



Research Article

GENDER PARTICIPATION AND DRUDGERY IN MULBERRY CULTIVATION

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Abstract: The study was conducted in ten villages of two taluks in Ramanagara district in Karnataka state during 2021-22 to analyse the extent of participation of farm men and women in mulberry cultivation activities and to document the drudgeries faced by farm men and women in mulberry cultivation activities. Sixty farm men and 60 women practising sericulture formed the sample and the respondents were interviewed using a pre-tested schedule. Activities like deep digging, application of manure, micro nutrients and plant protection chemicals and irrigation were performed by majority of the farm men, while preparation of mulberry cuttings and weeding operations were performed by majority of farm men and women. The 't' value (1.81) was found to be significant at five per cent level indicating that there exists a significant difference in the mean participation score between the farm men (8.10) and women (6.99) in respect of mulberry cultivation activities. Age, education, experience in sericulture, innovativeness, achievement motivation, management orientation, risk orientation, economic motivation, attitude towards sericulture, farming commitment, mass media exposure, training in sericulture, extension agency contact, farm scientist contacts and extension participation of farm men and women were having significant to highly significant association with the participation in mulberry cultivation activities. Backache, headache, neck pain, blisters, lesions, and eye irritation were the health hazards/drudgeries faced by both the sexes in mulberry cultivation activities.

Keywords: Gender, Participation, Mulberry cultivation, Drudgery

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Introduction

Sericulture is an agro-based industry which involves cultivation of mulberry, silkworm rearing and cocoon production and silk reeling. Sericulture is a labour-intensive rural industry which assumes importance of its own, particularly in India where employment opportunities have to be created especially in the rural areas to provide gainful employment to the under employed, the unemployed and the landless persons [1].

In most homes, women take care of both domestic chores and silkworm rearing tasks, including chopping leaves, making beds, feeding silkworms, maintaining personal cleanliness, selecting ripe worms, mounting them, and so forth. According to calculations, out of the 4,225 labour days produced annually by all sericulture activities per hectare of irrigated mulberry, 2,575 work days, or almost 60 per cent are generated by women. Women have been contributing in all the stages starting from on-farm activities such as mulberry plantation for feeding the silk worm, indoor rearing of silk worm to off- farm activities such as decision making, trading and marketing.

Sericulture offers opportunities for women to participate directly in the production process and decision-making for bettering their economic circumstances and to elevate their status within the family and community. Due to their unique work ethic, women are generally favoured in sericulture. They work on a grainage, a silkworm farm, or a mulberry garden. With this background, the present study has been carried out with the following specific objectives:

To analyse the participation of farm men and women in mulberry cultivation

To find out the association between the profile characteristics of farm men and women with their participation level

To document the drudgeries faced by farm men and farm women in mulberry cultivation.

Material and Methods

The present research study was conducted in Ramanagara district of Karnataka State during 2021-22. Ramanagara is a well known as Silk City and Sericulture is one of the main occupations in the district. In Karnataka, Ramanagara district stands third position in the cocoon production in terms of mulberry area (18975 ha), cocoon production (19662 tons) and cocoon productivity (89 kg/100 dfis) during 2020-21 next to Chikkaballapura and Kolar districts [1]. During the year 2020-21, mulberry was grown in 9528, 3609, 2691 and 311 ha of Kanakapura, Channapatna, Ramanagara and Magadi taluks of Ramanagara district, respectively. The study was purposively conducted in Kanakapura (9525 ha) and Channapatna (3609 ha) taluks, since mulberry is grown in more areas among the four taluks of Ramanagara district [2]. Five villages were randomly selected for the study from each of the two sampled taluks. Small and marginal farmers rearing silkworms were interviewed for the study since farm women of small and marginal farmers are more involved in decision making and participation in sericulture activities. From each village, six farm households practicing sericulture were randomly selected. Relevant data were collected from the head of the family and his spouse. Thus, the final sample constituted 120 respondents (60 farm men and 60 farm women) from ten villages of Kanakapura and Channapatna taluks of Ramanagara district. Expost-facto research design was adopted for conducting the present study. Extent of participation is defined as 'the degree to which the farm men and women have participated in various sericulture activities. It was measured using the procedure followed by Rajula Shanthi (2010) [3]. A list of ten mulberry cultivation practices were presented to the respondents to know their extent of participation. To analyse the extent of participation of the participants a score of 0 and 1 were assigned for non-participation and participation in the mulberry cultivation activities, respectively.

