by Sharma (2013) on economics of buffalo dominated commercial dairy farmers reported higher maintenance cost (up to ₹ 207/day/ animal) as well as cost of milk production (up to ₹ 34.39/l).

As compared to local cattle and buffalo, the share of feed cost was higher in buffalo and accounted for more than ½ of the total maintenance cost. The labour cost was also higher for buffalo in comparison to two other species.

Table 3. Maintenance cost of animal and milk production (Crossbred cow)

Cost component	Indore				Ratlam				Malwa agro-climatic zone			
	Rainy	Winter	Summer	Annual	Rainy	Winter	Summer	Annual	Rainy	Winter	Summer	Annual
CRC on fixed assets	6.22	4.6	3.91	4.91	6.04	6.16	7.03	6.41	6.13	6.12	5.67	5.91
CRC on animal	67.42	50.2	44.28	53.97	52.41	55.41	53.87	53.90	51.09	59.45	53.76	54.38
Land rent	0.02	0.64	0.04	0.23	0.04	0.3	0.19	0.18	0.15	0.03	0.41	0.24
Total fixed cost	73.66	55.44	48.23	59.11	58.49	61.87	61.09	60.48	57.37	65.60	59.84	60.53
Dry fodder	13.02	24.3	24.2	20.51	24.29	22.1	20.41	22.27	21.51	19.01	22.80	21.48
Green fodder	19.17	10.63	15.66	15.15	11.51	10.45	17.64	13.20	17.07	15.10	10.51	13.55
Grazing	0.00	1.33	0.00	0.44	0.00	1.04	3.17	1.40	2.25	0.00	1.13	1.18
Concentrate and Supplements	43.63	34.98	54.88	44.50	45.89	43.24	43.86	44.33	47.05	44.83	40.62	43.54
Total feed cost	75.82	71.24	94.74	80.60	81.69	76.83	85.08	81.20	87.88	78.94	75.06	79.75
Hired labour	0.00	0.31	0.00	0.10	5.46	7.21	0.73	4.47	0.52	2.90	5.02	3.18
Family labour	48.22	42.10	39.92	43.41	42.75	28.27	49.60	40.21	46.80	45.31	32.65	39.90
Veterinary and miscellaneous expenses	2.68	2.18	2.51	2.46	2.65	2.38	1.91	2.31	2.08	2.66	2.32	2.33
Total variable cost	126.72	115.83	137.17	126.57	132.55	114.69	137.32	128.19	137.28	129.81	115.05	125.16
Gross cost	200.38	171.27	185.40	185.68	191.04	176.56	198.41	188.67	194.65	195.41	174.89	185.69
Value of dung	14.00	15.98	14.95	14.98	15.09	15.03	20.46	16.86	18.87	14.58	15.33	16.18
Net cost	186.38	155.29	170.45	170.71	175.95	161.53	177.95	171.81	175.78	180.83	159.56	169.51
Milk yield (l/day)	7.47	7.63	7.18	7.43	8.02	7.49	7.63	7.71	7.50	7.76	7.53	7.58
Cost of milk Production (₹/l)	24.95	20.35	23.74	22.99	21.94	21.57	23.32	22.27	23.44	23.30	21.19	22.36

Table 4. Maintenance cost of animal and milk production (Buffalo)

Cost component	Indore				Ratlam				Malwa agro-climatic zone			
	Rainy	Winter	Summer	Annual	Rainy	Winter	Summer	Annual	Rainy	Winter	Summer	Annual
CRC on fixed assets	8.04	2.69	6.89	5.87	6.56	4.70	10.51	7.26	8.80	7.04	4.24	6.80
CRC on animal	17.76	20.31	20.24	19.44	20.92	24.57	22.18	22.56	21.26	19.90	23.60	21.73
Land rent	0.01	0.96	0.04	0.34	0.05	0.14	0.12	0.10	0.08	0.04	0.33	0.16
Total fixed cost	25.81	23.96	27.17	25.65	27.53	29.41	32.81	29.92	30.14	26.97	28.17	28.69
Dry fodder	14.50	24.64	25.02	21.39	27.21	23.75	21.64	24.20	23.24	23.10	23.95	23.45
Green fodder	18.94	10.41	10.79	13.38	12.32	9.71	14.79	12.27	12.90	14.46	9.87	12.24
Grazing	0.00	1.57	0.00	0.52	0.00	0.72	7.92	2.88	4.18	0.00	0.91	2.03
Concentrate and supplements	66.10	46.51	33.82	48.81	40.13	50.57	36.87	42.52	35.43	48.52	49.64	43.51
Total feed cost	99.54	83.13	69.63	84.10	79.66	84.75	81.22	81.88	75.74	86.08	84.38	81.23
Hired labour	18.01	0.89	0.00	6.30	4.28	11.62	12.98	9.63	6.84	8.72	9.17	8.10
Family labour	36.25	29.45	35.44	33.71	30.29	21.85	48.71	33.62	42.44	32.22	23.58	33.45
Veterinary and miscellaneous expenses	2.17	1.51	2.26	1.98	2.63	2.12	2.37	2.37	2.32	2.48	1.98	2.20
Total variable cost	155.97	114.98	107.33	126.09	116.86	120.34	145.28	127.49	127.34	129.50	119.12	124.99
Gross cost	181.78	138.94	134.50	151.74	144.39	149.75	178.09	157.41	157.48	156.47	147.28	153.68
Value of dung	13.97	18.15	13.28	15.13	13.99	15.51	24.97	18.16	19.44	13.98	16.11	16.96
Net cost	167.81	120.79	121.22	136.61	130.40	134.24	153.12	139.25	138.04	142.49	131.17	136.71
Milk yield (l/day)	7.55	6.45	3.88	5.96	5.02	6.87	4.57	5.49	4.24	5.84	6.77	5.50
Cost of milk Production (₹/l)	22.23	18.73	31.24	22.92	25.98	19.54	33.51	25.38	32.53	24.41	19.36	24.84

