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Time Spent Pattern of Rural Men and Women on Selected Dairy Farming Practices in Bikaner District of Rajasthan, India

Divya Rajpurohit* **and Neena Sareen**
Extension Education and Communication Management, C.H.Sc., SKRAU, Bikaner, Rajasthan, India.
*Corresponding author email id: divyarajpurohit11@gmail.com

Abstract **– In India, participation of women in livestock management is a long tradition and dairy farming has been an integral part of homestead farming system. Dairy farming has a close relationship with family life. Agricultural women play important role in animal husbandry, but their contribution to livestock rearing has not been given due place because they always remain invisible workers. Many research studies have indicated that the responsibilities of dairy are entirely on women's shoulders. There is enough evidence to show that livestock and management related activities are primarily the responsibility and domain of rural women. Generally women are responsible for feeding, feed collection, milking, processing, dung management and while men who usually manage the sale of milk and milk products. They are actively participating in various dairy farming practices, including harvesting of fodder crops, taking care of the sick animal, preparing the feed, feeding the animals, cleaning animal sheds, milking of animals, cow dung collection and making dung cake etc. Women represent an important part of agricultural labour force in developing countries, especially in areas like Sub-Saharan Africa and South Asia. However, in all areas, women have less access to agricultural production and socio-economic development than men, such as land, expansion or education. Wages for women farm labourers are generally lesser than men, while lesser paid work in agricultural processing is assigned to women regularly. In some countries, a husband's family can take land and livestock from a woman on the death of her husband, so that she becomes destitute. Therefore it is important to use the gender lens in analyzing the social diversity to highlight the causes of inequality and to identify the barriers to women's productivity, livelihood and the reduction of the capacity of agriculture.**

Keywords **–Dairy Farming, Time Spent Pattern, Animal Husbandry, Livelihood, Gender, Harvesting.**

I. METHODOLOGY

The present study was conducted in Bikaner district. Out of seven panchayat samities two panchayat samities, one having highest milk production i.e. Khajuwala and other having lowest milk production i.e. Sri Dungargarh was selected for this investigation. Overall three hundred respondents were selected in which one hundred fifty women and one hundred fifty were men included respectively by simple random sampling technique. Data was collected with the help of pre tested Interview schedule.

II. RESULT

Investigation showed that women spent their maximum time on regular dairy farming activities like milking and dung management as compared to men. Whereas men spent more time on occasional activities like insemination and get veterinary doctor etc.

III. INTRODUCTION

Gender collection of individual data about gender division into different activities is an essential first step in gender analysis, including daily activities such as shed cleaning, cow dung disposal, feeding animals, watering animals, animals Bathing etc. and occasionally. After activities such as taking care of animals and calming

them, AI, taking sick animals to veterinary dispensary, etc. to find out men and women do and how much time they spend on each activity. Various activities or areas are responsible for women and men. The result consisted of planning to set target groups, including the inputs needed to increase productivity, reduce workload, and improve income and welfare in a realistic way. The burden of work or responsibility on men or women can thus be determined before the design or modification of the project. The practices were classified aspect wise into the following categories on their time spent pattern on each activity was classified as follows: regular activities and occasional activities. The regular activities were calculated in minutes per day and the occasional activities were calculated in hours per year respectively. Patel et.al, (2016) reported that India is an agriculture based country and livestock sector is an integral component of it where, livestock production is largely in the hands of women. Most of the animal farming activities such as fodder collection, feeding, watering, and health care, management, milking and household-level processing, value addition and marketing are performed by women. Besides, considerable involvement and contribution of women, considerable gender inequalities also exist in Indian villages. Therefore, there is a need to correct gender bias in livestock sector. Efforts are needed to increase the capacity of women to negotiate with confidence and meet their strategic needs. Borgohain and Akand, (2011) researched that time spent pattern of the tribal women in various animal husbandry operations in descending order, were preparing feed for animals (29.33 minutes), providing water to the animals (21.24 minutes), cleaning animal shed (20.42 minutes), grazing animals (19.28 minutes), milking (18.06 minutes), cutting and bringing fodder (16.39 minutes). The study also revealed that most of the animal husbandry operations were female dominated as compared to their male partners. Regression analysis proved that family educational status, flock size (sheep/goat) and age of the tribal women were highly correlated with time spent on animal husbandry operation. Similarly, regression analysis indicates herd size and family education had influence of 18 per cent with the time spent behaviour of tribal women.

