

## Knowledge Level of Tribal Dairy Farmwomen about No-Cost and Low-Cost Technologies of Animal Husbandry

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### ABSTRACT

*The knowledge and adoption of 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. Therefore, the knowledge level of recommended no-cost and low-cost animal husbandry technologies in six major areas of dairy farming such as Housing and general management, Feeding and watering, Calf rearing, Breeding, Clean milk production and Health care was studied purposively in five tribal talukas of Vadodara district in Gujarat State during 2010-11. Majority (67.33 per cent) of the tribal dairy farmwomen had medium level of overall knowledge about selected no-cost and low-cost technologies of animal husbandry, whereas 16.67 and 16.00 per cent of tribal dairy farmwomen had low and high level of overall knowledge, respectively. According to knowledge hierarchy, knowledge regarding breeding practices ranked I with mean score of 2.08 followed by health care practices ranked II, feeding and watering practices ranked III, calf rearing practices ranked IV, clean milk production practices ranked V and housing and general management practices ranked VI with mean score of 2.06, 2.03, 1.95, 1.93 and 1.92, respectively. This concluded that the more emphasis must be given for improvement of knowledge among the tribal dairy farmwomen regarding various no-cost and low-cost technologies of housing and general management, clean milk production and calf rearing practices.*

**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. Knowledge regarding these technologies influences overt and covert behaviour of an individual and acts as precursors of their adoption. 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 knowledge level 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 overall knowledge level and practice wise knowledge level of tribal dairy farmwomen regarding selected no-cost and low-cost technologies of animal husbandry.

**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 practices 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 knowledge of tribal dairy farmwomen regarding no-cost and low-cost animal husbandry practices which are selected through expert opinion of Veterinary College, Anand and other institute of AAU Anand was measured with the help of structured teacher made test. The questions included in the test were in multiple choices in nature. The test consisted of total 90 questions concerning selected no-cost and low-cost animal husbandry technologies in six major areas of dairy farming such as Housing and general management, Feeding and watering, Calf rearing, Breeding, Clean milk production and Health care was selected. Each question was given the score of ‘one’ for correct answer and ‘zero’ for incorrect answer. The practice wise questions included in knowledge test were been answered by respondents and the possible practice wise knowledge scores as well as total knowledge scores that a respondent would obtained as follows:

Sr. No	Group of no-cost and low-cost animal husbandry practices	Questions included in knowledge test	Possible total score in knowledge test
1	Housing and general management	15	00 to 15
2	Feeding and watering	12	00 to 12
3	Calf rearing	10	00 to 10
4	Breeding	14	00 to 14
5	Clean milk practices	24	00 to 24
6	Health care	15	00 to 15
Total practices		90	00 to 90

The knowledge index was calculated for each respondent with the help of the following formula:

$$K_i = \frac{X_1 + X_2 + \dots + X_n}{N} \times 100$$

Where,  $K_i$  = knowledge index

$X_1 + X_2 + \dots + X_n$  = total number of correct answer

N= Number of total items in test

Similarly practice wise knowledge index were also calculated for each respondent.

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 overall

knowledge level as well as practice wise knowledge 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 knowledge index, respectively for each of six animal husbandry practices. To lay down the knowledge hierarchy, the mean score for knowledge of each practice was calculated, on the basis of which ranks were assigned to the knowledge level of each of six selected practices from higher to lower.

**RESULTS AND DISCUSSION**

**Practice wise knowledge of no-cost and low-cost technologies of animal husbandry**

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

**Table 1 : Practice wise knowledge of no-cost and low-cost technologies of animal husbandry among the tribal dairy farmwomen** n=150

Sr No	Practices	Mean	S.D.	Knowledge level					
				Low	Medium	High	Total score	Mean score	Rank
1	Housing and general management	68.58	12.10	26 (17.33)	110 (73.33)	14 (9.34)	288	1.92	VI
2	Feeding and watering	66.11	13.08	23 (15.33)	99 (66.00)	28 (18.67)	305	2.03	III
3	Calf rearing	68.53	14.02	28 (18.67)	101 (66.33)	21 (14.00)	293	1.95	IV
4	Breeding	71.90	16.46	18 (12.00)	102 (68.00)	30 (20.00)	312	2.08	I
5	Clean milk Production	70.36	9.99	24 (16.00)	112 (74.67)	14 (9.33)	290	1.93	V
6	Health care	70.98	14.14	27 (18.00)	86 (57.33)	37 (24.67)	310	2.06	II

N.B: Figures in parentheses indicate the percentage

### Housing and general management practices

Housing and other general management practices like regular grooming and bathing of dairy animals, purchase dairy animal after veterinary check up and proper maintaining of breeding, feeding, health care and production related records etc. constitute an important part of dairy farm management. Adequate and proper housing helps into maintain optimum production of dairy animal. Whereas, poor housing can be a valuable factor for low productivity of milch animals.