There were high seasonal variations in cost of milk production due to wide variations in seasonal yield. Similar pattern of cost across different seasons was also reported by Kumari *et al.* (2016) in the state of Bihar. In winter, the cost of production is less than ₹ 20/l. While in summer, it goes above ₹ 30/l. The annual average cost was ₹ 23–25/l for buffaloes. In a study of Bhopal district, Khare *et al.* (2003) also reported that variable cost accounts for 88.60% to the total cost of milk production. The study also observed that in variable cost, cost of labour (43.63%) and feed stuff (38.17%) are the main component of the cost. The results are also in conformation to results obtained by Beohar (1998) in central Madhya Pradesh.

Income measures: Tables 5 present the various income measures for local cattle, crossbred cows and buffaloes in the region. The operating cost in the zone was least (₹ 68.95/ animal/day) in case of local cow and highest for buffalo (₹ 89.50/day). As against this, the net economic margins were highest in Buffalo (₹ 5.03/l) and least in local cow (₹ 0.62/l). Low or negative returns in the state in case of local cattle were also observed in earlier study by Sharma (2013). Several authors had reported negative net returns from milk production in case of indigenous cows of other states also (Nagrale *et al.* 2007, Singh and Agrawal 2007, Bhowmick and Sirohi 2008, Bardhan and Sharma 2012, Singh *et al.* 2012, Chand and Sirohi 2012, Jaiswal and Singh 2015). Though the gross return was higher in case of crossbred cattle as compared to buffalo, the net economic margin was low due to higher capital cost on the one hand and low price of milk on the other.

Table 5. Annual cost and returns from milk production in Malwa region of MP

Particular	Local cow	Crossbred cow	Buffalo
Operating cost (₹/day)	68.95	84.08	89.50
Capital cost (₹/day)	30.02	60.29	28.53
Opportunity cost (₹/day)	41.48	41.32	35.64
Gross cost (₹/day)	140.45	185.69	153.67
Gross returns (₹/day)	143.65	205.00	181.36
Cost of milk production (₹/l)	23.57	22.36	24.84
Sale price of milk (₹/l)	24.91	24.91	29.89
Milk yield (l/day)	5.20	7.58	5.50
Cash farm income (₹/day)	74.70	120.92	91.86
Farm income (₹/day)	44.68	60.63	63.33
Entrepreneurs' profits (₹/day)	3.20	19.31	27.69
Gross margin (₹/l)	14.37	15.95	16.70
Net margin (₹/l)	8.59	8.00	11.51
Net economic margin (₹/l)	0.62	2.55	5.03

Policy implication: The average dry matter intake of buffalo in the region was estimated highest (10.58 kg/day/ animal) followed crossbred cattle (10.34 kg/day/animal) of which more than half was contributed by dry fodder. The availability of green fodder in summer and winter season was comparatively low. Emphasis need to be given on dual purpose verities, quality seed of fodder crops and improving

small farm mechanisation fodder crops. The net maintenance cost was highest in case of crossbred cattle and lowest for local cattle. Feed cost was accounted major portion in the total variable cost ranging from 57% in case of local cattle to 64% in case of buffalo. Cost of milk production was estimated ₹ 23.57/l, ₹ 22.36/l and ₹ 24.84/l, respectively for local cattle, crossbred cattle and buffalo. Computation of different income measures revealed that dairying in the region is more profitable for farmers maintaining buffaloes in the herd. Maintaining of local cattle is not profitable in long run as prices are very low. To make dairying more remunerative, price is a very important factor to consider as it often acts as an incentive for farmers to scale up their production. As the case of crop sector, there is need to have minimum support price policy for milk also. This would enable linking of milk production cost with quality of milk and hence guarantee remunerative price to the producers as well as provide enough incentives to them in producing milk of adequate quality.

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