IV. METHODOLOGY

The study was conducted in Bikaner district of Rajasthan purposely as dairy farming is the first occupation for livelihood as majority of area in district is rain fed. Rural men and women play an important role in various activities related to dairy farming. There are seven panchayat samities out of which two panchayat samities one having highest milk production i.e. Khajuwala and other having lowest milk production i.e. Sri Dungargarh were selected for the present investigation. Out of forty four gram panchayats in Khajuwala panchayat samiti five gram panchayats were selected with lottery method namely Amarpura, Karnisar bhatiyan, Poogal, Tharoosar, Shiv nagar and out of forty one gram panchayats in Sri Dungargarh panchayat samiti five gram panchayats were selected with lottery method namely Sheruna, Bapeu, Toliyasar, Benisar, Jhanjheu. So comprised total five villages were taken from each gram panchayat by using simple random sampling. Thus ten villages were selected from selected Gram Panchayats of both Panchayat Samities. Khajuwala - Pahalwan ka bera, Barala, Poogal, Dhodha and Shiv nagar. Sri Dungargarh - Bapeu, Sheruna, Toliyasar, Bhojas and Jhanjheu. Thus, ten villages were selected for the present investigation.

Fifteen women and fifteen men were selected from each village on the basis of having two or more than two milking animals and who have active participation in dairy farming activities. Overall three hundred respondents were selected in which one hundred fifty respondents were women and one hundred fifty respondents were men included respectively by simple random sampling technique.

After data collection, coding was done and then data were compiled and tabulated for analysis and interpretation in light of the objectives of the study. Statistical measures were used for interpreting the data i.e. Percentage and frequency, mean per cent score and mean score, standard deviation and Spearman's Rank-Order Correlation coefficient (r_s).

V. RESULT AND DISCUSSION

Time utilization pattern of respondents was measured by amount of average time spent on each regular and occasional activities of dairy farming practices and it is expressed in minutes/day and hours/year respectively.

Table 1.1 Distribution of respondents according to their average time spent pattern on daily dairy farming activities (minutes/day) n = 300.

Sr. No.	Activities	Women		Men	
		Average Time Spent	Rank	Average Time Spent	Rank
	A. Feed related activities				**r_s = - 0.5**
1	Harvesting of green fodder	28.12	III	33.73	I
2	Chaffing of fodder	32.23	II	17.33	III
3	Prepare feed for animals (chaat)	34.69	I	21.49	II
	Total time spent	**95.04**	**III**	**72.55**	**III**
	B. Maintenance				**r_s = - 0.6**
4	Offering water to animals	40.91	I	21.21	III
5	Storage of fodder	24.84	III	27.69	I
6	Cleaning and bathing of animal	23.32	IV	24.62	II
7	Cleaning of animal sheds	30.03	II	0.94	IV
	Total time spent	**119.1**	**II**	**74.46**	**II**
	C. Dung Management				**r_s = - 1.0**
8	Cow dung collection	35.22	II	13.02	I
9	Preparing and storage of dung cakes	49.52	I	-	-
	Total time spent	**84.74**	**IV**	**13.02**	**V**
	D. Milking and milk management				**r_s = 0.7**
10	Milking	57.13	I	14.32	I
11	Boiling of milk	49.93	II	3.28	II
12	Cleaning of utensils used for milking	41.55	IV	0.72	V
13	Churning of milk	37.45	V	1.48	III
14	Preparing milk products	45.09	III	0.90	IV
	Total time spent	**231.15**	**I**	**20.7**	**IV**
	E. Marketing				**r_s = - 1.0**
18	Selling of milk	22.78	I	41.58	II

Sr. No.	Activities	Women		Men	
		Average Time Spent	Rank	Average Time Spent	Rank
19	Keeping record of milk and money	-	-	55.60	I
	Total time spent	**22.78**	**V**	**97.18**	**I**

Spearman's rank order correlation value, r_s = -0.3.

As regards daily dairy farming activities, table 1.1 and fig. 1.1 reveals that women spent maximum total average time on 'milking and milk management' i.e. 231.15 minute per day (rank I) and men spent maximum total average time spent on 'marketing' i.e. 97.18 minutes per day (rank I). Whereas both women and men spent maximum total average time on 'maintenance' i.e. 119.1 and 74.46 minutes per day respectively (rank II). Regarding 'feed related activities' both women and men spent maximum total average time of 95.04 and 72.55 minutes per day respectively (rank III). Women spent their maximum total average time on 'dung management' was 84.74 minutes per day (rank IV) whereas men spent their maximum total average time on 'milking and milk management' was 20.70 minutes per day (rank IV). In the aspect of 'marketing' women spent their maximum total average time i.e. 22.78 minutes per day (rank V). Men spent their maximum total average time on 'dung management' i.e. 13.02 minutes per day (rank V). The spearman rank order correlation between ranks was - 0.3 and it reveals that the ranks are fairly negatively correlated.

