Range Mgmt. & Agroforestry 30 (2) : 104-108, 2009
ISSN 0971-2070

Socio-economic profile of hill women in relation to farm activities in Himachal Pradesh- a case study

Tara Gupta, R. K. Gupta and K. K. Raina
College of Forestry, YS Parmar University of Horticulture & Forestry,
Nauni, Solan, Himachal Pradesh, India
Received: 8th April, 2008 Accepted 3rd July, 2009

Abstract

In hills, women bear the brunt of general scarcity of fuel and fodder at household level. In lean periods, women are required to spend more time to collect increasingly scarce resources from distant locations. An attempt has, therefore, been made to analyze fodder deficit and how it plays a role in farm women activities. Stratified multistage random sampling technique was used for the sample selection. The average livestock holding of the sample farmers were 5.80 of which bovine and ovine were 82.41 and 17.59 per cent respectively. The fodder balance analysis by fodder types indicated fodder scarcity for the sample households. Deficit for grass, straw and tree leaf fodder were estimated to be 13.17, 54.69 and 14.42 per cent of the total requirement. The overall situation in Himachal Pradesh projects a 31.92 per cent deficit of total fodder requirement. The study shows that the majority of farm women (58 %) were in the age group of 25-50 years and 39 % were illiterate. The association between age and participation in different activities shows that farm women of middle age group (25-50 years) spent more time for different activities than those of two other age groups. The overall time spent by the farm women of different age groups i.e. <25, 25-50 and >50 years were 15.19, 18.10 and 15.16 hours per day respectively and they spent 29.95, 31.03 and 31.20 per cent of their time for animal husbandry activities including fodder collections. Illiterate, below and above middle educated farm women spent 16.95, 16.45 and 15.05 hours per day for day to day activities of which 29.06, 32.50 and 32.60 per cent of total time for animal husbandry activities. There was no difference in time spent between illiterate and above middle educated groups of farm women. It is recommended to cultivate tree and fodder species in nearby areas, so that the farm women can use their time in other productive activities.

Key words : Fodder availability, Fodder deficit, Hill women, Livestock, Time spent, Women's participation.

Introduction

The livestock farming is one of the important components of rural economy in the hills. There are mainly two reasons which are responsible for poor performance of livestock *viz,.* poor quality of cattle and low availability of fodder. Increased livestock population has resulted in high grazing pressure and necessitated continuous search for supplementary fodder. According to an estimate, the available fodder resources can meet only 50 per cent of the demand (Negi, 1990). Under such a critical situation most of the livestock will not be able to maintain their productivity. Fodder is grown as an independent crop or mixed crop in some areas which may form non-significant part of the total requirement. Other important sources of fodder are pasture and grazing lands, culturable wastes, fallow and barren lands. The problem of fodder scarcity can be solved by promoting the cultivation of green fodder, especially by plantation of fodder trees on community and marginal lands. The serious fodder shortage has its effect on farm women as well which often remain unnoticed. Forests as well as other areas all over the country are under heavy pressure due to rising human and livestock population, expanding agriculture, animal husbandry and rising industrial demand for forest products. Probably no other group is affected more by environmental degradation than poor village women. As more people are competing for continuously diminishing resources, women find that each day they must walk farther from their home in search of fuel wood, fodder and water for fulfillment of their livelihood needs. The extra distance not only adds to their

physical burden, but also leaves less time for looking after the family and for the production and preparation of food. It does not matter if women are old, young or expecting mothers.

Keeping in view the above facts, a study was conducted in Himachal Pradesh to estimate the fodder availability and to work out the fodder surplus or deficit and how it plays a role in the determination of time spent on different farm activities of Himachal Pradesh.

Materials and Methods

Stratified multistage random sampling technique was used as described by Sukhatme *et al* (1984). The state was divided into four strata according to different agroclimatic zones and one district was randomly selected from each zones. Therefore, four districts were selected randomly from Himachal Pradesh and from each selected district three blocks; from each block three villages and from each village ten households were randomly selected. Thus, sample consisted of 90 households from each agroclimatic zone. The data were collected through personal interview with the help of structured interview schedule. The farm women were contacted either at their home or on their farm.

The fodder availability is based on the estimate of actual fodder consumption by the livestock. Green fodder was converted into dry fodder equivalent using dry: green fodder in the ratio of 1:4 by weight (Ray, 1978). The availability of fodder was grouped into grass, straw and tree fodder (expressed in dry fodder equivalent). The fodder requirement for different categories of livestock was estimated by using the fodder requirement standard (Ray, 1978) specified for each category of livestock (Table 1).

