

Farmers' Perception about Impact of Sale of Buffaloes on Dairy Development Index and Socio-economic Conditions in Haryana

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ABSTRACT

Sale of buffaloes provides much needed cash to the farmers. However, it is also believed that due to it, valuable germplasm is being lost. Therefore, to examine the issue the study was conducted in Murrah Breeding tract of Haryana i.e. Hisar, Bhiwani, Rohtak and Jind districts. Out of these districts one village having maximum number of buffaloes sold as identified by the traders and one village having comparatively less sale of buffaloes were selected. Thus, two villages were selected from each district and the study was conducted in 8 villages of 4 districts of Haryana. On the basis of number of buffaloes sold *i.e.* 1-2, 3-5 and more than 5 buffaloes during the last 5 years proportionate random sampling was done to have a sample of 30 farmers from each village. Thus, 240 farmers constituted the study sample. Perceived impact of sale of buffaloes on the socio-economic conditions and dairy development index of farmers was studied in two categories of villages. Z-value of 14.81 and 14.77 indicated that due to sale of buffaloes farmers perceived that the socio-economic conditions improved as they had more income, better material possession, better economic motivation etc. It was also observed that there was better adoption of improved buffalo husbandry practices like AI, balanced feeding, health and management, calf management etc. Dairy Development Index (DDI) of individual farmers was calculated for all the eight villages by a formula suggested by Dixit and Laharia (1999). Mean DDI of villages from where maximum sale of buffaloes took place was 2.74 while it was 2.22 from the set of villages where it was comparatively less. Z-value of 4.85 indicated that Dairy Development Index of those villages from where maximum buffaloes were sold was better. Thus, it can be inferred that farmers feel sale of buffaloes improved socio-economic status of farmers, their adoption of improved buffalo husbandry and dairy development index of those villages from where maximum sale of buffaloes took place.

Keywords: Impact, Buffalo, Dairy Development Index, Socio-economic, Sale of Buffaloes

INTRODUCTION

India has over 111.3 million buffaloes constituting about 57 per cent of the total world population. Despite being less in number than cattle (200 million), buffaloes currently produce 62.35 million metric tonnes of milk which is about 51.2 per cent of the total milk produced from buffaloes in the country (FAO, 2012). Besides milk, 1.525 million metric tonnes of meat is also produced from this animal. Buffalo draft power also accounts for about 10 per cent of the total draft power contributed by the work animals in India. In addition to milk, meat and draft purpose, buffaloes also produce 0.52 million metric tones of skin and hides in the country. Thus, buffalo has a great significance for the country as a whole and for the village community in particular. As per the data of the Statistical Abstract of Haryana, the population of buffaloes in Haryana recorded an increase of nearly 80% from 3.37 million in 1982 to 4.37 million in 1992 and 6.03 million in

2003 though slight decrease was observed in 2007 (Statistical Abstract of Haryana, 2010).

Haryana is privileged to be the home-track of buffaloes, and hence take the pride in owning and breeding pure Murrah animals characterized by jet black color, short neck and face, tightly curled horns and deep belly with voluminous udder. The recognition of its physical qualities and production potential has created an interest across the globe influencing greater market or trading of buffaloes in Haryana. This also initiated a debate whether it was a boon or bane for the farmers though farmers happily supplemented their income from agriculture by selling such elite buffaloes at premium prices to traders from big and metropolitan cities. Headlines of buffaloes fetching over one lakh rupees are not uncommon. On the other hand, it was also perceived that the state is being robbed off good germplasm due to large scale exodus of high yielding animals., it was

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therefore, considered imperative to undertake study on the perception of farmers regarding impact of sale of buffaloes on the socio-economic conditions of the farmers and dairy development index of the villages i.e. to examine whether the number of high yielding buffaloes was increasing or decreasing in those villages from where the exodus of animals took place.

METHODOLOGY

The study was undertaken in Murrah breeding tract of Haryana constituting four districts viz. Rohtak, Hisar, Jind and Bhiwani as maximum buffaloes were sold to other states from these districts. One hundred buffalo traders located in the districts were asked to identify the villages from where maximum sale of buffaloes took place. Thus, finally on the basis of frequency of responses of these traders, 4 villages from each selected district were identified from where maximum sale of buffaloes took place. Thus, Kungarh, Singhwa, Ghudan and Deshkhera villages from Bhiwani, Hisar, Rohtak and Jind districts were identified, respectively. Farmers of these villages were further distributed into three categories, selling 1-2 animals, 3-5 animals and more than five animals in the last five years. Proportional random sampling was done to have a sample of 30 farmers from each village. Thus 120 respondents constituted the study sample (Category I). Similarly, 4 villages Lohari Jattu, Bado Patti, Dobh and Rajpura Dobhi were also identified from where comparatively less sale of buffaloes took place and a matching sample of 120 farmers of similar categories was selected (Category II). Thus the study constituted 240 farmers of 8 villages of 4 districts.

