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Study on unorganized dairy sector in Mehkar tahsil of Buldhana district of Maharashtra

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Abstract
The present study entitled "Study on unorganized dairy sector in Mehkar tahsil of Buldhana district of Maharashtra "was carried out for the purpose to study the unorganized dairy sector cattle owners socio-economic status in year 2020-21. Ten villages of Mehkar tahsil were selected randomly for study. From each village 20 farmers were selected, total 200 farmers were selected for the study. The simple tabular method was used for the study. The results obtained from this investigation found that, the socio-economic status indicates that, the majority 63.00 per cent of the farmers were from the middle age group, 55.00 per cent of the respondents were educated up to secondary school (8th to 12th std.) level had nuclear families and the majority of the dairy farmers (59.50 per cent) had medium families (5 to 6 members) and agriculture as well as dairy is the main occupation. While, economic status revealed that the majority of unorganized dairy farmers belonged to the low level of income (Rs.<25000) group. 62.00 per cent of respondents possessed a small herd size (up to 4 animals) and 91.50 per cent of respondents possessed their own milch animals for dairying. The majority of respondents, 63.50 per cent had medium farming experience in dairying. The majority of respondents, 56.00 per cent belonged to a medium level of milk production and 52.00 per cent belonged to a medium category of milk sales. The inferences may be drawn that, buffalo milk producers were generating more profit as compared to that of cow. In buffalo the cost of milk production per litre reported higher than in cow. Gross returns (Rs. 404.46) and net returns (Rs. 158.87) per buffalo per day was comparatively higher as compared to gross returns (Rs. 347.67) and net returns (Rs. 104.68) per cow per day, respectively. The higher milk yield from buffalo provided maximum net returns as compared to that of cow milk production. Similarly, the selling price of buffalo milk was found comparatively higher as compared to that of cow. Benefit cost ratio was found to be more (1:1.65) in the case of buffalo as compared to cow (1:1.45).

Keywords: socio-economic status, unorganized dairy sector, income, dairy farming, milk production, cost estimation

Introduction
India is the highest milk producer in the world with a total volume of 187.7 Million Tonnes Anonymous, 2020 [2]. Dairy industry in India- Statistics and facts, Statistics Research Department, Oct 16, 2020). India is predominantly an agrarian economy with more than 75 per cent of its population living in villages and depending on agriculture and allied activities for their livelihood. Dairy has become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generating opportunities, particularly for marginal and women farmers. In our country, most of the milk is produced by small, marginal farmers and landless labourers. In terms of actual numbers, marginal farmers and landless labourers form the largest group of rural milk producers (Himabindu *et al*., 2014) [5]. The majority of landless labourers, marginal and small farmers are holding small scale dairy farming, keeping less than 10 animals and struggling to sustain their livelihood on a small number of dairy animals in rural areas. The key feature of the Indian dairy industry is that it is still predominantly unorganized of the total milk produced in India, only 18-20 per cent is channelized through the organized segment (Anonymous, 2014) [1]. Because of the larger participation of labourers, marginal farmers and small farmers in unorganized small-scale dairy farming, it is necessary to identify their socio-economic profile so that the right approach can be formulated for their social and economic development.

The Indian dairy market is bifurcated into unorganized and organized. In the unorganized dairy market, milk is sold by means such as milkmen and vendors. These milkmen collect raw milk directly from the farmers and sell it in the market. In the organized sector, on the other hand,

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cooperatives and private dairies set up efficient channels for milk procurement and distribution. In this manner, raw milk is collected from the farmers, after which it is processed, packed and distributed to various channels. The Indian dairy market was dominated by the unorganized sector. However, due to changing socio-economic patterns, the focus is shifting towards developing the organized sector. Maharashtra ranks 7th in milk production according to the National Dairy Development Board India's 2016-2017 survey.

Material and Methods:
The present study was carried out during the year 2020-21 in Mehkar tahsil of Buldhana district of Maharashtra State. Ten villages were selected randomly for the study purpose. From each village 20 farmers was selected. Study were carried out total 200 farmers, who had at least 2 or more numbers of milch animals were selected by random sampling method. The personal interview technique was used as a tool through which first-hand information was collected. The semi-structured interview schedule was prepared by keeping in view the objectives of the study. Before collection of data,

interview schedule was pre-tested by the interviewer. The collected data were compiled, tabulated and analyzed to interpret the results. The descriptive statistics like frequency and percentage were used for the investigation.

