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Study of Purchase-sell of Livestock and Availing of Subsidy Benefits among Commercial Dairy Farmers of Gujarat

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Authors' contributions

This work was carried out in collaboration among all authors. Author LMS designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author ALS managed the data collection of the study. Author DNG helped in data collection. All authors read and approved the final manuscript.

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ABSTRACT

A field survey was conducted in Navsari district by selecting 40 commercial dairy farmers randomly from Navsari and adjoining areas. The commercial farm that possessed 20 Adult Unit of either cattle or buffalo was considered for the study. The desired information pertaining to livestock purchase-selling practices with criteria was collected with the help of pre-designed and pre-tested questionnaire. The data regarding problems found in purchased animals were collected by using 5 point Likert agreement scale. Analyzed data revealed that overall total herd strength was 52.07±5.24. It included 16.48±2.44 milch buffalo, 4.82±0.82 dry buffaloes, 5.90±0.76 milch cows and 2.12±0.33 cows. The herd strength across both regions was nonsignificant. Many livestock keepers were availing subsidies for construction of shed, purchase of chaff cutter, milking machine, rubber mats and livestock. Subsidy for purchase of chaff cutter was enjoyed by 20% respondents,

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whereas 12.5% respondents were benefited by subsidy for construction of shed and purchase of livestock. However, about 47% of them were not taken any kind of subsidy for their farm. The reasons for not availing subsidy showing that 17.5% respondents were not knowing/not tried to avail subsidy benefits. The analyzed data on livestock prizing showed that buffaloes were costlier than cows. The average purchase price was Rs. 72161±2195 and 58291±5233 for buffaloes and cows, respectively. Average selling price was quite lower than purchased price for cows and buffaloes. It was Rs. 28463±625 and 27083±2083 for buffalo and cow, respectively. Further, the livestock buyer was not much satisfied with purchased animals as they were having many problems like mastitis, repeat breeding, less milk production etc.

Keywords: Buffalo; cow; purchase; selling; subsidy; trading.

1. INTRODUCTION

Trading of dairy bovines in rural India is one kind of essential and continuous activity. Further, purchase of dairy bovines is very essential for entrepreneurs who want to start dairy farming. Surplus or defective animals must be removed from the farms to maintain profitability. Sale of such animals is also a good source of profit in dairy farms [1]. Without remunerative market it is not possible to make livestock production a profitable commercial venture [2]. The replacement of old animals with new one is continuous process. However, it is expected that replacement was generally done by farm bred heifers in dairy farms with less purchase as purchasing a better variety of milking animals by a farmer is totally unorganized, based on trust, hence, totally a risk activity [3]. Urban dairy farms generally avoiding heifer rearing due to space availability constraints, hence, replacement is done by purchasing of animals. Purchase price, selling price, purchase and selling rate are varying from farm to farm and area to area. Government decides base price of cow/buffaloes for providing subsidy benefits. As per information available in i-khedut portal at present base price of milch cow/buffalo is Rs 30000/-. However, actual trading price of good milch cows or buffaloes is not available in literature. Hence, an efforts were made to document numbers of animal brought, sold with their price in commercial dairy farms in one year. Government of Gujarat is providing loans with subsidies through many schemes for promotion of dairy enterprise and employment generation through livestock keeping. The information about various schemes, procedure etc is now very easy at online i-Khedut portal. However, use of the schemes by commercial dairy farmers was not studied so far. Hence, the benefits of subsidies so far received by farmers for construction of shed, purchase of equipments, feeds etc were also studied.

2. MATERIALS AND METHODS

A field survey was conducted in Navsari district of south Gujarat. The area fall in 8 km radius to Navsari was consider as urban area whereas, the areas falls in 16 km radius minus urban area was considered as peri-urban area. From urban and peri urban areas 6 villages were selected at randomly. Twenty dairy farmers each from urban and peri urban who possessed 20 Adult Unit of either cattle or buffalo were selected randomly to make total 40 commercial dairy farms for the study. The selected dairy farmers were interviewed and the desired information was collected regarding herd strength, purchases, selling and availing of subsidies of Government schemes by commercial farms with the help of questionnaire. Purchase sell made during last 12 months were considered for the study. The benefits of subsidies received during last 5 years were taken into accounts. The data regarding problems found in purchased animals were collected by using 5 point Likert agreement scale from all respondents. Based on relevance of particular problem in purchased animals score 1, 2, 3, 4 and 5 were assigned to always, very often, sometimes, rarely and never categories of frequency of particular criteria. Collected data about herd composition, problems and purchase sell detail was tabulated and analysis of variance along with means and standard error analyzed was calculated in SPSS. The data about availing subsidy benefits were analyzed by using cross tab menu in SPSS and chi square test was used to find statistical significance.

