

Assessment of socioeconomic status of agroforestry farmers in Haridwar, Uttarakhand

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ABSTRACT

Agroforestry is known to offer a wide range of livelihood benefits to farmers viz higher crop yields and incomes, greater food security and better resilience to climate change. The purpose and role of why agroforestry should be adopted are better explained by the farmers who adopt agroforestry as land management option. Hence this study was carried out with a purpose to know the socioeconomic status of farmers practicing agroforestry in Haridwar, Uttarakhand. A survey was done in the villages and 432 farmers were randomly selected from 36 randomly selected villages; 6 sample households were discarded as they could not generate appropriate data. Results revealed that 85.68 per cent of the total sampled farmers had adopted agroforestry out of which 19 out of every 20 agroforestry farmers were males. About one third (75.07%) of total agroforestry farmers considered farming their primary occupation and most of them (75.62%) considered agriculture as their major source of income. Over 90 per cent of the agroforestry farmers were formally educated; 64.66 per cent had adopted agroforestry in whole of their land. It was also found that in spite of having sufficient farming experience these farmers did not find themselves having enough knowledge of agroforestry. Despite of larger number of farmers having sufficient farming experience very few were sufficient in knowledge in agroforestry as they accepted themselves being not enough to understand it. The study concluded that the socioeconomic status of the farmers was satisfactory due to improvement brought out by adoption of agroforestry.

Keywords: Adoption; agroforestry; practice; socioeconomic status

INTRODUCTION

Agroforestry is an ancient practice (Roy et al 2006). Cultivating trees, agricultural crops and pastures and/or maintaining animals in intimate combination with one another spatially or temporally is an ancient practice that farmers have used throughout the world (Tolunay et al 2007).

Agroforestry can be defined as a dynamic, ecologically-based natural resources management system that through the integration of trees in agricultural landscapes diversifies and sustains production for increased social, economic and environmental benefits (Msuya and Kideghesho 2012). This system is one of the best known traditional practices for

livelihood, suitable land management and sustainable development (Parihaar et al 2014). Pattanayak et al (2003) has made valuable contributions to understanding the characteristics of early adopters, targeting communities and households to promote agroforestry. In this sequence Thangata and Alavalapati (2003) presented earlier research findings showing a plethora of social, cultural and economic issues including age, education and income, awareness and attitude of the households and the extent of change agent contact influencing the rate of adoption of the system.

Adoption of modern agroforestry in Uttarakhand spread mainly due to the influence of neighboring states like Haryana, Punjab and Uttar Pradesh where agroforestry gained popularity and attention of both farmers and industrialists due to more returns as compared to traditional forestry or agriculture. Since resources are scarce, the analysis of agroforestry becomes important. There are still gaps in understanding the existing agroforestry practices and their socioeconomics in Haridwar, Uttarakhand. The purpose and role of why agroforestry should be adopted are better explained by the farmers who adopt agroforestry as land management option. An understanding of socioeconomic status of agroforestry farmers and their relationship to the agroforestry is highly important. This would help to ascertain the opportunities for the development of the

system (Irshad et al 2011). Hence this study was carried out with a purpose to know the socioeconomic status of farmers practicing agroforestry in the region.

Surveys have been widely done in India in the past to collect information on forest resources use, joint forest management, social forestry adoption and psychological aspects of forest users (Glendinning et al 2001, Sood et al 2012). Research on agroforestry has also been done in many parts of Uttarakhand. The form of survey depends upon direct interviews with the people in order to ensure high rate of responses and seriousness of the answers given by the interviewees (Abdrabo and Hassaan 2003).

METHODOLOGY

In the present study the information was collected through a field survey using pretested semi-structured questionnaire and interview schedule. The main criteria to select study villages were their geographical distribution under different Tehsils of districts and presence of agroforestry in that area using simple random sampling. Thirty six villages from six blocks of three Tehsils and 12 households from each village were selected for detailed survey. Thus 432 random households in the selected villages were surveyed to determine average land holding size, area under different land uses, crops, trees and shrubs used for various purposes and management practices.

A pretest was done within three village farming communities having adopters and non-adopters of agroforestry and reviewed for clarity. The input from pretesting exercise was used to make minor or additional modifications in the questionnaire and the survey was conducted in the villages.

The data required to achieve objectives of the study included the socio-demographic characteristics of agroforestry adopters. To obtain this information a number of questions having socio-demographic characteristics like gender, caste, family size, social status, level of education and landholding and economic characteristics like main occupation and income were included in questionnaire. Besides some other questions pertaining to agroforestry like knowledge and experience of agroforestry, decision making in farming etc were also asked so that respondents could clearly explain adoption of agroforestry done by them.

