

Adoption of no-cost and low-cost technologies of animal husbandry by tribal dairy farmwomen

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ABSTRACT

The study was conducted purposively in five tribal talukas of Vadodara district in Gujarat State during 2010-11, drawing a sample of 150 respondents to ascertain the adoption of recommended no-cost and low-cost animal husbandry technologies. Six major areas of dairy farming such as housing and general management, feeding and watering, calf rearing, breeding, clean milk production and health care were selected for the study. The overall adoption index observed was just 60.68 per cent. Further, adoption hierarchy study revealed that adoption regarding health care practices ranked I with mean score of 2.08, followed by clean milk production practices ranked II, feeding and watering practices ranked III, breeding practices ranked IV, housing and general management practices ranked V and calf rearing practices ranked VI with mean score of 2.05, 2.03, 1.95, 1.94 and 1.88, respectively.

Keywords: Dairy Farmwomen, knowledge, adoption, no-cost technology, Low-cost technology

INTRODUCTION

Animal husbandry plays an important role in national economy, socio-economic development and employment generation for rural people especially, to small and marginal farmers and landless labourers by providing round the year steady income from animal produce. India has largest milch animal population in the world but productivity of Indian dairy animal remains substantially low compared to potential and world average. Besides the poor genetic potential and poor economic status, this low productivity could largely be attributed to low level of knowledge and adoption of scientific technologies regarding four important pillars of dairy farming- i.e. breeding, feeding, health care & excellent management. Many of these technologies are mostly cost effective, either no-cost technologies or low-cost technologies which do not require much capital and skill, but only timely and careful utilization is sufficient. The knowledge and adoption of such no-cost and low-cost animal husbandry technologies by dairy farmwomen has great scope for improving productivity, profitability and sustainability of dairy farming enterprise, especially for resource poor and socio-economically deprived tribal dairy farmwomen. So far, very limited efforts have been made to study the extent of adoption of no-cost and low-cost technologies of animal husbandry by dairy farmwomen

in tribal area of Gujarat state. Therefore, this study was conducted to ascertain the extent of adoption of no-cost and low-cost technologies of animal husbandry by tribal dairy farmwomen of Gujarat state.

METHODOLOGY

The present study was conducted purposively in five tribal talukas of Vadodara district in Gujarat during 2010-11. Important and relevant no-cost and low-cost animal husbandry technologies in six major areas/categories of dairy farming viz, (1) Housing and general management (2) Feeding and watering (3) Calf rearing (4) Breeding (5) Clean milk production and (6) Health care were selected under study through expert opinion. Multistage sampling technique was used to select the respondents. In first stage, out of total 12 talukas of Vadodara district, the five talukas namely Chotaudepur, Pavi-jetpur, Kavant, Nasvadi and Shankheda which comes under tribal areas were selected purposively. With the help of random sampling method three villages were selected from each selected tribal taluka and from each selected villages, ten dairy women members were randomly selected which constituted a total sample size of 150 women respondents.

The extent of adoption of no-cost and low-cost animal husbandry technologies by tribal dairy farmwomen

was measured with the help of semi structured schedule based on judges' opinion. The structured schedule included total 45 relevant no-cost and low-cost animal husbandry technologies/practices classified in the group of six major animal husbandry practices for dairy farming. In the semi structure schedule, there were three columns against each of 45 sub-practices representing 'Fully adopted' 'partially adopted' and 'Not adopted' with weightage of 2, 1 and 0 score, respectively.

