



*Original Research*

## Gender Participation, Time Utilisation and Employment Generated through Animal Husbandry Activities in Uttarakhand

Tanusha<sup>1\*</sup>, Mahesh Chander and Sushil Kumar Sinha

Division of Extension Education, ICAR-IVRI, Izatnagar, Uttarakhand, INDIA

<sup>1</sup>Department of Animal Husbandry, Uttarakhand, INDIA

\*Corresponding author: [drtanusha.vet@gmail.com](mailto:drtanusha.vet@gmail.com)

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### Abstract

The present study was conducted in Dehradun and Haridwar districts of Uttarakhand. A total of 180 unmarried young rural women were identified as respondents and classified into four quartiles depending upon their time invested in livestock rearing activities. On basis of cumulative square root frequency of family income, the respondents were divided into low, medium and high income categories. The family labour participation showed that the females were more actively involved in animal husbandry activities followed by males and children. Almost 4.67 hours are required on daily basis for livestock activities. It generated about 132.80, 196.39, and 19.24 man-days of employment respectively for males, females and children to a total of 348.44 man-days.

**Key words:** Employment Generation, Family Labour Participation, Time Utilisation

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### Introduction

Livestock provide with food and nutrition; generate income; create employment opportunities, and can play important role in efforts to eradicate extreme poverty and hunger. Increased consumption of livestock products has been an important determinant of rising prices for meat and milk (Delgado *et al.*, 1999; Delgado, 2003) and this provides new opportunities for using livestock as an instrument to help poor people alleviate their poverty (Rangnekar, 1998; Aklilu *et al.*, 2008). Livestock employs 8.8 per cent of the agricultural work force (GOI, 2012). More than three-fourths of the labour demand in livestock production is met by women (GOI, 2012). According to an extensive study by ILRI of the 600 million poor livestock keepers in the world, around two-thirds are women and most lived in rural areas (FAO, 2011a; Thornton *et al.*, 2002). In India, the livestock industry is dominated by women who provide 55.00 per cent of labour in



livestock and more than 77.00 per cent of them were involved in taking care of animals. Furthermore, 93.00 per cent of people employed in dairying are women (RNCOS, 2006).

Women are typically responsible for feeding, grazing, fodder collection, milking, processing, dung management (Sethi, 2010 and Tipilda and Kristjanson, 2009), selling milk products and caring for newborn lambs/kids and sick animals. Young girls are also involved in the grazing of goats and sheep whereas married and young women are responsible for household activities (Lo, 2007). DAHD (2006) reported that the involvement and participation of rural women were more in animal husbandry than in agriculture. Men generally manage the finances and sale of milk and milk products (Sethi, 2010). There are a number of studies which denote the kind of activities performed by the women and men in livestock rearing, but there are dearth of studies on family labour participation in these activities. Also, the time utilisation and employment generation in these activities have not been extensively studied. Significant gender inequalities also exist in access to technologies, credit, information, inputs and services. This is probably because of the inequities in ownership of productive assets including land and livestock. There is a need to correct gender biasness in livestock sector so as to enhance the effectiveness of women-oriented livestock development programmes (Anonymous, 2012-17). Therefore, the present study was designed to know the extent of involvement of family members, time utilisation and employment generated through the various livestock activities.

### Material and Methods

The study was conducted in Dehradun and Haridwar districts of Uttarakhand. From each district three blocks were randomly selected. From each block, two village clusters were selected considering the female youth population in the village, as the respondents selected were unmarried young women lying within the age of 15-29 years. A total of 12 village clusters were selected. Fifteen young women were selected from each cluster, making a total of 180 respondents. The respondents were categorised under low, medium and high groups according to the cumulative square root frequency of the total family income. According to the participation in different livestock activities *viz.*, willingness, frequency of participation, activities performed by the young rural women, career orientation towards farming, the respondents were also categorised into four quartiles, *viz.* quartiles 1, 2, 3 and 4 based on the time spent in those activities. The quartile 1 comprised the respondents with least and 4 with maximum time investment in farming.

The activities were classified as regular and occasional activities. Regular activities were the daily care activities which included grazing of the animal, preparation of feed, cutting of grass, feeding and watering, cleaning of shed, collection of dung, milking of animal and marketing of milk. Occasional activities included treatment of animal, care of sick animal and care of pregnant animal. The family member involved and time required to perform the activity were enquired. The employment generated for the activities was

calculated on relative basis considering the labour unit equivalents. According to the FAO standards, the labour unit equivalent for adult person with an age of more than 15 year up to 59 was 1 whereas for youth (age 9-15years) and old person (age 59 or more), the labour unit equivalent is 0.5 (Manual of Animal Husbandry Statistics, 2011).