Table 1: Fodder requirement standard of livestock

Livestock category	Dry fodder equivalent (kg/head/day)
Bovine young stock	4.62
Cattle/buffalo	9.00
Sheep	0.88
Goat	1.00

Source: Ray, 1978

Average fodder requirement of livestock for each household was estimated by following above standards. The requirement of different types of fodder for various categories of livestock was estimated using the following standards (Table 2).

Table 2: Requirement of different fodder for livestock

Livestock category	Composition (%)		
	Grass	Straw	Tree fodder
Bovine	50	45	5
Sheep	50	30	20
Goat	30	20	50

Source: Ray, 1978

Fodder requirement estimates were matched with fodder availability to determine the extent of fodder surplus or deficit. Fodder surplus or deficit is estimated by the following formula

$$\text{Fodder Surplus (or deficit)} = \frac{\text{Requirement-Availability}}{\text{Requirement}} \times 100$$

If result from above formula is positive then there is deficit and if it is negative, then there is surplus in fodder requirement.

The farm women were categorized by age group and education level. The age was classified into three groups' *viz.* less than 25, between 25-50 and above 50 years. Education status was also classified into three classes *viz.* illiterate, up to middle and above middle.

Association between extent of farm women's participation, their social status *i.e.* age and education and average time (in hours) per day spent for different activities *viz.* animal husbandry management, household, collection of fuel wood, collection of fodder and agricultural operations has also been worked out.

Results and Discussion

Livestock resource analysis: Livestock number and composition would determine demand for fodder. It is observed that average livestock holding in the Himachal Pradesh was 5.80 (Table 3). Livestock composition shows that bovine young stock dominated with 26.90 per cent population followed by cows (24.48%), bullock (22.07%), sheep/goat (17.59%) and buffaloes (8.96%). Kangra, Mandi and Shimla districts are more representative of this trend as compared to Chamba district where bovines form 58.27 per cent and ovines form 41.73 per cent of the total livestock. It is also observed that bovines form highest proportion (97.50%) of livestock population in Kangra district while ovines form highest proportion (41.73%) in Chamba district. Average number of bovines per household was observed to be maximum (5.75) in Shimla district followed by Kangra district.

Table 3: Average livestock holding of selected farmers per household in Himachal Pradesh

District	Bovine					Ovine	Total
	Bovine young stock	Cows	Bullock	Buffaloes	Total		
Kangra	1.56	1.44	1.25	0.63	4.88	0.13	5.01
	(31.25)	(28.75)	(25.00)	(12.50)	(97.50)	(2.50)	
Mandi	1.69	1.31	0.50	0.81	4.31	0.31	4.62
	(36.48)	(28.38)	(10.81)	(17.57)	(93.24)	(6.76)	
Shimla	1.81	1.56	1.75	0.63	5.75	0.62	6.37
	(28.43)	(24.51)	(27.45)	(9.80)	(90.20)	(9.80)	
Chamba	1.19	1.38	1.62	0.00	4.19	3.00	7.19
	(16.52)	(19.13)	(22.61)	(0.00)	(58.27)	(41.73)	
Overall (H.P.)	1.56	1.42	1.28	0.52	4.78	1.02	5.80
	(26.90)	(24.48)	(22.07)	(8.96)	(82.41)	(17.59)	

Table 4: Analysis of fodder balance in Himachal Pradesh (Dry fodder equivalent, quintals/households/year)

District	Grass			Straw			Tree fodder			Total		
	Require-ment	Availa-bility	Deficit (%)	Require-ment	Availa-bility	Deficit (%)	Require-ment	Availa-bility	Deficit (%)	Require-ment	Availa-bility	Deficit (%)
Kangra	78.53	70.32	10.46	70.68	47.91	32.22	7.85	9.70	23.44 (S)	157.06	127.93	18.55
Mandi	79.90	72.89	9.62	66.60	31.71	57.66	7.29	7.93	8.76 (S)	145.78	119.54	17.99
Shimla	94.96	70.26	26.01	85.46	32.09	62.45	9.50	6.46	31.97	189.92	108.81	42.71
Chamba	83.66	66.08	21.02	75.30	22.88	69.61	8.37	4.16	45.81	167.33	93.12	44.35
Overall (H.P.)	82.51	71.64	13.17	74.26	33.65	54.69	8.25	7.06	14.42	165.02	112.35	31.92

Table 5: Distribution of farm women according to their socio-economic characteristics in Himachal Pradesh

Age	Number of respondents	Percentage of respondents	Education	Number of respondents	Percentage of respondents
<25	79	22	Illiterate	140	39
25-50	209	58	Up to middle	119	33
>50	72	20	Above middle	101	18
Total	360	100	Total	360	100