Results and Discussion
Socio-economic characteristics of unorganized dairy farmers
Age group of unorganized dairy farmers revealed that, majority of the respondents i.e., 63.00 per cent belonged to the middle age group followed by 21.00 per cent of dairy farmers belonged to young age group and 16.00 per cent respondents belonged to old age category. Similar finding were reported by Sasane *et al.,* 2013 [11]. Educational status reveals that, the majority of the respondents 55.00 per cent of the respondents were educated up to secondary school (8th to 12th std.) level followed by 31.00 per cent of the respondents were having education up to primary (Up to 7 std.) level whereas, 3.00 per cent of the respondents were educated up to Graduation level (above 12th std.) It was also observed that 11.00 per cent respondents were found illiterate.

Table 1: Socio-economic profile of unorganized dairy farmers (n=200)

Sr. No.	Characteristics	Category	Frequency	Percentage (%)
1.	Age	Young (18 to 35 years)	42	21.00
		Middle (36 to 50 years)	126	63.00
		Old (above 50 years)	32	16.00
2.	Education	Illiterate (No schooling)	22	11.00
		Primary (Up to 7th std.)	62	31.00
		Secondary (8 to 12th std.)	110	55.00
		Graduate (Above 12th std.)	6	3.00
3.	Family size	Small (Up to 4 members)	28	14.00
		Medium (5 to 6 members)	119	59.5
		Large (Above 6 members)	53	26.50
4.	Family type	Joint	48	24.00
		Nuclear	152	76.00
5.	Herd size	Small (Up to 4 animals)	124	62.00
		Medium (5 to 8 animals)	48	24.00
		Large (Above 8 animals)	28	14.00
6.	Occupation	Dairy	24	12.00
		Dairy + Agriculture	144	72.00
		Dairy + Agri. + Other	32	16.00
7.	Annual income	Low (Up to Rs. 25,000)	129	64.50
		Medium (Rs. 25,000 to 50,000)	40	20.00
		High (Above Rs. 50,000)	31	15.50
8.	Sources of milk	Owned dairy	183	91.50
		Collection from other (Local farmers)	17	8.50
9.	Experience in Dairy farming	Low (Up to 10 years)	35	17.50
		Medium (10 to 20 years)	127	63.50
		High (Above 20 years)	38	19.00
10.	Daily milk production	Low (Up to 5 litres)	65	32.50
		Medium 5 to 10 litres	112	56.00
		High (Above 10 litres)	23	11.50
11.	Daily milk sale	Low (Up to 5 litres)	77	38.50
		Medium 5 to 10 litres	104	52.00
		High (Above 10 litres)	19	9.50

The majority (76.00%) of the unorganized farmers belonged to the nuclear type of families and 24.00 per cent of them belonged to joint type of families (Ram *et al.* 2018) [9] whereas, family size revealed that the majority (59.50%) of the farmers belonged to the medium sized families i.e. 5 to 6 members, while 26.50 per cent of them belonged to large sized families having more than 6 members and only 14.00 per cent of the farmers belonged to small sized families having up to 4 members. This may be due to the thought of

more head might impart more work and thus generate more income to family (Khawadkar and Siddiqui, 2008) [6].
Herd size shows that more than half of the (62.00%) of the farmers had a small number of herd size followed by 24.00 per cent had medium herd size and 14.00 per cent of the respondents having above 8 milch animals, so, they are categorized under the large herd size category. (Ram *et al.* 2018) [9].