## Results and Discussion

Family labour participation refers to involvement of family members and the activities performed by them in rearing of livestock. Among the animal husbandry activities, grazing (66.11%); preparation of feed for animals (100%) and cutting of grass (96.11%) involved the highest participation by the female members of the family, followed by males and children. This is in concordance with the studies of Rangnekar *et al.* (1992), and Rathod *et al.* (2011). Significantly, 95.56, 65.00 and 4.44 per cents of females, males and children respectively performed feeding and watering of animals. Studies by Farinde and Ajayi (2005), Narmatha *et al.* (2009), Chayal *et al.* (2009) and Lahoti *et al.* (2012) also suggest that feeding young calf, watering the livestock, offering the concentrate mixture, bringing of fodder from field, etc., were majorly the task of women. Cleaning of shed and collection of dung was mostly done by females (99.44%), followed by males (42.78%). Other studies also suggest that the farm women were actively involved in cleaning of animal sheds and disposal of cow dung (Rathod, *et al.*, 2011; Ramesh and Meena, 2012 and Malik *et al.*, 2015). Only 15.00 per cent of children cleaned the shed and 8.89 per cent collected dung. An overwhelming majority of 91.67 per cent females milked their milch animals followed by 40.00 per cent males and only 1.67 per cent children. Marketing of milk was predominantly done by females (83.33%) and 40.00 per cent males were involved in it. Children did not involve in marketing of milk. The less participation by the children may be due to the fact that their parents mostly wanted them to focus on studies and they were only available during holidays. The low participation of children is in agreement with the study of Njarui *et al.* (2012) and Kimaro and Lyimo-Macha, 2014.

Nearly all (99.44%) males took their animals for treatment followed by 51.11 per cent females. Care of sick animal was done predominantly done by females (96.67%) followed by males (90.56%) and children (2.78%). Mostly the females (95.00%) and males (85.00%) took care of the pregnant animal. A study by FAO, 2012 Reference is missing also suggests that majority of the females were involved in care at the time of pregnancy (91.67 per cent) and management of calf (94.17%). Therefore, it can be seen that livestock is a women-domain in the study area, since women perform almost all the tasks in rearing of livestock.

**Table 1:** Family labour participation in different activities of animal husbandry

Activities	Low (n=67)			Medium (n=77)			High (n=36)			Total (N=180)		
	Male	Female	Child	Male	Female	Child	Male	Female	Child	Male	Female	Child
<b>Regular Activities</b>												
Grazing of animal	25 (37.31)	38 (56.71)	2 (2.98)	42 (54.54)	54 (70.13)	11 (14.28)	28 (77.78)	27 (75)	7 (19.44)	95 (52.78)	119 (66.11)	20 (11.11)
Preparation of feed	37 (55.22)	67 (100)	2 (2.98)	41 (53.25)	77 (100)	0	17 (47.22)	36 (100)	1 (2.78)	95 (52.78)	180 (100.00)	3 (1.67)
Grass cutting	13 (19.40)	66 (98.50)	0 (0)	24 (31.17)	73 (94.80)	7 (9.09)	11 (30.56)	34 (94.40)	4 (11.11)	48 (26.67)	173 (96.11)	11 (6.11)
Feeding and watering	42 (62.68)	67	3 (4.47)	47 (61.04)	77 (100)	3 (3.89)	28 (77.78)	36 (100)	2 (5.56)	117 (65.00)	172 (95.56)	8 (4.44)
Cleaning of shed	32 (47.76)	67 (100)	7 (10.45)	30 (38.96)	76 (98.7)	12 (15.58)	15 (41.67)	36 (100)	8 (22.22)	77 (42.78)	179 (99.44)	27 (15)
Collection of dung	22 (32.83)	67 (100.00)	3 (4.47)	26 (33.76)	76 (98.70)	10 (12.98)	9 (25)	36 (100)	3 (4.47)	57 (31.67)	179 (99.44)	16 (8.89)
Milking of animal	19 (28.36)	60 (89.55)	1 (1.5)	41 (53.25)	69 (89.61)	2 (2.59)	12 (33.33)	36 (100)	0 (0)	72 (40)	165 (91.67)	3 (1.67)
Marketing of milk	29 (43.28)	50 (74.62)	0 (0)	28 (36.36)	70 (90.90)	0 (0)	15 (41.67)	30 (83.33)	0 (0)	72 (40)	150 (83.33)	0 (0)
<b>Occasional activities</b>												
Treatment	66 (98.50)	59 (88.06)	0 (0)	77 (100.00)	23 (29.87)	2 (2.6)	36 (100.00)	10 (27.78)	0 (0)	179 (99.44)	92 (51.11)	2 (1.11)
Care of sick animal	61 (91.04)	66 (98.50)	1 (1.5)	71 (92.21)	77 (100)	3 (3.89)	31 (86.11)	36 (100.00)	1 (2.78)	163 (90.56)	174 (96.67)	5 (2.78)
Care of pregnant animal	50 (74.62)	62 (92.53)	1 (1.5)	68 (88.31)	74 (96.10)	5 (6.5)	35 (97.22)	35 (97.22)	0 (0)	153 (85.00)	171 (95.00)	6 (3.33)