The numbers of sub-practices included in each major group of animal husbandry practice and the possible practice wise adoption score as well as total adoption scores that a respondent would obtained as under:

Sr. No	Group of animal husbandry practice	Numbers of no-cost & low-cost technologies included in the structured schedule of their adoption	Possible adoption score
1	Housing and general management	12	00 to 24
2	Feeding and watering	05	00 to 10
3	Calf rearing	06	00 to 12
4	Breeding	04	00 to 08
5	Clean milk practices	12	00 to 24
6	Health care	06	00 to 12
Total practices		45	00 to 90

Overall adoption index and practice wise adoption index were calculated on the basis of obtained score divided by maximum possible score and multiplied by hundred. All the respondents were grouped in to three categories viz.1. Low ($< \bar{X} - S.D$), 2. Medium (In between $\bar{X} \pm S.D$) and 3. High ($> \bar{X} + S.D$) for their total adoption level as well as practice wise adoption level of no-cost and low-cost animal husbandry technologies for dairy farming .

Three point rating scale was used and 3, 2 and 1 score was assigned to high, medium and low adoption level respectively for each of six animal husbandry practices. To lay down the adoption hierarchy, the mean score for adoption of each practice was calculated, on the basis of which, ranks were assigned to the adoption level of each of six selected practices from higher to lower.

RESULTS AND DISCUSSION

Practice wise adoption of no-cost and low-cost technologies of animal husbandry

The practice wise adoption of no-cost and low-cost technologies of animal husbandry by tribal dairy farmwomen is summarized in Table 1.

Table 1 : Practice wise adoption of no-cost and low-cost technologies of animal husbandry by tribal dairy farmwomen
n = 150

Sr. No.	Practices	Mean	S.D.	Adoption level					
				Low	Medium	High	Total score	Mean score	Rank
1	Housing and general management	60.22	13.00	35 (23.33)	89 (59.33)	26 (17.34)	291	1.94	V
2	Feeding and watering	56.07	16.98	19 (12.67)	108 (72.00)	23 (15.33)	304	2.03	III
3	Calf rearing	59.44	17.61	38 (25.34)	92 (61.33)	20 (13.33)	282	1.88	VI
4	Breeding	64.08	25.47	40 (26.67)	77 (51.33)	33 (22.00)	293	1.95	IV
5	Clean milk Production	60.83	12.05	16 (10.67)	110 (73.33)	24 (16.00)	308	2.05	II
6	Health care	61.11	17.98	26 (17.33)	88 (58.67)	36 (24.00)	312	2.08	I

N.B: Figures in parentheses indicate the percentage

Adoption regarding no-cost and low-cost technologies of housing and general management practices

Table 1 shows that, nearly three-fifth (59.33 per cent) of tribal dairy farmwomen found with medium level of adoption regarding no-cost and low-cost technologies of housing and general management practices, followed by 23.33 and 17.34 per cent of tribal dairy farmwomen found with low and high level of adoption, respectively. It can be concluded that, more than four-fifth (82.66 per cent) of dairy farmwomen were found with low to medium level of adoption regarding no-cost and low-cost technologies of housing and general management, which is due to fact that majority of tribal dairy farmwomen failed to provide proper floor and manger in cattle shed due to their traditional Kachha housing and poor economic condition, and also observed that majority of them were not following the practices of regular grooming of dairy animals, ectoparasitic control measures, purchasing the dairy animals after veterinary check up and maintaining the different records for productivity and profitability of dairy farming. This finding is in contrast to the reports by Singh and Chauhan (2009) and Rathore *et al.* (2009).

Adoption regarding no-cost and low-cost technologies of feeding and watering practices

The data given in Table 1 indicated that, nearly three-fourth (72.00 per cent) of tribal dairy farmwomen found with medium level of adoption regarding no-cost and low-cost technologies of feeding and watering, followed by 15.33 and 12.67 per cent of tribal dairy farmwomen found with high and low level of adoption, respectively. It can be inferred that, vast majority (87.33 per cent) of the dairy farmwomen had medium to high level of adoption regarding no-cost and low-cost technologies of feeding and watering practices. This is attributed to the findings of field survey that majority of the tribal dairy farmwomen were providing adequate fresh – clean water, green fodder and feeding of chaffed green fodder as well as dry fodder for better productivity, profitability and sustainability of dairy farming due to better availability of drinking water and consciousness of respondent about feeding and watering practices. However, majority of tribal dairy farmwomen were not utilizing urea treatment of poor quality roughage and regular feeding of mineral mixture along with concentrate might be due to poor knowledge regarding importance of urea treatment and mineral mixture for higher productivity and profitability of dairy farming. Similar findings were reported by Arora *et al.*, (2006), Bhakar

et al. (2006), and Rathore *et al.* (2009).