The occupation of the unorganized dairy farmers revealed that, majority 72.00 per cent of the respondents were engaged in agriculture as well as dairy as a main occupation, followed by 16.00 per cent respondents were engaged in dairy and agriculture along with Agri related other activities and 12.00 per cent of the respondents were engaged in dairying only. These findings are supported by Patel (2005) [7]. The economic status indicated by annual income depicts that the majority (64.50%) of the farmers belonged to low level of income (<25,000 rupees) group, whereas 20.00 per cent of farmers had medium level of income (25,000-50,000 rupees) and 15.50 per cent farmers had high level of income (>50,000 rupees) group. It clearly notifiable that, the annual income of dairy farmers was low to medium level. The maximum contribution of their income came from dairy business which was quite high as compare to agriculture. (Rathod, 2011) [10].

Sources of milk was revealed that majority of 91.50 per cent respondents possessed his owned milch animals for dairying followed by 08.50 per cent of the respondents were collected milk from other persons at village level and sold to the consumers. Dairy farming experience indicates that 63.50 per cent of the respondents had medium experience followed by 19.00 per cent with a high level and 17.50 per cent had a low level of experience in dairy farming. It is observed that, majority of respondents had medium to high category of farming experience. This may be due to consistency in income from dairy farming that make them assured for their future stability, hence the dairy farming started by young farmers could flourish with their experience in dairying. These results are in conformity with the findings of Raina (2016) [8].

Daily milk production was revealed that, majority of respondents 56.00 per cent belonged to medium level of milk production i.e. (up to 5 to 10 lit.) followed by 32.50 per cent respondents belonged to low milk production (up to 5 lit.) and 11.50 per cent of respondents had high milk production i.e. (above 10 lit.). In case of daily milk sale, majority of respondents 52.00 per cent belonged to medium category of milk sale i.e. (Up to 5 to 10 lit.) followed by 38.50 per cent respondents belonged to low category (up to 5 lit.) and 09.50 per cent of respondents had high category of milk sale i.e. (above 10 lit.). These results are in conformity with the findings of Bhosale et al. (2014) [3].

In case of risk preference, it is observed that, large proportion of respondents having Perishability of milk and milk products, Risk caused by illiteracy and risk in milk production had 79.0, 63.5 and 59.0 per cent, respectively had medium risk preference, however, risk in milk price variability was 80.5 per cent and risk in lack of production hygiene was 77.0 per cent of respondents had low risk preference, technological risk was 88.0 per cent of respondents had high risk preference. The risk bearing capacity of an individual depends upon the personal, socio-economic and psychological characteristics. The young to middle age educated farmers with more farming experience had medium risk orientation. This is evident from the results which might be because of contact with extension personnel by the respondents which increase the perception and confidence in dairy farmers about new technologies and to gain more income by taking risk. All these factors might have resulted in the respondents belonging to medium risk orientation. These findings corroborate with the findings of Chandrasekhar et al. (2017) [4].

A comparative glance on costs among cows and buffaloes.

Table 2: Production and maintenance cost of per milch cow and buffalo per day (In Rs. /Milch animal/day)

Sr. No.	Items of cost	Cow	Buffalo
	A) Variable cost		
1)	Feed and fodder cost		
	1.Dry fodder	49.04	49.76
	2.Green fodder	25.47	27.99
	3. Concentrate	68.97	72.97
	Total feed cost	143.48	150.73
2)	Total human labour charge	45.58	43.24
	1.family labour charge	18.53	21.09
	2.hired labour charge	27.05	22.15
3)	Veterinary charges	22.47	20.75
4)	Miscellaneous cost	12.22	13.39
A)	**Total variable cost**	**223.75**	**228.12**
	B) Fixed cost		
5)	Depreciation on cattle shed	2.35	2.35
6)	Depreciation on animals	13.05	14.99
7)	Electricity and water charges	6.23	6.54
B)	Total fixed cost	21.63	23.88
C)	Total cost (A+B)	245.38	252.00
8)	Interest on total cost	0.08	0.08
9)	Total maintenance cost/ day/ cow	245.46	252.08
10)	Income from dung	23.73	26.12
11)	Net cost (Rs)	221.74	225.96

All the above results indicates that, the net cost was comparatively high for buffaloes as compared to cows. It was also noticed that the total feeds cost and the total fixed cost were both less in cows and relatively more in buffaloes. However, human labour and expenditure on veterinary charge were found to be maximum in the case of cows and minimum in buffaloes. The income from dung was also more for buffaloes as compared to cows.