Table 1 shows that, nearly three-fourth (73.33 per cent) of tribal dairy farmwomen found with medium level of knowledge regarding no-cost and low-cost technologies of housing and general management practices, followed by 17.33 and 9.34 per cent of tribal dairy farmwomen found with low and high level of knowledge, respectively.

It can be concluded that majority (90.66 per cent) of dairy farmwomen were found with low to medium level of knowledge 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 understand the importance of knowledge of proper floor and availability of manger in cattle shed, 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).

### Feeding and watering practices

Feeding is most important and complex aspect of dairy farming management. It accounts for around 60 to 75 per cent of total cost of milk production. Water is an important element for milk production in addition to the health and hygiene of animals.

The data given in Table 1 indicated that, nearly two-third (66.00 per cent) of tribal dairy farmwomen found with medium level of knowledge regarding no-cost and low-cost technologies of feeding and watering, followed by 18.67 and 15.33 per cent of tribal dairy farmwomen found with high and low level of knowledge, respectively.

It can be inferred that vast majority (84.67 per cent) of the dairy farmwomen had medium to high level of knowledge 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 aware about the importance of supply of 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. However, majority of tribal dairy farmwomen failed to understand the significance of urea treatment of poor quality roughage (i.e. paddy straw which is abundantly available in tribal area) and regular feeding of mineral mixture along with concentrate. Similar findings were reported by Arora *et al.* (2006), Bhakar *et al.* (2006), and Rathore *et al.* (2009).

### **Calf rearing practices**

Calves are the building blocks of a herd and proper calf care is essential for sustenance of the dairy farm and also for preserving and maintaining good quality of germ plasm.

The data presented in Table 1 regarding knowledge level of no-cost and low cost technologies of calf rearing practices among dairy farmwomen revealed that about two-third (66.33 per cent) of the them had medium level of knowledge, followed by 18.67 and 14.00 percent of the dairy farmwomen had low and high level of knowledge, respectively.

It can be concluded that vast majority (85.00 per cent) of the dairy farmwomen had low to medium level of knowledge 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 unaware about the importance of navel cord treatment immediately after calving, feeding colostrums to newly born calf within 30 minutes of calving and correct schedule of deworming and dehorning of calf, which accounted for such findings. This finding is in conformity with the findings of Singh and Chauhan (2009).

### **Breeding practices**

Proper and better care of breeding stock helps in developing good dairy herd and getting good returns too.

Table 1 shows that almost two-third (68.00 per cent) of tribal dairy farmwomen found with medium level of knowledge regarding no-cost and low-cost technologies of breeding practices, followed by 20.00 and 12.00 per cent with high and low level of knowledge, respectively.

It can be concluded that great majority (88.00 per cent) of dairy farmwomen were found with medium to high level of knowledge regarding no-cost and low-cost technologies of breeding management, which is due to fact that majority of tribal dairy farmwomen understood the importance of knowledge of accurate and timely heat detection, A.I. / natural service at proper time of heat and pregnancy diagnosis at 60-90 days after A.I. / natural service, for better breeding efficiency of dairy animals. However, majority of tribal dairy farmwomen failed to understand the significance of A.I. /natural service to milking animals after 90-120 days of calving due to perception of reduction in milk production of milking dairy animals. This finding is supported with the findings of Mavi *et al.* (2006) and Singh

and Chauhan (2009).

### **Clean milk production practices**

Clean milk production is an important practice of dairy farming. Quality of milk affects the farmers' profitability every day. Producing clean milk has many positive benefits to the dairy farmer.

The data given in Table 1 indicated that nearly three-fourth (74.67 per cent) of tribal dairy farmwomen found with medium level of knowledge regarding no-cost and low-cost technologies of clean milk production, followed by 16.00 and 9.33 per cent with low and high level of knowledge, respectively.