Fodder balance estimate: On an average 112.35 quintals (dry fodder equivalent) was available with each household for their cattle for the year (Table 4). The availability of different types of fodder per household per year was 71.64 quintals grasses, 33.65 quintals straw and 7.06 quintals tree fodder .The fodder balance sheet was derived for comparison of availability and requirement estimates. The corresponding fodder requirement estimates were compared with the fodder availability estimates to obtain the fodder surplus or deficit. Table 4 shows that fodder deficit was 13.17 per cent of the requirement in case of grasses, 54.69 per cent for straw and 14.42 per cent for tree fodder. It was also observed that sampled villages of Kangra and Mandi district exhibited surplus in tree fodder while in Chamba district a high deficit to an extent of 45.81 per cent was noticed. The overall deficit to total requirement was 31.92 per cent. Chamba district exhibited highest fodder deficit (44.35 per cent) and Mandi district the lowest (17.99 per cent). Mudgil and Pradhan (1988) showed deficit of 36 per cent in fodder requirement in India.

Women's participation: The women were categorized according to age and eduction level. The majority of women (58%) were from the age group 25-50 years where as those in the age group below 25 and above 50 years consist of 22 and 20 per cent of the respondent respectively (Table 5). The possible reason for much higher response of respondent being from the middle age group of 25-50 years is that they are much active in various farm operations. Illiterate farm women formed 39

Table 6 : Association between age and participation in different activities by the farm women in Himachal Pradesh. (Average time spent per day in hours)

Activities	Age	District				
		Kangra	Mandi	Shimla	Chamba	Overall (H.P.)
Household	£ 25	5.44	5.44	5.69	5.77	5.59
		(37.06)	(34.65)	(40.38)	(35.01)	(36.80)
	25-50	6.90	6.32	5.86	6.80	6.46
		(36.11)	(33.33)	(36.33)	(37.73)	(35.69)
	>50	5.80	5.33	5.90	5.83	5.72
		(35.63))	(37.12)	(37.99)	(40.32)	(37.73)
Fuel Collection	£ 25	2.08	3.00	1.78	3.33	2.55
		(14.17)	(19.11)	(12.63)	(20.21)	(16.79)
	25-50	2.55	3.56	2.38	2.94	2.86
		(13.34)	(18.78)	14.76)	(16.31)	(15.80)
	>50	2.51	2.45	2.29	2.54	2.44
		(15.42)	(17.06)	(14.75)	(17.56)	(16.09)
Animal Management	£ 25	2.25	2.04	2.36	2.40	2.26
		(15.33)	(12.99)	(16.75)	(14.56)	(14.88)
	25-50	3.26	2.10	2.81	2.35	2.68
		(17.06)	(11.08)	(17.42)	(13.04)	(14.81)
	>50	3.28	2.11	2.59	2.00	2.45
		(20.15))	(14.69)	(16.68)	(13.83)	(16.16)
Fodder collection	£ 25	2.58	2.05	2.06	2.48	2.29
		(17.17)	(13.06)	(14.62)	(15.05)	(15.07)
	25-50	3.19	3.21	2.40	2.95	2.94
		(16.69)	(16.93)	(14.88)	(16.38)	(16.24)
	>50	2.50	1.95	2.36	2.33	2.28
		(15.36)	(13.58)	(15.20)	(16.11)	(15.04)
Agricultural	£ 25	2.33	3.17	2.20	2.50	2.50
		(15.87)	(20.19)	(15.62)	(15.17)	(16.46)
	25-50	3.21	3.77	2.68	2.98	3.16
		(16.80)	(19.88)	(16.64)	(16.54)	(17.46)
	>50	2.19	2.52	2.39	1.76	2.27
		(13.44)	(17.55)	(15.38)	(12.18)	(14.98)
Total	£ 25	14.68	15.70	14.09	16.48	15.19
	25-50	19.11	18.96	16.13	18.02	18.10
	>50	16.28	14.36	15.53	14.46	15.16

Note : Figures in the paranthesis indicate the percentage of total time spent in different activities

per cent where as those having education up to middle and above middle levels constituted 33 and 18 per cent respectively.

Average time spent by farm women of different age group *i.e* below 25, 25-50 and above 50 years was 15.19, 18.10 and 15.16 hours per day and they spent about 29.95, 31.05 and 31.20 per cent of their time for animal husbandry including fodder collection (Table 6). A difference between time spent pattern for different activities among different age group were observed. The women between age group of 25-50 years spent comparatively more times for different activities as compared to other age groups. Grover and Kapoor (1988) and Sawant *et al.* (1988) reported that young women perform more farm operations.

The illiterate, up to middle and above middle educated farm women spent 16.95, 16.45 and 15.05 hours per day for different activities *viz.* animal management, household, collection of fuelwood, collection of fodder and agricultural operations (Table 7). With these education levels farm women spent 5.51, 5.28 and 4.66 hours per day for animal rearing of which 2.71, 2.35 and 2.33 hours per day for animal rearing and remaining 2.80, 2.43 and 2.28 hours per day was spent for collection of fodder. There was not much difference in the time spent between different educated groups of women for different activities, however a significant difference was observed for the total time spent in the different activities.