Many focus group discussions (FGDs) at farmers' level including local farmers in discussion on agroforestry practices, labor resource types, knowledge of agroforestry etc were held to gain farmers' views on their social and economic status and to give arguments on data already collected (Chup 2004). The values were assigned to the replies given by the respondents. The information was

converted to numbering point scale. In total 426 respondents were interviewed exclusively on socioeconomic status and 365 for economic analysis. Only 6 responses out of 432 interviews were discarded as they could not generate enough data and information to analyze. The respondents were selected to represent the variation in farmers' welfare based on the size of the land area they owned.

In the case where the interviews were held with the key informants notes were taken. The key informants included a broad range of people from the farmers of the region and the local leadership of the communities in which the individual survey was conducted. The analysis was however based on feedback obtained from the farmers themselves. Data were sorted and coded as 0 and 1 based upon farmers' responses and subjected to simple statistical analysis.

RESULTS and DISCUSSION

Gender and marital status of sampled farmers (Table 1)

Although the majority of the respondents were male-headed households, some female-headed households were also found in the survey. The data reveal that 97.8 per cent of the sampled households were male-headed. Among male respondents 86.85 per cent farmers were married and 10.41 per cent were widowers. The data thus indicate that

a gender disparity existed among agroforestry practitioners in the region.

Socioeconomic profile (Table 2)

Most of the families were from general caste (47.12%) followed by OBCs (27.12%); maximum respondents were middle aged (69.86%). It is expected that the middle age group of farmers is more closely related to the agroforestry and has greater tendency to practice it. The old age group constituted about one fourth (26.03%) of the total farmers. This old population would no doubt be a resource of knowledge and experience to invest in

and large scale adoption of agroforestry as they provided enough knowledge and experience for such projects. The older farmers happen to be resistant to new technologies (Amsalu and De Graaff 2007) and are significant in deciding whether to continue with or not compared to younger ones (Kabwe 2010). Most of the respondents had annual income of Rs 50000 and above (27.40%) followed by Rs 10000-19999 (20.27%); qualification up to middle (31.51%) followed by senior secondary (21.10%). The farmers had mainly medium sized families (55.62%) followed by large (26.30%) and small

Table 1. Gender and marital characteristics of farmers doing agroforestry

Gender	Married		Single/unmarried		Widow/widower		Total	%
	Count	%	Count	%	Count	%		
Male	317	86.85	2	0.55	38	10.41	357	97.8
Female	5	1.37	0	0	3	0.82	8	2.2
Total	322	88.22	2	0.55	44	12.05	365	100

(18.08%). However Glover et al (2013) reported that small landholding farmers worldwide and particularly in developing countries have increased their interests in adoption and promotion of agroforestry in recent years.

Nature of occupation (source of income) and working members in the family (Table 3)

Two third (75.07%) of total agroforestry farmers considered farming as

their primary occupation. In the study area agroforestry adopter families who had at least one family member working (36.44%) were quite more than those adopter families in which no one was working outside. Agriculture as profession was followed by local work (21.1%).

Most of the farmers under this category were either employed as workers in local industrial units or else they had been owning their own business like shop

Table 2. Socioeconomic profile of respondents

Caste	f	%
Caste		
General	172	47.12
Minority	41	11.23
SC	51	13.97
ST	2	0.55
OBC	99	27.12
Age		
Young (<30)	15	4.11
Middle (31-60)	255	69.86
Old (>60)	95	26.03
Income (Rs)		
<10000	32	8.77
10000-19999	74	20.27
20000-29999	69	18.90
30000-39999	46	12.60
40000-49999	42	11.51
50000 and above	100	27.40
Unknown	2	0.55
Education level		
Fifth	33	9.04
Secondary	48	13.15
Middle	115	31.51
Senior secondary	77	21.10
Graduate	36	9.86
Postgraduate	12	3.29
None	36	9.86
Others	8	2.19
Family size		
Large	96	26.30
Medium	203	55.62
Small	66	18.08

keeping, selling etc. Very less number of farmers were found to be laborers (2.74%) and most of them did not have enough landholding for farming.

Landholding and level of adoption of agroforestry (Table 4)

Farm size refers to the preference of the farmers to grow as much food for their household and the market for sale as possible. When farm size is large and labour availability is low the farmers may be more ready to adopt practices such as woodlots or enriched fallows. On the other hand when farm size decreases they may also become more interested in higher yielding but more labour intensive systems such as alley cropping or highly productive home gardens (Glover et al 2013). It was seen that out of agroforestry farmers almost two- third (64.38%) were practicing agroforestry in whole of their land and 15.91 per cent in very less or less than half of the proportion of their total land. This sequence was followed by farmers who were practicing agroforestry in most of their land (13.14%) and farmers who were adopting agroforestry in half proportion of their total land (6.57%).