Fig. in parentheses indicate percentage.

### Time Utilization in Different Livestock Rearing Activities

Among the animal husbandry activities, the semi-intensive system was practiced by majority (87.22 %) of the households. More than three-fourths (80.89%) of the respondents took their animal for grazing for about 2 hours each day followed by 19.11 per cent for 3 hours. Cent per cent of the respondents invested 30 minutes in preparation of feed for their animal. The task of grass cutting required 30 minutes by 75.56 per cent of the respondents. Feeding and watering of animal required 20 minutes by 91.67 per cent of the respondents. Cleaning of shed required 30 minutes and collection of dung only 5 minutes by 97.78 and 66.67 per cents of the respondents respectively. Majority (90.00%) of the respondents opined that milking of all the animals required 30 minutes each day followed by 10 per cent who needed 20 minutes. But, it was dependent on the number of animals kept and frequency of milking the animal. All the respondents opined that marketing of milk required almost 15 minutes on an average, every day. Majority (82.22%) of the households took the animal twice for treatment in a year which needed 1 hour approximately. It,

however, depended on the distance of veterinary hospital from their home and the kind of illness of the animal. Care of the sick animal was done for approximately 1 hour per day for 20 days in a year by all the respondents. Care of the pregnant animal was done for 1 hour per day for the whole gestation period.

From the study, it could be concluded that the livestock activities required 4.67 hours on daily basis on an average. The other studies have suggested that on an average time spent on dairy activities was 3-4 hrs. (Dhole, 2009); approximately 4 hours (Upadhyay, 2010) and 6.95 hrs. (Sah *et al.*, 2006).

**Table 2:** Time utilization in different livestock rearing activities

Animal Husbandry Activities	Time Required	1 <sup>st</sup> Quartile (n=45)	2 <sup>nd</sup> Quartile (n=45)	3 <sup>rd</sup> Quartile (n=45)	4 <sup>th</sup> Quartile (n=45)	Total (N=180)
<b>Regular Activities</b>						
Rearing system	Intensive	8 (17.78)	6 (13.33)	3 (6.67)	6 (13.33)	23 (12.78)
	Semi-intensive	37 (82.22)	39 (86.67)	42 (93.33)	39 (86.67)	157 (87.22)
Grazing	Up to 2 hrs./ day	27 (72.97)	29 (74.36)	42 (100)	29 (74.36)	127 (80.89)
	Up to 3 hrs./ day	10 (27.03)	10 (25.64)	0 (0)	10 (25.64)	30 (19.11)
Preparation of feed	0.5 hrs./day	45 (100)	45 (100)	45 (100)	45 (100)	180 (100)
Grass cutting	Up to 0.5 hrs./ day	32 (71.11)	42 (93.33)	33 (73.33)	29 (64.44)	136 (75.56)
	More than 0.5 hrs./ day	13 (28.89)	3 (6.67)	12 (26.67)	16 (35.56)	44 (24.44)
Feeding and watering	20 minutes/day	41 (91.11)	44 (97.78)	41 (91.11)	39 (86.67)	165 (91.67)
	30 minutes/ day	4 (8.89)	1 (2.22)	4 (8.89)	6 (13.33)	15 (8.33)
Cleaning of shed	15-20 minutes/ day	3 (6.67)	1 (2.22)	0	0	4 (2.22)
	30 minutes/ day	42 (93.33)	44 (97.78)	45 (100)	45 (100)	176 (97.78)
Collection of dung	5 minutes/ day	45 (100)	29 (64.44)	17 (37.78)	29 (64.44)	120 (66.67)
	5- 10 minutes/ day	0 (0)	29 (64.44)	28 (62.22)	16 (35.56)	73 (40.56.00)
Milking of animal	Up to 20 minutes	4 (8.89)	0	8 (17.78)	6 (13.33)	18 (10.00)
	30 minutes	41 (91.11)	45 (100.00)	37 (82.22)	39 (86.67)	162 (90.00)
Marketing of milk	Up to 15 minutes	45 (100.00)	45 (100.00)	45 (100.00)	45 (100)	180 (100)
<b>Occasional Activities</b>						
Treatment	1 hr. twice in a year	38 (84.44)	35 (77.78)	38 (84.44)	37 (82.22)	148 (82.22)
	2 hr. twice in a year	7 (15.56)	10 (22.22)	7 (15.56)	8 (17.78)	32 (17.78)
Care of sick animal	1 hr./ 20 days	45 (100)	45 (100)	45 (100)	45 (100)	180 (100)
Care of pregnant animal	1 hr./ day	45 (100)	45 (100)	45 (100)	45 (100)	180 (100)