Measurement of variables

Attitude of farmers toward dairy farming was measured by scale developed by Narwal and Dixit (1991). Material possession, economic motivation, media exposure, risk orientation and economic motivation were measured with the help of modified scale developed by Pachauri (2004). Similarly, social empowerment of women and economic empowerment of women was measured by modified scale developed by Malhotra *et al.* (2002).

RESULTS AND DISCUSSION

It is a well-known fact that the behavior of every person is significantly influenced by his socio-economic background. It was also presumed that their opinion regarding impact of sale of buffaloes on their socio-economic conditions could also be determined to a considerable extent by such factors. Thus, information on 8 important socio-economic variables was also collected by developing a schedule. The mean and standard

deviation of each variable of respondents of two categories of villages *i. e.* villages from where maximum sale of buffaloes took place (Category-I) and the villages with comparatively less sale of buffaloes (Category-II) are presented in Table 1.

Table 1: Socio-economic profile of farmers

Factor / Variable	Villages from where max. sale of buffaloes took place		Villages with comparatively less sale of buffaloes	
	Mean	Std_dev.	Mean	Std_dev.
Age	41.37	4.6	42.10	9.02
Caste	3.74	1.2	3.97	1.58
Occupation	4.38	1.2	4.27	1.47
Education	4.65	1.1	3.95	1.76
Land	3.39	1.3	3.43	1.5
Family size	4.26	1.46	4.22	1.65
Herd Size	4.82	3.5	3.84	3.15

Average age of respondents in (Category-I) and (Category-II) was 41.37 and 42.10 respectively. Majority of the respondents belonged to middle category of castes. Most of the respondents had farming as their main occupation. Their education level was low to medium in general. Average land holding size of farmers was 3.39 and 3.43 acres respectively in both the categories of villages. Their average family size was 4.26 and 4.22 respectively in two categories of villages while their herd size was 4.82 and 3.84 respectively. Farmers were having comparatively bigger herd size in the villages from where maximum sale of buffaloes took place.

Measurement of dairy development was undertaken as specific and widely agreed upon parameters to measure dairy development were not available. It was therefore, considered to determine the dairy development of the farmers as per formula given by Dixit and Laharia (1996). Eminent scientists of different disciplines of animal sciences were asked to assign scores to buffaloes yielding upto 8 kg, 9 to 12 kg and > 12 kg. On the basis of their mean responses scores of 1, 2 and 3 were assigned respectively. The weighted scores of all the respondents were worked out by multiplying the number of buffaloes upto 8 kg, 9 to 12 kg and > 12 kg by 1, 2 and 3 respectively. Thus, weighted score for each farmer was calculated. This score was divided by land-holding size possessed by him and it was multiplied by rank of the district with regard to average buffalo milk production. The formula is given as under:

$$\frac{\Sigma (FB1+FB2+FB3)}{LHA} * DAMPR$$

Dairy Development Index =

FB1 = upto 8 Kg

- FB2 = 9 to 12 Kg
- FB3 = >12 Kg
- LHA = Land holding size in acres
- DAMPR = District's average milk productivity rank

Thus, dairy development index of each farmer was worked out by using this formula and results are presented in Table 2. It is apparent from the table that among (Category-I) villages of Rohtak district had maximum mean dairy development index (4.42) followed by villages of Jind (3.17), Hissar (2.33) and Bhiwani (1.04). Similar situation was observed in (Category-II) villages *i.e.* Rohtak was followed by Jind, Hisar and Bhiwani respectively. In order to find out difference in the dairy development index of farmers representing two category of villages, z-test was applied. Value of 4.85 indicated that dairy development index of those villages from where maximum sale of buffaloes was significantly better than those villages from where comparatively less sale of buffaloes took place. This can be verified from the reports of animal husbandry department which have shown maximum high yielding buffaloes are available in these villages. Kungarh and Singhwa were declared as best villages (Deputy Director AH, Hisar and Bhiwani).

Table 2: Dairy development index district wise

District	Villages from where max. sale of buffaloes took place	Villages with comparatively less sale of buffaloes	z-Value
	DDI	DDI	
Bhiwani	1.04	0.34	3.19
Hisar	2.33	1.42	2.46
Jind	3.17	1.70	3.44
Rohtak	4.42	2.65	2.80
Overall	2.74	1.53	4.85

Opinion of farmers regarding impact of sale of buffaloes on adoption of improved buffalo husbandry

Responses of farmers regarding impact of sale of buffaloes on adoption of different improved buffalo husbandry practices were collected. Information from farmers was elicited on 3 point continuum from 'agree' to 'disagree'. Mean score along with standard deviation in (category-I) and (category-II) villages were calculated for different practices like AI, balanced feeding, mineral mixture, health management and calf management were calculated and are presented in table 3. It is apparent from the table that mean score of respondents regarding adoption of different practices suggested that in (Category-I) villages in case of each practice was significantly higher than (category-II) villages. Z-values of 11.54, 13.09, 11.16, 7.07 and 6.63 suggested that adoption of AI, balanced feeding, area specific mineral mixture, health and management and calf management practices was significantly higher in category-I villages

than category-II villages. The table further revealed that in category-I villages overall adoption of improved buffalo husbandry practices was significantly better as suggested by z-value of 14.77.