The minimum and maximum score one could get was 0 and 10, respectively. Based on the total score by the respondents on all the ten mulberry cultivation practices, they were categorized into low, medium and high level of participating considering mean and half standard deviation.

Information regarding 19 profile characteristics of farm men and women were measured using a structured schedule with suitable procedure/scale. Open ended questions were asked to the respondents to collect data on the drudgeries faced by them in mulberry cultivation activities. The collected data was scored, tabulated and analyzed using frequency, percentage, mean, standard deviation, chi-square test and student 't' test.

Participation category	Criteria	Farm men	Farm women
Low	< (Mean – ½ SD)	<7.14	<6.38
Medium	(Mean + ½SD)	7.14 to 9.06	6.38 to 7.60
High	> (Mean + ½ SD)	> 9.06	> 7.60
Mean		8.1	6.99
Standard deviation		1.92	1.22

Results and Discussion

Participation of farm men and women in mulberry cultivation activities

Participation of farm men and women in specific mulberry cultivation activities [Table-1] reveals that all the farm men had participated in deep digging (30-35 cm depth) /ploughing of land (100.00%) in mulberry fields, while none of the farm women had participated in deep digging (30-35 cm depth) /ploughing of land. Whereas, the farm men and women had participated in preparation of mulberry cuttings (80.00% and 53.33%), application of organic manure (95.00% and 30.00%), chemical fertilizers (93.33% and 33.33%) and micro nutrients (71.66% and 33.33%), irrigation (86.66% and 36.66%), weeding/intercultivation (63.33% and 56.66%), integrated pest management practices (96.66% and 13.33%), application of plant protection chemicals (100.00% and 25.00%) and leaf harvesting (93.33% and 68.33%), respectively. Activities like deep digging, application of manure, micro nutrients and plant protection chemicals and irrigation are laborious, tough and cumbersome, hence these activities are performed by majority of the farm men. Preparation of mulberry cuttings and weeding activities are also laborious, but do not demand much physical energy, hence majority of farm women had performed these operations along with their spouses. Similar findings were reported by Zaidi and Munir (2014) [4], Nishitha (2016) [5] and Rakesh (2020) [6].

Table-1 Participation of farm men and women in mulberry cultivation activities

Mulberry cultivation activities	Participation level			
	Farm men (n ₁ =60)		Farm women (n ₂ =60)	
	No.	%	No.	%
Deep digging (30-35 cm depth) /ploughing of land	60	100	0	0.00
Preparation of mulberry cuttings	48	80.00	32	53.33
Application of organic manure	57	95.00	18	30.00
Application of chemical fertilizers	56	93.33	20	33.33
Application of micro-nutrients	43	71.66	20	33.33
Irrigation	52	86.66	22	36.66
Weeding/intercultivation	38	63.33	34	56.66
Integrated pest management practices	58	96.66	8	13.33
Application of plant protection chemicals	60	100	15	25.00
Leaf harvesting	56	93.33	41	68.33

Overall participation level of farm men and women in mulberry cultivation

It is observed from [Table-2] that as high as 46.67 per cent of farm men were having high level of participation, followed by 30.00 and 23.33 per cent of the farm men were having medium and low level of participation in the mulberry cultivation activities. Whereas, more than one-third of the farm women were having low level of participation (35.00%) followed by one-third (33.34%) and 31.66 per cent of the farm women were having high and low level of participation, respectively. The 't' value (1.81) was found to be significant at five per cent level indicating that there exists a significant difference in the mean participation score between the farm men (8.10) and women (6.99) in respect of the participation in mulberry cultivation activities. Most of the mulberry cultivation practices viz., deep digging, application of manure, micro nutrients and plant protection chemicals and irrigation are laborious, tough and cumbersome, hence these activities were performed by all or majority of the farm men, while few mulberry cultivation practices/activities like,

preparation of mulberry cuttings and weeding activities were performed by majority of farm women. Hence, there existed a significant difference in the mean participation score between the farm men and women.