Adoption regarding no-cost and low-cost technologies of calf rearing practices

The data presented in Table 1 regarding adoption level of no-cost and low cost technologies of calf rearing practices among dairy farmwomen revealed that slightly more than three-fifth (61.33 per cent) of the them had medium level of adoption followed by 25.34 per cent and 13.33 percent of the dairy farmwomen had low level and high level of adoption respectively. It can be concluded that majority (86.67 per cent) of the dairy farmwomen had low to medium level of adoption regarding no-cost and low-cost technologies of calf rearing practices. During field survey it was observed that majority of the tribal dairy farmwomen were not following the practices of naval cord treatment immediately after calving, fed colostrums to newly born calf after the expulsion of placenta only (due to misconception that if they feed colostrums immediately after birth, then the animal would not release the placenta and it also could lead to diarrhea in calves), were not following recommended deworming schedule but dewormed when calf was off-feed or when worms were observed in faeces, and majority were not dehorned their calf, which accounted for such findings. Discussion with the dairy farmwomen revealed that they were unaware of the health implications and benefits of practicing naval cord cutting, timely colostrums feeding and deworming to calf. This finding is in conformity with the findings of Singh and Chauhan (2009).

Adoption regarding no-cost and low-cost technologies of breeding practices

Table 1 shows that more than half (51.33 per cent) of tribal dairy farmwomen were with medium level of adoption regarding no-cost and low-cost technologies of breeding practices, followed by 26.67 and 22.00 per cent with low and high level of adoption, respectively. It can be inferred that more than three-fourth (78.00 per cent) of dairy farmwomen were found with low to medium level of adoption regarding no-cost and low-cost technologies of breeding management, which is due to fact that majority of tribal dairy farmwomen were not following the pregnancy diagnosis practices after 60-90 days of AI /natural services and vast majority of them had not adopted AI /natural service to milking animal after 90-120 days of calving due to ignorance and misconception of reduction in milk production of milking dairy animals, besides the lack of faith and poor facilities of AI and pregnancy diagnosis. This finding is supported with the findings of Mavi *et al.* (2006) and Singh and Chauhan (2009).

Adoption regarding no-cost and low-cost technologies of clean milk production practices

The data given in Table 1 indicated that, nearly three-fourth (73.33 per cent) of tribal dairy farmwomen found with medium level of adoption regarding no-cost and low-cost technologies of clean milk production, followed by 16.00 and 10.67 per cent of tribal dairy farmwomen found with high and low level of adoption, respectively. It can be inferred that vast majority (89.33 per cent) of the dairy farmwomen had medium to high level of adoption regarding no-cost and low-cost technologies of clean milk production practices. It was found during field survey that, majority of the tribal dairy farmwomen were following the practices of cleaning of floor, washing and drying udder, hind quarter of animal and milker's hands before milking, cleaning milking utensil regularly, avoiding roughage feeding at milking and quick delivery of milk to the village co-operative immediately after milking accounted for such findings. It does not necessarily due to their awareness about importance of clean milk production practices, but in most of cases, it may be due to common hygienic concept and traditions. Therefore, considerable proportion of dairy farmwomen were practicing knuckling method (wrong method) of milking and majority of them were not following the important clean milk production practices, viz. discarding two strips of milk from each teat, stripping at the end of milking, milking sick and treated animal at the last and keeping their milk separate and filtering fresh milk with clean and dry cloth. This finding is in line with the findings of Mohi and Bhatti (2006).