Under feed related activities it was found that the mean time spent and rank for these activities for women to prepare feed for animals (chaat) was 34.69 minutes (Rank I), for chaffing of fodder 32.23 minutes (Rank II) and harvesting of green fodder 28.12 minutes (Rank III) whereas for men for harvesting of green fodder 33.73 minutes (Rank I), for prepare feed for animals (chaat) 21.49 minutes (Rank II) and chaffing of fodder 17.33 minutes (Rank III). The spearman rank order correlation between ranks was -0.5 and it depicts that the ranks are fairly negatively correlated.

Regarding maintenance, it was found that in offering water to animals, mean time spent and rank for these activities for women was 40.91 minutes (Rank I), cleaning of animal sheds was 30.03 minutes (Rank II), storage of fodder was 24.84 minutes (Rank III) and cleaning and bathing of animal was 23.32 minutes (Rank IV) whereas for men storage of fodder was 27.69 minutes (Rank I), cleaning and bathing of animal was 24.62 minutes (Rank II), offering water to animals was 21.21 minutes (Rank III) and cleaning of animal sheds was 0.94 minutes (Rank IV). The spearman rank order correlation between ranks was -0.6 and it shows that the ranks are fairly negatively correlated.

As regards to 'dung management', mean time spent and rank for women for preparing and storage of dung cakes was 49.52 minutes (rank I) and cow dung collection was 35.22 minutes (rank II). Whereas for men for cow dung collection was taking only 13.02 minutes (rank I) and there is no time spent by men on the activity of preparing and storage of dung cakes. The spearman rank order correlation between ranks was -1.0 and it reveals that the ranks are fairly negatively correlated.

In the aspect of 'milking and milk management', mean time spent and rank for women for milking was 57.13 minutes (rank I), boiling of milk was 49.93 minutes (rank II), preparing milk products was 45.09 minutes (rank III), cleaning of utensils used for milking was 41.55 minutes (rank IV) and churning of milk was 37.45 minutes (rank V) whereas for men time spent for milking was 14.32 minutes (rank I), boiling of milk was 3.28 minutes

(rank II), churning of milk was 1.48 minutes (rank III), preparing milk products was 0.90 minutes (rank IV) and cleaning of utensils used for milking was 0.72 minutes (rank V). The spearman rank order correlation between ranks was 0.7 and it reveals that the ranks are fairly positively correlated.

Regarding marketing aspect, mean time spent and rank for men for keeping record of milk and money was 55.60 minutes (rank I) and selling of milk was 41.58 minutes (rank II) whereas for women for selling of milk was 22.78 minutes (rank I) while women do not participate in the activity of keeping record of milk and money. The spearman rank order correlation between ranks was -1.0 and it reveals that the ranks are fairly negatively correlated.