Figures in parentheses indicate percentage.

**Employment Generation**

Table 3 reveals that the employment generated for male, female, and child was about 132.80, 196.39 and 19.24 mandays respectively to a total of 348.44 mandays. In the first quartile, the male employment was

found to be 153.34 mandays, female employment was 211.38 mandays and for child it was 18.68 mandays. For second quartile it was 125.90, 183.65 and 24.68 mandays for males, females and child respectively. Males, females and children employment by livestock rearing activities were 133.50, 194.39 and 23.44 man-days for third quartile and for fourth quartile it was 118.48, 196.16 and 10.17 man-days respectively. It is evident from the study that maximum amount of work had been done by females with the total employment generation of 196.39 days. It revealed the significance of females who perform most of animal husbandry activities. The studies conducted by Kimaro and Lyimo-Macha (2014), Njarui *et al.* (2012) and FAO (1995) have also observed that women carry major responsibilities especially of livestock production. The women constitute 60.00 to 80.00 per cents of the agricultural labour force in developing countries (FAO, 2011b). The female share in India has remained steady at just over 30.00 per cent (FAO, 2011b) which is lesser than the other developing countries. Children contribute the least in the labour activities which is in agreement with the findings of Kimaro and Lyimo-Macha (2014) and Njarui *et al.* (2012).

**Table 3:** Average employment generated through the animal husbandry activities

Individuals	Average Employment Generated				
	1 <sup>st</sup> Quartile (n=45)	2 <sup>nd</sup> Quartile (n=45)	3 <sup>rd</sup> Quartile (n=45)	4 <sup>th</sup> Quartile (n=45)	Total (N=180)
Male (0.25-266.67)	153.34 ± 81.17	125.90 ± 71.83	133.50 ± 71.33	118.48 ± 65.49	132.80 ± 73.23
Female (61.36-296.21)	211.38 ± 69.88	183.65 ± 55.77	194.39 ± 55.59	196.16 ± 51.82	196.39 ± 59.02
Child (0-212.96)	18.68 ± 48.19	24.68 ± 56.07	23.44 ± 50.70	10.17 ± 31.81	19.24 ± 47.50
Mean ±SD	383.39 ± 134.37	334.22 ± 117.61	351.34 ± 109.92	324.81 ± 93.33	348.44 ± 115.97

### Conclusion

Animal husbandry has always been the backbone of the farm community and women are mostly involved in rearing of the livestock. With the current objective of doubling the farmer's income by 2022, emphasis is also being laid on animal husbandry. The study showed the gender roles performed by family members, their time invested and employment generated through livestock rearing activities. The females predominantly performed most of the tasks, *viz.* grazing, preparation of feed, feeding and watering, milking of animals, marketing of milk, cleaning of shed, collection of dung, etc. Men mostly took the sick animal for treatment but care of the animals was performed by females. Children played little role in these activities. Despite their considerable involvement and contribution, significant gender inequalities exist in access to technologies, credit, information, inputs and services probably because of inequities in ownership of productive assets including land and livestock. There is a need to correct gender bias in livestock sector and service delivery systems. There is already an increasing demand for livestock products which could create opportunities for women empowerment.



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