It can be inferred that vast majority (90.67 per cent) of the dairy farmwomen had low to medium level of knowledge 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 unaware about importance of clean milk production practices, correct method of milking, discarding two strips of milk from each teat before milking, complete milking and stripping at the end of milking and filtering the fresh milk with clean and dry cloth resulted into such findings. This finding is in line with the findings of Mohi and Bhatti (2006).

### **Health care practices**

Disease free and good health condition of dairy animal is prerequisite to the better animal productivity. Knowledge of commonly occurring animal diseases and preventive measures is of more significance for better productivity and profitability of dairy animals.

The data given in Table 1 indicated that more than half (57.33 per cent) of tribal dairy farmwomen found with medium level of knowledge regarding no-cost and low-cost technologies of health care practices, followed by 24.67 and 18.00 per cent of tribal dairy farmwomen found with high and low level of knowledge, respectively.

It can be concluded that, vast majority (82.00 per cent) of the dairy farmwomen had medium to high level of knowledge 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 aware about the importance of timely and regular vaccination of dairy animals against commonly occurring contagious diseases, prompt reporting of incidence of contagious diseases

to Government authority, hygienic disposal of placenta and dead body and proper care and post bite vaccination of dairy animals after dog bite. However, majority of tribal dairy farmwomen failed to understand the significance of regular deworming of dairy animals for maintaining better health and productivity of dairy animals. This finding is in conformity with the results reported by Mohi and Bhatti (2006).

**Practice-wise knowledge hierarchy**

On the basis of mean score presented in Table 1, a knowledge hierarchy among the tribal dairy farmwomen regarding no-cost and low-cost technologies of animal husbandry was assigned. According to knowledge hierarchy, knowledge regarding breeding practices ranked I with mean score of 2.08 followed by health care practices ranked II, feeding and watering practices ranked III, calf rearing practices ranked IV, clean milk production practices ranked V and housing and general management practices ranked VI with mean score of 2.06, 2.03, 1.95, 1.93 and 1.92, respectively. This concluded that the more emphasis must be given for improvement of knowledge among the tribal dairy farmwomen regarding various no-cost and low-cost technologies of housing and general management, clean milk production, calf rearing practices through the intensive extension and developmental programmes.

**Overall knowledge of no-cost and low-cost technologies of animal husbandry among the tribal dairy farmwomen**

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

**Table 2: Distribution of tribal dairy farmwomen according to their overall knowledge level of no-cost and low-cost technologies of animal husbandry**  
n =150

Sr. No.	Level of knowledge	Number	Per cent
1	Low ( below 59.02 Score )	25	16.67
2	Medium ( 59.02 to 80.26 Score )	<b>101</b>	<b>67.33</b>
3	High ( above 80.26 Score )	24	16.00

Mean = 69.64

S. D. = 10.62

It is clear from data presented in Table 2 that, slightly more than two-third (67.33 per cent) of the tribal dairy farmwomen had medium level of overall knowledge about selected no-cost and low-cost technologies of animal

husbandry, whereas 16.67 and 16.00 per cent of tribal dairy farmwomen had low and high level of overall knowledge, respectively.

On the basis of the above results, it can be concluded that majority of the tribal dairy farmwomen had medium level of knowledge regarding no-cost and low-cost technologies of animal husbandry. The probable reason for their medium level of knowledge might be due to their medium level of extension contact and mass media exposure, besides their medium level of experience in dairy farming and their primary to secondary level of formal education might have encouraged them to take interest in various awareness programmes run by state Animal Husbandry Department and Vanbandhu Welfare Programmes of Tribal Development Department. Here, 16.67 per cent of tribal dairy farmwomen had low level of overall knowledge which is mainly attributed to illiteracy, small herd size and poor economic status. The overall knowledge index observed was 69.63 per cent which indicates that still there are profound scope for knowledge improvement regarding no-cost and low-cost technologies of animal husbandry among the tribal dairy farmwomen.

**CONCLUSION**

Findings suggested that maximum knowledge was found among tribal dairy farmwomen with regards to selected no-cost and low-cost technologies in breeding practices, followed by in health care practices. However low to medium level of knowledge was found among tribal dairy farmwomen in regards to selected no-cost and low-cost technologies in housing and general management, clean milk production, calf rearing practices and feeding and watering practices. Thus, the study lays down the areas of practices on which efforts should be made by extension functionaries to disseminate knowledge regarding recommended no-cost and low-cost technologies of animal husbandry in resource poor tribal areas to make dairy farming viable and sustainable.

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