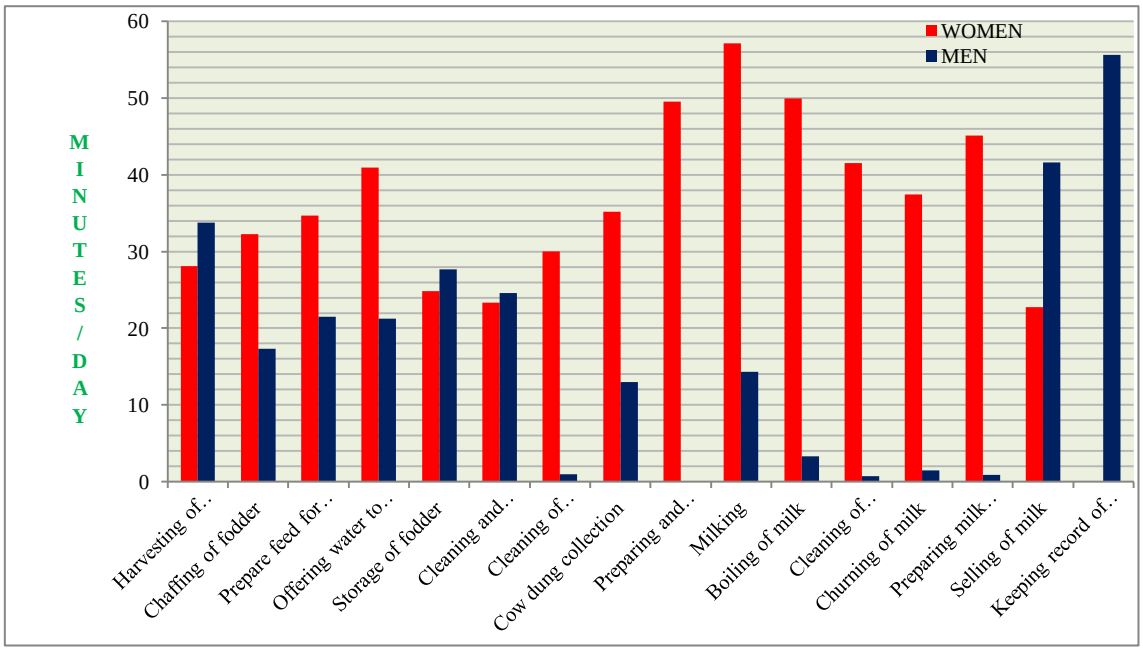

Fig. 1.1. Average time spent pattern of rural women and men on daily dairy farming activities in minutes/day (as per table 1.1).

As regards occasional dairy farming activities table 1.2 and fig. 1.2 depicts that women spent maximum total average time on care of animals after calving was 16.39 hours per year (rank I) and men spent maximum total average time spent on care of animals at the time of calving was 10.30 hours per year (rank I). Women spent total average time on Care of animals at the time of calving was 8.79 hours per year (rank II) and men spent total average time was get to veterinary doctor was 9.15 hours per year (rank II). Women spent total average time for protection of animals from bad weather was 3.36 hours per year (rank III) whereas men spent 6.52 hours per year (rank III). Total average time spent by women on get to veterinary doctor was 0.45 hours per year (rank IV) whereas men spent average care of animals after calving was 4.92 hours per year (rank IV). Women spent no time on the activity of artificial insemination and natural services because of no participation whereas men spent total average time on protection of animals from bad weather was only 2.03 hours per year (rank V).

Table 1.2. Distribution of respondents according to their average time spent pattern on occasional dairy farming activities (hours/year).

Sr. No.	Activities	Women (150)		Men (150)	
		Average Time Spent	Rank	Average Time Spent	Rank
1	Care of animals at the time of calving	8.79	II	10.30	I
2	Care of animals after calving	16.39	I	4.92	IV

Sr. No.	Activities	Women (150)		Men (150)	
		Average Time Spent	Rank	Average Time Spent	Rank
3	Protection of animals from bad weather	3.36	III	2.03	V
4	Artificial Insemination and natural services	0	V	6.52	III
5	Get to veterinary doctor	0.45	IV	9.15	II

Spearman's rank order correlation value, $r_s = -0.1$.

The spearman rank order correlation between ranks was -0.1 and it shows that the ranks are fairly negatively correlated.

From the above findings it shows that women spent their maximum time on regular dairy farming activities because women have more skills in performing regular dairy related activities as compared to men. Whereas men spent more time on occasional activities as compared to women like insemination and get veterinary doctor etc and probably it is because of rural traits in the society, women have less exposure about work outside the house. Men are more educated than women so this is also a reason that they do all money related work outside the house.