3. RESULTS AND DISCUSSION

3.1 Herd Composition

Herd composition and details about animal purchase and sell by dairy farmers is analyzed according to age and classes and presented in Table 1. It shows that the average overall total

herd strength was 52.07±5.24. It was statistical similar in urban and peri urban regions. It is also clear that buffaloes and their followers were major part in pooled herd composition. The detailed pooled herd included 16.48±2.44 and 4.82±0.82 milch and dry buffaloes, respectively. Table also depicted that dairy farms were having 5.90±0.76 and 2.12±0.33 heads of milch and dry cows, respectively. More numbers of adult buffaloes along with heifers was found in urban area. Average of breeding buffalo bull was 1.00±0.00 and cattle bull were also 1.00±0.00, hence, due to same number p value was not possible. This data suggest that farmers are more interested in buffalo keeping as compared to cattle and was also reported earlier that dairy farms in south Gujarat were keeping buffaloes in higher numbers [4]. The reason for the buffalo keeping was their milk possesses higher percentage of fat which can earn more money. Another reason is buffalo are more heat tolerant than cattle. Farmers were kept buffalo breeding bull as they bred the female with it. This indicated that they believe in Natural service in buffaloes and also economically it was expensive to bred large number of buffaloes by Artificial insemination. Dairy farmers did not kept male calves instead of they are sending them to Gaushalas at free of cost. This result was in accordance with previous study [4] who observed that average herd size of milch animal on small, medium, and large farms was 25.95, 39.49, and 73.44, respectively. Similar finding was also observed in another study conducted in Rajasthan in 2014 [5]. Herd size observed in both types of farming were less than specialized dairy farming in Gujarat [1].

3.2 Availing Benefits of Subsidy

Government is running various programmes to assist dairy farmers for enhancement or promote dairy farming. As per official website of department of animal husbandry, Gujarat [6] Government is providing subsidy for purchase of cattle and buffaloes under many schemes. For example under “scheme for Assistance to Establish 12 Milch animal farm for self-employment, 2018-19 (for all category)” Government provides financial assistance with subsidy for purchase of 12 Animal, shed construction, purchase of chaff cutter, fogger system, milking machine and animal insurance for 3 years. Now a days Government use to give importance to the animal husbandry business at village level to make animal husbandry a pillar of rural employment and thus, to achieve the goal of doubling farmers income by 2022. Now the process of allotting loan and subsidy is quite simple and transparent as Government of Gujarat is using online i-khedut portal for this purpose. Due to its simplicity many farmers are taking benefits of various schemes and subsidies from government. The collected data regarding benefit of subsidies received by dairy farm owners of both regions is presented in the Table 2. It is showing that subsidy for purchase of chaff cutter was at top as 8 farms (20% farms) were taken benefit. Some farms (12.5%) were also enjoyed subsidy for construction of shed and purchase of livestock. The modern equipments like milking machines and rubber mats were also purchased by some farms (2.5-5%) on subsidy. Chi square test revealed that the numbers of farms enjoyed subsidy was nonsignificant between urban and periurban region. Total 7 urban and 12 periurban farms were not taken any of above. The data in Table 2 shows that famers were aware about of chaffing of fodder hence, they were able to receive subsidy for chaff cutter. However, purchase and use of milking machine was very meager. As they don’t think that machine is useful for buffalos. Further, an interesting point came to knowledge that in their families each and every adult were involved in milking their animals, hence, due to adequacy of man power they haven’t thought about milking machine. Farmers were replacing their some percentage herd every year for this purpose they received benefit of livestock subsidy. Although the percentage of respondents were higher which do not received any subsidy that indicated farmer were less aware about subsidy given by government or dairy. This result was in agreement with previous study [7] who observed that due to not proper implantation of distribution programmer, farmers did not taken benefit of subsidy. The reasons for not availing subsidy benefits showing that 17.5% respondents were not knowing/not tried to avail subsidy benefits. As per one finding the provision of subsidy for livestock sector is quite low compared to crop subsidies [8]. Therefore, many respondents (12.5%) have applied for subsidy but could not receive and same number of participants could not get the benefit due to lack of documents. During survey it was came to knowledge that many farm owners were basically from other regions of Gujarat and they were still having the documents of their native place instead of Navsari. Therefore, such respondents cannot get benefit of government schemes.

