CONSTRAINTS IN ADOPTION OF IMPROVED BUFFALO HUSBANDRY PRACTICES IN HARYANA

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ABSTRACT

The study was conducted in four districts of Haryana - two developed and two less developed and 240 respondents of 8 villages constituted the sample. On the basis of intensive review, 50 major constraints which hindered the adoption of improved buffalo husbandry practices in the state were identified and were classified into four aspects namely: breeding, feeding, management and health. The respondents were asked about the seriousness of these constraints on three point continuum. The overall percentage means constraints score was 68.71 per cent which indicated that the farmers perceived these constraints 'seriously'. Significant difference was observed in the perception of seriousness of constraints with regard to breeding, feeding and health practices in developed and less developed districts. The study also revealed that income and herd size were positively and significantly associated with the perception of constraints in developed districts while only herd size was significantly correlated with the perception of seriousness of constraints in less developed districts. Caste, land holding size and herd size were the three independent variables which influenced the perception regarding seriousness of constraints to a significant extent. The respondents belonging to different socio-economic stratas differed significantly with regard to perception of constraints in buffalo husbandry practices.

Key words : Constraints, Adoption and Buffalo Husbandry

INTRODUCTION :

Buffalo holds the greatest promise for food security and sustainable development in the 21st century as these animals form an integral part of the typical farming system in India. It has been the friend of small farmers often their largest capital asset. It is a fit companion for Indian farmers, who grow older along with their buffaloes developing a high degree of mutual understanding. India has over 94.13 million heads of buffaloes and they number to approximately 56.7 per cent of total world buffalo population. This animal contributes substantially towards the agricultural economy in our country by producing 39 million MT of milk that accounts more than 50% of total milk production in India (FAO, 2002). The rate of increase in milk production recorded through this animal is about 4.1 per cent annually. Probably due to this reason the buffalo population is increasing at a faster rate than the population of cows (Sandhu, 1986).

Buffalo rearing in India, particularly for dairy purposes, is generally taken up by the small farmers as a subsidiary occupation. The production of milk is not commensurate with the expenditure incurred because of constraints in adoption of recommended buffalo husbandry practices by the farmers. In Haryana, there is a need of enhanced productivity, profitability, stability and sustainability of existing farming systems. In this context commercialization and diversification of dairy farming is vital which can be achieved if the constraints are minimized. Thus, livestock in general and buffalo in particular has a special role to play. Keeping in view the above facts, it was considered imperative to undertake this study.

METHODOLOGY :

According to status report (1990) Haryana state is divided into two agro climatic zones. On the basis of average milk production of buffaloes all the districts of the state were ranked. The data on district wise milk production of Haryana revealed that Rohtak topped with an average milk production of bufaloes in eastern zone while Kurukshtra was at the lowest. In western zone Mohindergarh topped while Sirsa was having lowest average milk production in buffaloes. These districts were designated as developed and less developed, respectively. Thus, the study was conducted in four districts of Haryana, namely, Rohtak, Kurukshetra, Mohindergarh and Sirsa. Similarly, one block was selected randomly from each district. In all, the study was conducted in four blocks: Meham, Thanesar, Mohindergarh and Sirsa. At the next stage two villages were selected randomly from each block. Therefore, the study was conducted in 8 villages. On the basis of number of animals owned, the farmers were classified and proportionate random sampling was done to select 30 farmers from each village. Thus, the study constituted a sample of 240 respondents representing 8 villages and four districts - 120 from developed and 120 from less developed districts.

Measurement of variables

Independent variables–The independent variables like age, size of land holding, herd size, income level of

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the respondents were classified into three groups on the basis of mean score and standard deviation.

Dependent variables

Constraints–The list of constraints was developed with the help of experts, review of literature and preliminary survey with buffalo keepers and it was divided into four categories viz breeding, feeding, management and health on the basis of importance, type and quality of statements. To measure the degree of importance of constraints (statements), the responses were recorded on three point continuum viz. 'most important', 'important' and 'least important' in both categories of districts and the scores of 3, 2 and 1 were assigned, respectively. Thus, the constraints score of all the respondents with regard to different types of practices was worked out.

RESULTS AND DISCUSSION :

The information about 7 background variables was collected. It is obvious from the Table 1 that average age of respondent was 45.40 years. A sizable proportion of respondents were matriculate or above. Caste wise, majority of respondents belonged to dominant caste. It was further evident that majority of respondents were from low income group and small farmers. The study indicated that most of the respondents were having more than 5 family members and kept up to 4 buffaloes.