Economics of milk production per milch animal per day
The details of economics of milk per milch cow per day has been shown in Table 3. On small farmers net cost was found higher Rs. 223.52, followed by medium farmers Rs. 221.72 and large farmers Rs. 220.03, respectively. Gross Return on

large farmers Rs. 335.80 was comparatively high followed by medium farmers Rs. 322.19 and small farms Rs. 310.25. The milk yield was highest on large farmers 7.10 litres followed by medium farmers 6.80 litres and small farmers 6.55 litres. Cost of production of milk was observed maximum in small farmers Rs. 37.49 per litre, followed by medium farmers Rs. 35.79 per litre and large farmers Rs. 34.60 per litre. It was

also observed that the selling price of milk was minimum in large farmers Rs 43.68, per litre followed by medium farmers Rs 43.93 per litre and maximum in small farmers Rs 44.00 per litre. Net returns was found comparatively high in the case of large farmers Rs.90.09 followed by medium farmers Rs. 77.00 and small farmers Rs 64.68.

Table 3: Economics of milk production per milch animal per day

Categories of milch animals	Small farmer	Medium farmer	Large farmer	Overall
Cow				
Net cost (Rs)	223.52	221.72	220.03	221.73
Milk yield (litres)	6.55	6.80	7.10	6.81
Cost of milk (Rs/ litre)	37.49	35.79	34.60	36.04
Selling of milk (Rs/ litre)	44.00	43.93	43.68	43.87
Gross return (Rs) (milk + dung)	310.25	322.19	335.80	322.48
Net return (Rs)	64.68	77.00	90.09	77.02
B:C ratio	1.26	1.31	1.36	1.31
Buffalo				
Net cost (Rs)	228.46	225.12	224.33	225.96
Milk yield (litres)	7.0	7.2	7.5	7.23
Cost of milk (Rs/ litre)	36.20	34.89	33.54	34.86
Selling of milk (Rs/ litre)	49.00	48.62	48.08	48.56
Gross return (Rs) (milk + dung)	367.95	376.20	387.88	377.20
Net return (Rs)	114.55	124.94	136.27	125.12
B:C ratio	1.45	1.49	1.54	1.49

The benefit cost ratio was found comparatively higher on large farmers 1: 1.36, followed by medium farmers 1: 1.31 and small farmers 1:1.26 respectively and overall B:C ratio is 1:1.31.

Table 3 has reveals that, economics of milk per milch buffalo per day. On small farmers net cost was highest Rs. 228.46, followed by medium farmers Rs. 225.12 and large farmers Rs. 224.33. Gross return on large farmers Rs. 387.88 was highest, followed by medium farmers Rs. 376.20 and small farmers Rs. 367.95. The milk yield was highest on large farmers 7.5 litres, followed by medium farmers 7.2 litres and small farmers 7.0 litres. Cost of milk production was observed maximum in small farmers Rs. 36.20 per litre, followed by medium farmers Rs. 34.89 per litre and large farmers Rs. 33.54 per litre,. It was also indicated that the selling price of milk was minimum in the case of large farmers Rs. 48.08, per litre followed by medium farmers Rs 48.62 per litre and maximum in small farmers Rs. 59.00 per litre. Net returns was found highest in the case of large farmers Rs.136.27. followed by medium farmers Rs. 124.94 and small farmers Rs 114.55. (Singh *et al.,* 2017) [12].

The benefit cost ratio was found high on large farmers 1: 1.54, followed by medium farmers 1: 1.49 and small farmers 1:1.45 and overall B:C ratio is 1:1.49.

Conclusions
Dairying has become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generating opportunities particularly for small as well as medium farmers. The results obtained from these investigation found that in the study area, the dairy business was done as a subsidiary business to agriculture by most of the farmers. The cost and return analysis revealed that small farmers were earning less profit as compared to medium and large farmers. The cost of production and total maintenance cost of cow milk was higher than that of buffalo milk. Farmers linked to the modern supply chain of milk can lower

their milk production costs (per litre) and increase their income. Dairy farming appeared to be a successful activity in the study region, according to the survey.

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