3.3 Animal Purchase and Sell Details in Last Year

The animal is an important asset of reserve for meeting expenses of the farmers in different parts of the country. Animal selling is good source of income generation for the farmer. Purchasing of them was required for increasing total production in their herds. The animal trading activities of the respondents for the last one year are described in the Table 3 which depicts that about half farms in both regions were traded buffaloes, however trading of cattle was found in about 25% farms. Purchase of buffaloes were significantly higher in urban farms. The pooled average purchase price were Rs. 72161±2195 and 58291±5233 for buffalo and cow, respectively. Average selling price were Rs. 28463±625 and 27083±2083 of buffalo and cow, respectively. Statistically it was similar between two regions, however, price of buffaloes was more than cows. It was found that farmers sold their animal to small farmers in village who kept 2-3 animals. Earlier study [9] revealed that purchase price of buffaloes was depending upon age, lactation order, stage of lactation etc. They have reported maximum price of buffalo Rs13600 in Solapur district in Maharashtra which is quite lower than price observed in present study. Excellent milk producer Mehsani and Banni breeds were traded in present study, thus, better price was fetched. Furthermore, there is inflation gap in pricing between present and previous study are also there due to about 8 year difference between both research. Previous study also observed that crossbred of HF and Jersey have high value [10]. However, there are some reports are not in accordance with present finding [11,4]. They reported very low purchased price for cattle and buffalo. It might be due to the fluctuation in demand of livestock from region to region and time to time. Statically it was similar in both regions. During research it was observed that they have purchased milking animals which are in 2nd lactation. In this study it was found that famers purchase buffalo from Bhuj, Banashkatha, Bhavnagar, Tharad, Mehsana and from local market. The choice of breed of dairy farmers was Mehasani, Bunny, Murrah and Jaffarabadi. Regarding purchase of cattle it was found that they purchase it from Junagadh, Nasik, Luni, Ganganagar, Punjab and local market also. Mainly crossbred cattle were purchased by farmers, whereas, few respondents had purchased Gir Cattle.

Table 1. Livestock composition of selected urban and periurban dairy farm

Class/Species Livestock		Urban		Peri urban		Overall		P
		n	Mean ±S.E	n	Mean ±S.E	n	Mean ±S.E	
Buffalo	Milch	20	19.10±3.21	20	13.85±3.66	40	16.48±2.44	0.288
	Dry	20	5.58±1.44	20	4.10±0.87	40	4.82±0.82	0.378
Cattle	Milch	20	5.55±0.91	20	6.25±1.23	40	5.90±0.76	0.652
	Dry	20	2.10±0.52	20	2.15±0.41	40	2.12±0.33	0.941
Heifer	Pregnant	20	0.85±0.33	20	0.30±0.13	40	0.57±0.18	0.125
(Buffalo)	Non pregnant	20	3.45±0.96	20	2.00±0.48	40	2.72±0.54	0.184
Heifer	Pregnant	20	0.25±0.12	20	0.10±0.07	40	0.17±0.07	0.294
(Cattle)	Non pregnant	20	1.35±0.31	19	1.53±0.34	39	1.43±0.22	0.706
Calves	Male	19	6.37±1.13	20	4.60±1.39	39	5.46±0.90	0.332
(Buffalo)	Female	20	8.55±1.87	20	6.25 ±1.69	40	7.40±1.26	0.368
Calves	Male	20	2.45±0.39	20	2.40±0.53	40	2.42±0.32	0.940
(Cattle)	Female	20	2.30±0.51	20	2.50±0.44	40	2.40±0.33	0.771
Breeding bull buffalo		9	1.00±0.00	6	1.00±0.00	15	1.00±0.00	--
Breeding bull cattle		2	1.00±0.00	1	1.00±0.00	3	1.00±0.00	--
Total herd strength		20	57.85±7.41	20	46.30±7.36	40	52.07±5.24	0.276

Table 2. Frequency distribution of dairy farms based on benefits of subsidies received

Subsidy availed for	Urban (n=20)		Peri-urban (n=20)		Overall (n=40)		Chi square	
	n	%	n	%	n	%	Value	p
Construction of shed	4	20	1	5	5	12.5	6.316	0.277
Purchase of chaff cutter	4	20	4	20	8	20		
Purchase of milking machine	0	0	1	5	5	2.5		