Table 1. Back ground information of respondents

Variables	Mean Score	Standard Deviation	Coefficient of Variation
Age	45.40	12.64	27.84
Education	2.93	2.09	71.33
Caste	3.58	1.90	53.07
Income	1.58	1.00	63.29
Land Holding Size	4.85	1.74	35.88
Family Size	6.76	2.09	30.92
Herd Size	2.95	2.06	69.83

Perceived constraints of buffalo owners–Practice wise mean constraints score and percentage mean score of different practices was calculated and the results are presented in Table 2. The perusal of data revealed that mean constraint score of the respondents was maximum (74.18%) in case of management practices followed by feeding (73.82%), breeding (65.38%) and health practices (62.08%). Thus, the results indicated that maximum constraints were in the area of management while minimum constraints were observed with regard to health practices. The overall mean constraint score was (68.71%) which indicates that farmers perceived these constraints 'seriously'. The results are in line with the findings reported by Sandhu (1978) who indicated that the coverage under artificial insemination centres was very low in many states. Different types of constraints in dairy were also reported by Kokate and Tyagi (1988) and Yadav and Yadav (1994) in their respective studies.

Table 2. Perceived constraints of buffalo owners

Practices	Maximum Possible Scores	Mean Score	Percentage Mean Score
Breeding	42	27.46	65.38
Feeding	45	33.22	73.82
Management	27	20.03	74.18
Health Care	36	22.35	62.08
Overall	150	103.06	68.71

Differential perception of constraints–To find out significant differences in the perception of seriousness of constraints in the adoption of different buffalo husbandry practices in developed districts and less developed district, t-test was applied. The results are given in Table 3. It is apparent from the table that the mean constraint score of all the practices was higher in developed districts. It may be attributed to the reason that perhaps they practised animal husbandry more seriously than the respondents of less developed districts and hence felt more problems. The table further indicates that t-values pertaining to breeding (2.10), feeding (6.56) and health practices (5.59) were significant. The results thus suggested that there was significant difference in the perception of respondents regarding seriousness of constraints with regard to different buffalo husbandry practices in developed and less developed districts. Findings of the study are supported by Dubey and Singh (1976), Sharma (1980), Acharya (1984), Sohal (1985) and Suman et al. (2003) who observed that lack of knowledge of diary innovations among the farmers was a serious constraint in various dairy development programmes.

Table 3. Differential perception of constraints

Practices	Maximum Possible	Developed Districts		Less Developed Districts		t-Value
	Score	Mean Score	Standard Deviation	Mean Score	Standard Deviation	
Breeding	14	28.04	3.95	26.88	4.69	2.10
Feeding	15	34.76	4.15	31.87	2.54	6.56*
Management	9	20.13	2.61	19.93	2.59	0.62
Health Care	12	23.99	5.59	20.69	3.43	5.59*
Overall	50	104.05	11.34	102.20	11.11	1.28

Correlation between constraints of buffalo owners and background variables–To determine the association of background variables with the perception of constraints, the data were subjected to co relational analysis and the results are depicted in Table 4. The table shows it clearly that caste and herd size were positively and significantly associated with breeding constraints in developed districts while herd size was positively correlated with breeding constraints in less developed

districts. It seems that the farmers with larger herd size were more concerned with regard to breeding practices. It was observed that caste and education were positively associated with the perception of feeding constraints in developed districts. While only herd size was associated with the perception of feeding constraints in less developed districts. Caste and level of income were having positive and significant relationship with the perception of constraints in management practices in developed districts where as none of the variables was having significant association in less developed districts. A cursory look at the table further indicated that education, income and herd size were positively and significantly associated with the perception of health constraints in developed districts where as only caste was having significant relationship in less developed districts. The table also revealed that with regard to pooled data income and herd size were positively and significantly associated with the perception of constraints in overall buffalo husbandry in developed districts, while only herd size was related to the constraints in buffalo husbandry in less developed districts. Similar results emanated from the studies conducted by Acharya (1984), Sohal (1985).