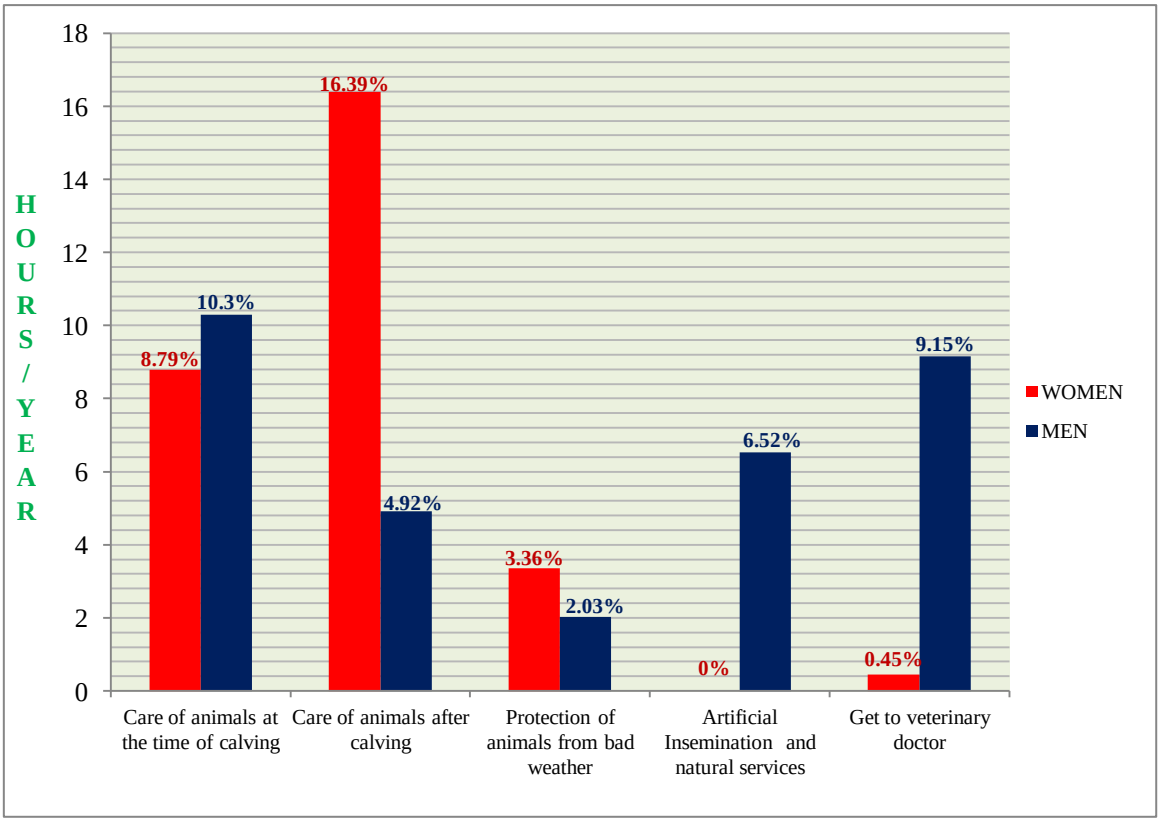

Fig. 1.2. Average time spent pattern of rural women and men on occasional dairy farming activities in hours/year (as per table 1.2).

So it can be concluded from the findings that although women spent their maximum time on different dairy farming activities as compared to men but negligible participation in marketing, keeping records and selling of milk. So it is important to increase women participation in these dairy farming activities and government should impart knowledge through trainings and make programmes related to dairy activities for women so that their contribution could be visible and get benefitted directly.

The results also supported by the study of Yadav and Grover (2009) and Malik et.al, (2015). They revealed that participation varied between activities on gender basis with women participation being higher in care and maintenance related activities, carried out mainly indoor and men with marketing and animal disease and management, carried out mainly outdoor. The women family members spent 5.17 hrs out of total average of 6.76 hrs for animal husbandry activities. The contribution of the male members of the family was lesser, and was restricted for most part to the feeding and management activities. And in case of non-routine activities there were distinct roles adopted by men and women. The roles appear strictly gender demarcated with women being assigned the activities that have to do with routine care of animals at home. It appears that patriarchal system is prevalent and is facilitating male dominance.

Interviewing Dairy Farm Woman and Man Individually.

VI. CONCLUSION

The result shows separate time devoted to participation by gender in individual activities. The average time spent by women was more likely than men on daily dairy farming activities like milking and dung management whereas men spent more time on occasional dairy activities like insemination and get veterinary doctor etc compared to women. So it is seen that with the exception of marketing and management, the participation of women in various activities related to the dairy sector was high and mainly related to animal care and indoor activities, compared to men whose participation in animal diseases and marketing was higher because men mainly do outdoor activities. So, there is a need to conduct a study to evaluate the impact of the dairy centers in improving the dairy farming in rural areas.

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AUTHOR'S PROFILE

First Author
Dr. Divya Rajpurohit, Ph.D in Home Science Extension and Communication Management, SKRAU, Bikaner, Rajasthan Published three Research Papers in International Journal, Three Review Papers and a Research Book by Lambert publication, Worked with ICARDA (The International Centre for Agriculture Research in the Dry Areas) as a Research Assistant.

Second Author
Dr. Neena Sareen, works as a Professor at CHSc, SKRAU, Bikaner, Rajasthan She guided many Post graduate and PhD students. Published many research papers as author and co-author and attended many workshops, seminars and conferences. Her work is mainly based on women and their status in society. email id: neenasareen10@gmail.com