Subsidy availed for	Urban (n=20)		Peri-urban (n=20)		Overall (n=40)		Chi square	
	n	%	n	%	n	%	Value	p
Purchase of rubber mats	2	10	0	0	2	5		
Purchase of livestock	3	15	2	10	3	12.5		
No benefit received	7	35	12	60	19	47.5		
Reasons for not availing subsidy benefits								
Not knowing/not tried	2	10	5	25	7	17.5	5.364	0.094
Not entitled for subsidy	1	5	1	5	2	5		
Applied but not received	1	5	4	20	5	12.5		
Lack of documents for application	3	15	2	10	5	12.5		
Total	20	100	20	100	40	100	--	--

Table 3. Purchase-sell details (Mean±S.E) of commercial dairy farmsd

Sr. No.	Particulars	Urban		Peri urban		Over all		p
		n	Mean ± S.E.	n	Mean±S.E.	n	Mean± S.E.	
1	Number of buffaloes purchased	10	8.40±1.65	8	4.75±0.72	18	6.58±1.19	0.028
2	Average purchase price (Rs.)	10	72328±2185	8	71994±2206	18	72161±2195	0.656
3	Number of buffalo sold	11	4.27±0.45	9	3.56±0.60	20	3.92±0.53	0.964
4	Average selling price (Rs.)	11	29150±491	9	27777±760	20	28463±625	0.836
5	Number of cattle purchased	4	3.50±0.29	6	4.20±1.06	40	3.85±0.68	0.066
6	Average purchase price (Rs.)	4	56666±1666	6	59916±2800	40	58291±5233	0.320
7	Number of cattle sold	2	2.5±0.50	2	2.5±0.50	4	2.5±0.5	--
8	Average selling price (Rs.)	2	27500±2500	2	26666±1666	4	27083±2083	--

Table 4. Mean agreement scales of problems found in purchased animals

Problems found in purchased animals	CB Cows	Indigenous Cows	Buffaloes	Overall	p	Rank of problem
n	40	40	40	120		
Poor fat/SNF	1.80±0.20	1.15±0.07	1.58±0.16	1.51±0.09	**0.011**	I
Metabolic diseses	1.80±0.20	1.55±0.14	1.63±0.14	1.66±0.10	0.549	II
Prolapse/ROP	1.83±0.21	1.58±0.14	1.60±0.13	1.67±0.09	0.494	III
Behavioral problems	1.90±0.20	2.33±0.24	1.83±0.16	2.02±0.12	0.175	IV
Mastitis	2.30±0.24	1.98±0.20	1.98±0.19	2.08±0.12	0.459	V
Repeaters	2.45±0.25	1.78±0.18	2.00±0.17	2.08±0.12	0.056	V
Less milk production than expectation	1.88±0.19	2.35±0.24	2.33±0.23	2.18±0.13	0.241	VI

3.4 Problems Found in Purchased Animals

The selection of animals for buying is always challengeable in Indian subcontinent [3]. The buyers are generally finding many problems in purchased animals. The means of collected data about problems found in purchased crossbred cows, buffaloes and indigenous cows in studied farms is depicted in Table 4. It is showing that mastitis, repeat breeding, less milk production than expectation and behavioral problems were important problems seen in purchased animal at some extent. Ranking of them depicts that poor fat and SNF content in milk was ranked at top. The problem was also significantly higher in

purchased crossbred cows. Generally, milk fat and SNF problem is associated with crossbred cows as in one study it was observed that around 47% of crossbred cows in Kerala (India) recorded SNF percentage below the legal standards of 8.5 [12]. The milk with low fat fetched poor price in cooperative society and milk with low SNF is not acceptable in society. Hence, such generally farmers cheats buyers by selling such cows. Metabolic diseases and prolapse/ retained fetal membrane were another important problem noticed, however, it was statistically similar in crossbred cows, buffaloes and indigenous cows. Among metabolic diseases milk fever and ketosis were also noticed in purchased animals at little extent. Generally, purchase animals are atleast some part from culling animals from other farms. The culling of cows due to involuntary reason (reproductive problems, udder problems and locomotive disorders) accounted for nearly 63.68 percent of total culling in Murrah buffaloes in the organized NDRI herd [13]. The mastitis repeat breeding problems were also problem found in purchased animals. The less milk production than commitment was also seen.

4. CONCLUSION

Less number of farmers were taking benefits of subsidies for purchase of livestock, equipments and for construction of shed. Average price of buffaloes was observed higher than cows. The purchase price of cows and buffaloes were higher than selling price. The trading of animals in commercial dairy farms are based on own mindset and ideas. Farmers were giving more importance to dairy characters than genetic merit for selecting animals. Ranking of experienced important problems were showing that purchased cows and buffaloes were mostly having problems of poor fat and SNF in milk, metabolic diseases and prolapse/ROP problem. Infertility and mastitis were two chief reasons for selling the animals from herd.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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