The survey indicated that scarcity of fodder forced the farm women to cover more distance and spend more time to

Table 7 : Association between education level and participation in different activities by the farm women in Himachal Pradesh.

(Average time spent per day in hours)

Activities	Education status	District				
		Kangra	Mandi	Shimla	Chamba	Overall (H.P.)
Household	Illiterate	5.72	5.91	5.78	5.90	5.83
		(33.47)	(32.60)	(35.59)	(36.12)	(34.40)
	Upto middle	5.83	5.92	6.28	6.33	6.09
		(33.81)	(35.84)	(40.36)	(38.44)	(37.02)
	Above middle	6.59	5.26	5.39	6.17	5.85
		(41.86)	(36.61)	(38.64)	(38.20)	(38.88)
Fuel Collection	Illiterate	2.96	3.36	2.53	2.50	2.84
		(17.33)	(18.53)	(15.58)	(15.29)	(16.76)
	Upto middle	2.99	3.37	2.21	3.56	3.03
		(17.35)	(20.40)	(14.21)	(21.61)	(18.42)
	Above middle	1.19	2.28	1.71	2.75	1.95
		(7.55)	(15.88)	(12.25)	(17.04)	(13.16)
Animal Management	Illiterate	3.50	2.32	2.74	2.29	2.71
		(20.47)	(12.79)	(16.87)	(14.01)	(15.98)
	Upto middle	2.92	1.84	2.50	2.13	2.35
		(16.94)	(11.13)	(16.06)	(12.94)	(14.28)
	Above middle	2.37	2.09	2.52	2.33	2.33
		(15.05)	(14.55)	(18.07)	(14.43)	(15.48)
Fodder collection	Illiterate	2.71	3.07	2.63	2.80	2.80
		(15.85)	(16.94)	(16.20)	(17.13)	(16.52)
	Upto middle	2.68	2.42	2.00	2.63	2.43
		(15.55)	(14.65)	(12.86)	(15.96)	(14.78)
	Above middle	2.88	1.72	2.19	2.33	2.28
		(18.28)	(11.97)	(15.70)	(14.43)	(15.14)
Agricultural	Illiterate	2.20	3.47	2.56	2.85	2.77
		(12.88)	(19.14)	(15.76)	(17.45)	(16.34)
	Upto middle	2.82	2.97	2.57	1.82	2.55
		(16.35)	(17.98)	(16.51)	(11.05)	(15.51)
	Above middle	2.71	3.02	2.14	2.57	2.61
		(17.91)	(20.66)	(15.34)	(15.92)	(17.34)
Total	Illiterate	17.09	18.13	16.24	16.34	16.95
	Upto middle	17.24	16.52	15.56	16.47	16.45
	Above middle	15.74	14.37	13.95	16.15	15.05

Note: Figures in the paranthesis indicate the percentage of total time spent in different activities

collect fuelwood and fodder. It has been observed that due to increased time spent in the collection of fodder, the other productive activities of child care, education, farm operations, and social activities are compromised. It is, therefore, recommended to plant more of fodder trees and grasses either on farm land or nearby farming lands so that the farm women could easily manage the fodder resources for their livestock. The resultant time saving can be used for other productive and income generating activities.

Acknowledgement

Authors are thankful to anonymous referees for their valuable suggestions and constructive remarks for improving the present manuscript.

References

Grover, I. and A. C. Kapoor 1988. Researches and appropriate technology of farm women. Abstract: *International Conference on Farm Women* held at Indian Council of Agricultural Research, New Delhi 30th November to 6th December, 1988.

Mudgal, V. D. and K. Pradhan 1988. Animal feed resources and current patterns of utilization In: (Deven Chandra, C. ed.)*non-conventional feed resources and fibrous agricultural residues* . IDRC/ICAR.pp139-146.

Negi, G. C. 1990. *Livestock development in Himachal Pradesh in retrospect and prospect.* Report Himachal Pradesh Krishi Vishvavidylalya, Palampur

Ray, S. N.1978. *Livestock feeding.* Indian Council of Agricultural Research, New Delhi. 48.

Sawant, A. G., V. B. Dalvi and A. J. Nirbon. 1988. Role of farm women in farming and allied activities. Paper presented *Seminar on Role of Farm Women in Agricultue,* held at Punjabrao Krishi Vidyapeeth Akola, 7th to 8th October 1988.

Sukhatme, P. V., B. V. Sukhatme, S. Dukhatme and C. Ashok 1984. *Sampling Theory of Surveys with Applications.* Iowa State University Press, Ames Iowa, USA.pp 526.