Table 4. Correlation coefficient between constraints of buffalo owners and their background variables

Variables	Breeding		Feeding		Management		Health Care		Overall	
	DD	LDD	DD	LDD	DD	LDD	DD	LDD	DD	LDD
Age	0.08	0.02	0.03	0.02	0.02	0.01	0.07	0.00	0.05	0.05
Caste	0.46*	0.26	0.39*	0.19	0.28*	0.09	0.24	0.31*	0.25	0.25
Education	0.12	0.04	0.50*	0.08	0.13	0.04	0.32*	0.20	0.13	0.10
Income	0.15	0.10	0.15	0.10	0.42*	0.25	0.41*	0.17	0.77*	0.23
Land Holding Size	0.08	0.00	0.25	0.02	0.17	0.01	0.10	0.03	0.22	0.07
Family Size	0.07	0.05	0.17	0.20	0.00	0.08	0.07	0.02	0.16	0.03
Herd Size	0.65*	0.32*	0.14	0.29*	0.27	0.24	0.39*	0.27	0.62*	0.35*

DD: Developed Districts, LDD: Less Developed Districts * $p<0.05$

Stepwise regression coefficient between constraints of buffalo owners and background variable–Stepwise regression was done to find out significant contribution of background variables to the perception of constraints in buffalo husbandry in both the sets of districts. The results are shown in Table 5 It is apparent from the table that age, caste and herd size could predict constraints in breeding practices to the tune of about 15.79 per cent only. In case of feeding practices caste, education, land holding size, family size, income, age and herd size contributed just 19.30 per cent. Whereas income, education, family size, caste and herd size contributed to the extent of about 17.67 per cent in the perception of constraints in management practices. Regarding health constraints it was found that caste, education, family size, land holding size and herd size could predict to the extent of about 18.11 per cent. Thus, the study revealed that caste, land holding size and herd size were the three important independent variables which could predict the constraints in overall buffalo husbandry practices to a significant extent (23.15 %). However, prediction values vary from 16 to 23 per cent only. Thus, more factors are needed to explain variation in the perception of constraints. This seems to be logical also as the perception of constraints is probably influenced by technological, psychological and extension factors also.

Table 5. Stepwise regression coefficient between constraints of buffalo owners and their background variables

Breeding	:	28.78+0.469 Caste+0.630 Herd Size+0.035 Age R^2 = 15.79
Feeding	:	37.18+0.496 Caste+0.296 Herd Size +1.13 Income+0.408 Education+0.188 Age+2.07 Family Size+0.028 Land Holding Size R^2=19.30
Management	:	15.28+0.050 Caste+0.308 Herd Size+0.505 Income+1.64 Education+0.756 Family Size R^2=17.67
Health Care	:	25.19+0.485 Caste+0.356 Herd Size+0.331 Education+ 0.254 Family Size+0.041 Land Holding Size R^2=18.11
Overall	:	113.04+1.61 Caste+1.646 Herd Size+0.083 Land Holding Size R^2=23.15

ANOVA for constraints perceived by respondents in buffalo husbandry–To find out significant differences in the perception of constraints in adoption of buffalo husbandry practices with regard to some selected variables, ANOVA was applied. The results are presented in Table 6. The findings of ANOVA suggested that the respondents of different age groups did not differ in their perception of different types of constraints (F-values = 0.85, 0.57, 1.63, 0.21). Interestingly the respondent belonging to different castes differed significantly in case of perception of constraints in breeding, feeding, management and health practices as F-values (7.56, 5.63, 9.21, and 11.35respectively), were significant. However, with regard to different level of education the difference was observed in the perception of constraints pertaining to health practices only. While farmers having different income levels differed significantly in the perception of

Table 6. ANOVA for constraints perceived by respondents in buffalo husbandry

Variables	Breeding	Feeding	Management	Health Care
Age	0.85	0.57	1.63	0.21
Caste	7.56*	5.63*	9.21*	11.35*
Education	1.30	0.68	1.44	3.57*
Income	4.67*	1.85	12.91*	4.54*
Land Holding Size	4.09*	8.67*	13.46*	0.02
Family Size	0.77	10.90*	0.00	1.28
Herd Size	9.74*	0.68	6.77*	4.57*

F-values * P<0.05

constraints except feeding practices which was indicated by non significant f-value of 1.85. In case of respondents having different land holding sizes the difference was observed in the perception of all the types of buffalo husbandry practices except health care. Significant difference was observed in the perception of respondents of different family sizes only in feeding practices. Regarding herd sizes differences were observed in the perception of constraints of all the practices except feeding constraints (F=0.68). These findings are supported by Mudgal (1979) who reported similar findings with regard to feeding practices.

CONCLUSION :

Constraint analysis revealed certain important factors which need immediate attention. For example scientists should provide latest know how on improved housing, sanitation, deworming of animals etc. Extension workers should be equipped with the latest knowledge on these aspects of buffalo husbandry so that the technologies are disseminated effectively and efficiently to the buffalo owners of the state.

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