Profile characteristics of farm men and women with their participation

The results in [Table-3] revealed that variables namely, credit orientation, social participation, cosmopolitaness and deferred gratification of farm men and women had non-significant association with the participation level, while variables such as, age, education, experience in sericulture, innovativeness, achievement motivation, management orientation, risk orientation, economic motivation, attitude towards sericulture, farming commitment, mass media exposure and training in sericulture of farm men and women had significant association with the participation level. Extension agency contact, farm scientist contacts and extension participation of farm men and women were having highly significant association with the participation in mulberry cultivation activities. Variables such as age, education, experience in sericulture, innovativeness, achievement motivation, management orientation, risk orientation, economic motivation, attitude towards sericulture, farming commitment, mass media exposure, training in sericulture, extension agency contact, farm scientist contact and extension participation have synergic effect on one another, hence these variables have significantly contributed in increasing the participation of farm men and women in respect of mulberry cultivation practices.

Drudgeries faced by farm men and women in mulberry cultivation

[Table-4] presents the data on the drudgeries faced by farm men and women in mulberry cultivation. It is seen from the table that 30.00 per cent of the farm men experienced 'backache' while preparing the land for raising mulberry crop. Whereas, one-third of the farm men (33.33%) and 36.66 per cent of the farm women have experienced 'backache' while preparing and planting the mulberry cuttings. Over one-third of the farm men (38.33%) and women (40.00%) experienced 'backache' while performing hand weeding. Nearly half of the farm men (46.66%) and one-fifth of the farm women (20.00%) experienced 'backache' while irrigating the mulberry crop. Forty and 35.00 per cent of the farm men and women experienced 'backache' while harvesting the mulberry leaves, respectively. It is also observed from [Table-4] that the farm men and women experienced 'neck pain', while applying organic manure (25.00% and 20.00%), chemical fertilizers (16.66% and 10.00%) and plant protection chemicals (30.00% and 5.00%), respectively.

Thirty-five per cent of the farm men perceived that 'blister and lesions' were caused while preparing land for raising mulberry crop. Whereas, one-third of the farm men (33.33%) and 35.00 per cent of the farm women perceived that 'blister and lesions' were caused during hand weeding. Less number of farm men and women perceived that 'blister and lesions' were caused while performing operations such as application of chemical fertilizers (13.33% and 5.00%), mixing and application of plant protection chemicals (35.00% and 8.33%) and mulberry leaf harvesting (15.00% and 6.66%), respectively.

The findings in [Table-4] also revealed that less than one-fourth of the farm men (23.33%) and women (18.33%) perceived drudgery due to inhalation of plant protection chemicals causing 'cough and nasal infestations', while mixing and application of plant protection chemicals causing 'eye irritation'. Less number of farm men and women perceived drudgery while applying chemical fertilizers (20.00% and 18.33%) and mixing and application of plant protection chemicals (23.33% and 21.66%) causing eye irritation, respectively.

The drudgeries in mulberry cultivation could be reduced if suitable farm implements such as ploughs and weeders are developed by the farm scientists. However, the technologies should be within the farmer's financial means. The mulberry growers could also adopt drip irrigation to irrigate the mulberry crop for reducing the drudgeries. Drudgeries could be reduced while applying agro-chemicals efficiently using the sprayers. Hand gloves, face and eye masks could be used while mixing and application of agro-chemicals, so that the chemicals would not come in direct contact with the skin. More or less similar findings were reported by Biridar (2021) [7] and Raju, *et al* (2019) [8].