Adoption regarding no-cost and low-cost technologies of health care practices

The data given in Table 1 indicated that, slightly less than three-fifth (58.67 per cent) of tribal dairy farmwomen were found with medium level of adoption regarding no-cost and low-cost technologies of health care practices, followed by 24.00 and 17.33 per cent with high and low level of knowledge, respectively. It can be concluded that vast majority (82.67 per cent) of the dairy farmwomen had medium to high level of adoption regarding no-cost and low-cost technologies of health care practices. This is attributed to the findings of field survey that majority of the tribal dairy farmwomen were adopting timely and regular vaccination of dairy animals against commonly occurring contagious diseases, reported promptly the incidence of contagious diseases to Government authority and were following hygienic disposal of placenta and dead body, which proves the efficient health care services provided by State Animal Husbandry

Department and District Co-operative Dairy Union. The result of these practices evident in form of good health of animal, continuous and steady milk production by dairy animal, thus, the high degree of adoption observed. However, majority of tribal dairy farmwomen were not isolating the sick animal from healthy animal and were not following the deworming of adult animals. This may be attributed to poor economic condition, unavailability of separate housing facility and poor knowledge regarding the harm caused by the parasitic load. This finding is in conformity with the results reported by Mohi and Bhatti (2006).

Practice-wise adoption hierarchy

On the basis of mean score presented in Table 1, an adoption hierarchy among the tribal dairy farmwomen regarding no-cost and low-cost technologies of animal husbandry was assigned and diagrammatically depicted in Fig.21. According to adoption hierarchy, adoption regarding health care practices ranked I with mean score of 2.08, followed by clean milk production practices ranked II, feeding and watering practices ranked III, breeding practices ranked IV, housing and general management practices ranked V and calf rearing practices ranked VI with mean score of 2.05, 2.03, 1.95, 1.94 and 1.88, respectively. This concluded that there is still a large scope for improvement in adoption of selected no-cost and low-cost technologies of animal husbandry with special emphasis of housing and general management, breeding and calf rearing practices of animal husbandry by tribal dairy farmwomen while preparing the extension programmes for tribal dairy farming development.

Overall adoption of no-cost and low-cost technologies of animal husbandry by the tribal dairy farmwomen

On the basis of total adoption score obtained by the tribal dairy farmwomen, they were grouped in to three categories and data regarding this aspect are presented in Table 2.

Table 2: Distribution of tribal dairy farmwomen according to their adoption level of no-cost and low-cost technologies of animal husbandry

n =150

Sr. No.	Level of adoption	Frequency	Per cent
1	Low (below 47.77 Score)	26	17.33
2	Medium (47.77 to 73.59 Score)	100	66.67
3	High (above 73.59 Score)	24	16.00

Mean = 60.68

S. D. = 12.91

It is clear from data presented in Table 18 that, slightly more than two-third (67.67 per cent) of the tribal dairy farmwomen had medium level of adoption about no-cost and low-cost technologies of animal husbandry, whereas 17.33 and 16.00 per cent of tribal dairy farmwomen had low and high level of overall adoption, respectively. On the basis of the above results, it can be concluded that majority (84.00 per cent) of the tribal dairy farmwomen had low to medium level of adoption about no-cost and low-cost technologies of animal husbandry. This might be due to their low to medium level of knowledge regarding no-cost and low-cost technologies of animal husbandry along with their medium level of annual income and economic motivation. However, the overall adoption index observed was just 60.68 per cent which needs concrete and planned efforts of policy makers, administrators and concerned agencies to develop holistic approach in formulating appropriate strategy for wider adoption of no-cost and low-cost technologies of animal husbandry among the tribal dairy farmwomen. This finding is supported with the findings of Khokhar (2007) and Durga (2009).

CONCLUSION

It can be concluded that no-cost and low-cost technologies of health practices were highly adopted, whereas, that of housing and general management and calf rearing practices were least adopted by tribal dairy farmwomen. The extension agencies should gear-up to popularize the recommended no-cost and low-cost technologies in breeding, feeding, housing and general management and calf rearing practices through their extension programmes among tribal dairy farmwomen.

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