Total land under agroforestry (Table 5)

Of the total respondents 64.66 per cent had adopted agroforestry in whole of their landholdings followed by 15.88 in very less landholding.

Total farming experience and level of knowledge about agroforestry (Table 6)

Most of the farmers (60.27%) had more than 20 years of farming experience. Out of these 24.66 had average wheareas

21.10 had low level of knowledge. There were only 9.32 per cent farmers of more than 20 years of experience and sufficient level of knowledge. As a whole about equal number of farmers (38.36 and 37.81%) were having average and low level of knowledge.

Source of Labour (Table 7)

Only 3.29 per cent of the farmers had permanent labour on their farms. Most (56.44%) had temporary labour which was local (53.97%) or family members (44.66%) and was hired more frequently in seasonal times. Local labour (81.92%) was

the mostly used followed by family members (78.63%). However volunteer (36.44%) and outside (18.90%) labour was also available to the farmers.

CONCLUSION

From the study it is found that majority of respondent/farmers and surveyed households were male-headed; majority of farmers' families fell under general and OBC categories; the majority farmers were of middle or old age having middle or secondary level of education. The farmers were largely dependent on

Table 3. Nature of occupation and number of working members in the family (%)

Type of occupation	Farming as main occupation (%)	Farming as secondary occupation (%)	Total (%)	# working members in the family				
				1	2	3	4	None
Agriculture	75.07	24.38	99.45	36.44	23.01	4.93	0.82	34.25
Small business	14.25	4.11	18.36	9.32	7.12	1.10	0.27	0.55
Local work	21.1	9.86	30.96	14.52	11.51	3.84	0.55	0.55
Government service	4.11	8.49	12.6	5.75	4.93	1.10	0.00	0.82
Labour	0.82	1.92	2.74	0.55	1.64	0.27	0.00	0.27
Others	11.51	4.93	16.44	7.67	4.11	2.47	0.27	1.92
None	0.27	0	0.27	0	0	0	0	0.27
Total	75.62	24.32						

Table 4. Total landholding and adoption of agroforestry by the farmers

Land holding (ha)	Land adopted under agroforestry by the farmers (%)				Total (%)
	Whole	Maximum	Half	Very less	
Marginal (<1)	17.53	0.00	0.27	1.10	18.90
Small (1-2)	19.73	3.01	1.64	4.91	29.29
Medium (2-5)	25.48	8.49	4.66	7.95	46.58
Large (>5)	1.64	1.64	0.00	1.95	5.23
Total	64.38	13.14	6.57	15.91	100.00

Status assessment of agroforestry farmers

Table 5. Farmers with land under agroforestry

Land under plantation	Frequency	Percentage of adopters
Whole	236	64.66
Maximum	47	12.88
Half	24	6.58
Very less	58	15.88

Table 6. Total farming experience and knowledge level of farmers

Level of knowledge	Percentage of farmers having farming experience (years)				
	Nil	Low (<10)	Medium (10-20)	Sufficient (>20)	Total
Nil	0	0.82	4.11	4.93	9.86
Low	0	1.10	15.62	21.10	37.81
Average	0	1.10	12.60	24.66	38.36
Sufficient	0	0.27	4.11	9.32	13.7
Total	0	3.29	36.44	60.27	100

Labour resource type

Table 7. Source of labour for the farmers (%)

Labour type	Local	Outside	Volunteer	Family members	Total
Permanent	1.64	0.55	2.74	2.74	3.29
Temporary	53.97	11.78	5.21	44.66	56.44
Both	26.30	6.30	28.49	21.10	30.14
None	0	0	0	10.13	10.13
Total	81.92	18.90	36.44	78.63	100.00

agriculture (agroforestry in this context) for income generation for their livelihood. Farmers were also reported with higher income status i.e. above Rs 50000 per annum. Most of the farmers were from medium size families. Approximately more than one third of the total agroforestry farmers considered farming as their primary occupation and most of them

considered agriculture as their major source of income. Results also show that to some extent the agroforestry farmers practiced agroforestry on whole of the land because of the returns as compared to conventional agroforestry because they wanted to extract as much as possible in terms of agroforestry output. Despite of large number of farmers having sufficient farming experience very

less people were sufficient in agroforestry knowledge as they accepted themselves not enough to understand agroforestry. Finally the study concluded that the socioeconomic status of the farmers in the study area was satisfactory as adoption of agroforestry had improved it.

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Received: 30.9.2016

Accepted: 14.11.2016