Table-2 Overall participation level of farm men and women in mulberry cultivation practices

SN	Participation category	Number	Per cent	Standard deviation	Mean participation score	't' value	
A	Farm men (n ₁ =60)						
1	Low (<7.14 score)	14	23.33	1.92	8.10	1.81*	
2	Medium (7.14 to 9.06 score)	18	30.00				
3	High (>9.06 score)	28	46.67				
Total		60	100				
B	Farm women (n ₂ =60)						
1	Low (<6.38 score)	21	35.00	1.22	6.99		
2	Medium (6.38 to 7.60 score)	19	31.66				
3	High (>7.60 score)	20	33.34				
Total		60	100				

Table-3 Association between profile characteristics of farm men with their participation in mulberry cultivation activities

SN	Profile characteristics	Degrees of freedom	Chi-square value	
			Farm men (n ₁ =60)	Farm women (n ₂ =60)
1	Age	4	9.681*	10.015*
2	Education	10	21.015*	21.332*
3	Experience in sericulture	4	10.806*	9.815*
4	Innovativeness	4	11.683*	11.685*
5	Achievement motivation	4	10.019*	12.222*
6	Management orientation	4	12.025*	13.018*
7	Risk orientation	4	11.601*	11.019*
8	Economic motivation	4	12.229*	10.220*
9	Credit orientation	4	5.695 ^{NS}	2.686 ^{NS}
10	Social participation	4	6.185 ^{NS}	3.616 ^{NS}
11	Cosmopolitaness	4	4.885 ^{NS}	4.616 ^{NS}
12	Deferred gratification	4	2.696 ^{NS}	3.116 ^{NS}
13	Attitude towards sericulture	4	10.688*	11.203*
14	Farming commitment	4	11.219*	9.986*
15	Mass media exposure	4	12.693*	11.009*
16	Training in sericulture	2	7.016*	8.880*
17	Extension agency contact	4	13.912**	13.999**
18	Farm scientist contact	4	14.809**	13.696**
19	Extension participation	4	13.816**	14.689**

Table-4 Drudgeries faced by farm men and women in mulberry cultivation activities

SN	Drudgeries	Farm men		Farm women	
		(n ₁ =60)		(n ₂ =60)	
		No.	%	No.	%
1	Backache				
a	Land preparation	18	30.00	0	0.00
b	Preparation and planting the mulberry cuttings	20	33.33	22	36.66
c	Hand weeding	23	38.33	24	40.00
d	Irrigation	28	46.66	12	20.00
e	Mulberry leaf harvesting	24	40.00	21	35.00
2	Neck pain				
a	Application of organic manure	15	25.00	12	20.00
b	Application of chemical fertilizers	10	16.66	6	10.00
c	Application of plant protection chemicals	18	30.00	3	5.00
3	Blisters and lesions				
a	Land preparation	21	35.00	0	0.00
b	Hand weeding	20	33.33	21	35.00
c	Application of chemical fertilizers	8	13.33	3	5.00
d	Mixing and application of plant protection chemicals	21	35.00	5	8.33
e	Mulberry leaf harvesting	9	15.00	4	6.66
4	Cough and nasal infections due to mixing & application of plant protection chemicals	14	23.33	11	18.33
5	Eye irritation				
a	Application of chemical fertilizers	12	20.00	11	18.33
b	Mixing and application of plant protection chemicals	14	23.33	13	21.66

Conclusion

The study findings revealed that more number of farm men (46.67%) and women (35.00%) were found in high and low level of participation in mulberry cultivation practices and there existed a significant difference in the mean score of farm men and women with regard to the participation in mulberry cultivation activities. It was found that age, education, experience in sericulture, innovativeness, achievement motivation, management orientation, risk orientation, economic motivation, attitude towards sericulture, farming commitment, mass media exposure, training in sericulture extension agency contact, farm scientist contacts and extension participation of farm men and women were having significant to highly significant association with the participation in mulberry cultivation activities. Greater number of both genders have faced drudgeries in performing activities/

operations like, planting mulberry cuttings, hand weeding and mixing and applying plant protection chemicals. Extending the technological interventions like ploughing tools, inter-cultivator, weeder, sprayers etc., will minimise the drudgery to both sexes (farm men and women) in mulberry cultivation. The Karnataka State Department of Sericulture must provide farm implements and equipment on custom hire basis to the needy sericulturists on subsidy basis. The drudgeries could also be minimised by using hand gloves, face and eye masks while mixing and application of agro-chemicals by both farm men and women.

Application of research: Study of the association between the profile characteristics of farm men and women with their participation level

Research Category: Sericulture, Mulberry cultivation

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Cultivar / Variety / Breed name: Mulberry

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