Table 3: Opinion of farmers regarding impact of sale of buffaloes on adoption of improved buffalo husbandry practices

Practice	Villages from where max. sale of buffaloes took place		Villages with comparatively less sale of buffaloes		z-Value
	Mean	Std_dev	Mean	Std_dev	
Adoption of improved AI	2.79	0.4	1.78	0.87	11.54
Adoption of improved Balanced feeding	2.67	0.47	1.93	0.4	13.09
Adoption of ASMM	2.57	0.5	1.94	0.37	11.16
Adoption of improved buffalo health & management practices	2.38	0.49	1.93	0.5	7.07
Adoption of better calf management practices	2.28	0.45	1.93	0.36	6.63
Overall impact	12.70	1.71	9.52	1.64	14.77

Opinion of farmers regarding impact of sale of buffaloes on socio-economic conditions

Views of farmers were also collected regarding impact of sale of buffaloes on socio-economic conditions of farmers. Perception of farmers regarding impact on income, better material possession, number of dairies, media exposure and employment opportunities were also elicited on 3-point continuum from 'agree' to 'disagree'. Mean scores and standard deviation were computed and are presented in table 4. It is obvious from the z-values in the table that farmers in category-I villages felt that there was significantly more income(13.45), better material possession (14.81), more number of dairies (12.98), better media exposure (5.08) and better self-employment opportunities (3.38) due to the sale of buffaloes. This might be attributed to the fact that farmers had additional income through the sale of buffaloes which resulted in enhancing their purchasing power so that they had better material possession. Their awareness level was also better as they kept themselves abreast with latest knowledge of improved buffalo husbandry. They also perceived that buffalo husbandry could also be a source of employment. This contention was supported by Haryana Kisan Ayog's proceedings on "Opportunities for youth in agriculture" (2013) where it was recorded that normally 1 person gains full time employment by keeping 2-3 milch animals. Fita *et al.* (2012) in a study conducted in Ethiopia also reported that overall adoption of improved dairy husbandry

practices in the study area had positive and highly significant relationship with mass media exposure.

Table 4: Opinion of farmers regarding impact of sale of buffaloes on socio-psychological conditions of farmers

Variable	Villages from where max. sale of buffaloes took place		Villages with comparatively less sale of buffaloes		z-Value
	Mean	Std_dev.	Mean	Std_dev.	
Attitude towards dairy farming	17.87	2.12	14.5	2.28	11.84
Risk Orientation	21.88	3.27	13.24	2.75	22.14
Economic motivation	21.75	3.53	13.33	2.80	20.47
Social Empowerment of women	16.43	2.23	12.73	1.90	13.86
Economic empowerment of women	13.2	2.15	10.9	1.94	9.82

Additional income through sale of buffaloes also affects socio-psychological variables of farmers which was also studied and results are presented in Table 5. Significant differences were observed with regard to attitude towards dairy farming ($z=11.84$), risk orientation ($z=22.14$), economic motivation ($z=20.47$), social empowerment of women (16.43) and economic empowerment of women. Thus, the study indicated that sale of buffaloes was not only influencing the farmers socially, economically but psychologically also. As they earned money through sale of buffaloes, they developed positive attitude towards improved buffalo husbandry. They could afford risk by purchasing and setting high yielding buffaloes more frequently and were ready to incur more expenses on different aspects of buffalo husbandry to have more profit. Since, women contributed significantly in buffalo husbandry, so they were also involved in decisions regarding sale of buffaloes in the process got socially and economically empowered.

Table 5: Opinion of farmers regarding Impact of sale of buffaloes on socio-economic conditions

Factor/Variable	Villages from where max. sale of buffaloes took place		Villages with comparatively less sale of buffaloes		z-value
	Mean	Std_dev.	Mean	Std_dev.	
More Income	2.87	0.34	1.73	0.86	13.45
Better material possession	2.84	0.37	1.98	0.52	14.81
More number of dairies	2.68	0.54	1.85	0.44	12.98
Better media exposure	2.21	0.48	1.89	0.48	5.08
Better self employment opportunities	2.18	0.56	1.93	0.55	3.38
Overall	12.78	2.29	9.38	2.85	14.71

CONCLUSION

Thus, it can be concluded from the study that farmers of those villages from where maximum sale of buffaloes

took place had better dairy development index, better adoption of improved buffalo husbandry practices and higher socio-economic status. Since, the farmers supplemented their incomes through sale of buffaloes, therefore, efforts may be made to promote the sale of buffaloes. However, following points may be considered to preserve valuable germplasm, Database of buffaloes sold outside the state is necessary to track down their destination after the sale and district-wise list of high yielding buffaloes may be prepared and farmers may be encouraged to retain high yielding buffaloes till it has a female calf

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