



Women participation in Apple Cultivation in Rural Kashmir- A study

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Abstract - Multi-stage random sampling technique was utilised to get a sample of 439 households of 24 villages of 6 different community development blocks of the three different districts of the valley namely Shopian, Budgam and Kupwara. The study was conducted in 2013-14 in the three districts of Kashmir valley, by giving equal representation to all the three parts of Kashmir valley. The data was collected with the help of an open ended well-structured questionnaire. From the data collected it has been found that women in all the three districts of the valley participate in almost all the activities related to apple cultivation. Women work from dawn to dusk in the apple orchards and contribute to the family income. But from the study it can be concluded that, though women work hard and hard and work much hours in the farm activities, but their contribution in the apple production is very less. The reason for this as concluded in this study that women are disguisedly employed in the farm activities.

Key Words: Women, Participation, Apple, Cultivation, work, income, contribution.

INTRODUCTION

India has a predominantly agrarian economy: 70 percent of her population is rural; of those households, 60 percent engage in agriculture as their main source of income. It has always been India's most important economic sector. In this important agricultural sector woman plays a vital role, because it is largely a household enterprise. Women in India are major producers of food in terms of value, volume number of hours worked. Nearly 63 percent of all economically active men are engaged in agriculture as compared to 78 percent of women. Almost 50 percent of rural women female workers are classified as agricultural labourers and 37 percent as cultivators. About 70 percent of farm work was performed by women. It is observed that the women play a significant role in agricultural development and allied fields including, in the main crop production, livestock production, horticulture, post-harvesting operations, agro/social forestry, fishing etc., is a fact long taken for granted but also long ignored.

Women are vital and productive workers in India's economy. They make up 1/3 of the labour force. The five years plans have consistently placed special emphasis on providing minimum health facilities, integrated with family welfare nutrition and education

for women and children. Various measures have been introduced to improve living conditions of women and to increase their excess to and control over material and social resources.

The performance of agriculture sector in the Indian economy in the recent years has not been quite satisfactory because of the decrease in the growth rate of agricultural output. Not surprisingly, most farmers have made their intentions clear about disliking the agricultural sector and hence, given an option, want to quit agriculture and shift from agriculture to horticulture. During the past few years, demand for high value crops has been showing much faster growth than demand for food grains. With this backdrop, diversification towards horticultural crops has been suggested as a viable option to stabilize and raise farm income, enhance agricultural growth and increase employment opportunities. Horticulture has emerged as an indispensable part of agriculture, offering a wide range of choices to the farmers for crop diversification. It also provides ample opportunities for sustaining large number of agro based industries which generate substantial employment opportunities. The horticulture sector contributes around 28 percent of the GDP from about 13.08 percent of the area and 37 percent of the total exports of the agricultural commodities. Under the changing agricultural scenario, it has been realized that horticultural sector plays a vital role in providing livelihood security to the farmers globally. The diversification in agriculture for improving sustainability, profitability and productivity will help in not only improving the farm income but also will generate gainful employment. India is the world's second largest producer of fruits (57.73 million tonnes) with its projected value touching by the year 2020-2021 largest producer of banana, mango, sapotas and acid limes and enjoys reputation for highest productivity in grapes. India occupies prime position in the production of cauliflower and pea, second in onions, cabbage, tomato and brinjal, and third in cabbage in the world.

METHODOLOGY

The present study of women participation in apple cultivation is an attempt to highlight the economic role of women in apple cultivation. Horticulture in Jammu

and Kashmir is the vertical backbone of the state and is regarded as the largest sector of the state's economic activity. A lot of the population either directly or indirectly depends on horticulture. Most of the women perform various works for their livelihood and horticulture is considered as the biggest unorganized sector where large number of rural women takes part actively. These rural women who work in the apple orchards participate in a wide range of activities by slogging alongside men in the orchards as well as taking care of the home and children, thereby performing a dual role that of a homemaker and of a partner in the apple production. About 70 percent of the total population of the state is dependent on horticulture as the source of revenue. Rice, maize and wheat are the major crops of the locale. The state is known for its mono-cropped and rain-fed economy with 40 percent area in the Jammu division and 60 percent in Kashmir. In Jammu and Kashmir there is subsistence agriculture, therefore women had to play a dominant role in it. In this context it is interesting to note that in many parts involvement of women and children is higher than the involvement of men for certain specific horticultural operations such as plucking of apples, storing, etc. and operations like carrying cow dung on head, earthening/digging under plants and application of fertilizers.

Objectives

The basic objectives of the present study are;

1. To analyse the contribution of women in activities related to apple cultivation.
2. To compare the incidence of women participation in sampled districts of valley.

Universe

Shopian, Budgam and Kupwara are the three districts of the valley representing the three different geographical regions, as they cover the South, Central and North Kashmir. The three districts being different in geographical context produce almost all crops but with some exception as well. District Shopian was carved out of district Pulwama, the district consists of 231 villages. The district is administratively divided into two tehsils viz. Shopian and Keller. The district also comprises of the same two C.D blocks viz. Shopian and Keller. Likewise district Budgam was carved out of district Srinagar. The district consists of 283 Panchayats comprising of 509 revenue villages. The district is administratively divided into 06 tehsils namely; Budgam, Beerwah, Chadoora, Khansahib, Khag, and Charisharief, the district has been divided into eight blocks namely Budgam, Beerwah, Chadoora, Khansahib, Khag, B.K.Pora, Narbal and Nagam. Furthermore, the district Kupwara was carved out of the district Baramulla. The district consists of 224 Panchayats comprising of 369 villages. The district is administratively divided into 03 tehsils viz. Handwara, Karnah and Kupwara, the district has been further

divided into 11 blocks: Sogam, Tangdar, Teetwal, Ramhal, Kupwara, Rajwal, Kralpora, Langate, Wavoora, Trehgam and Kalaroo.

Sampling

In the present study the sampling technique used is partly purposive and partly stratified in nature. In the first stage, three districts viz Shopian, Budgam and Kupwara have been chosen purposively. In the second stage at least two blocks have been selected from each district. In the third stage at least four villages have been selected from each block by giving equal representation to each block and from each village 10 percent of operational households have been selected. The respondents were interviewed as per the objectives of the study and comparison of responses was done. Present study covers three districts viz Shopian, Budgam and Kupwara from three different regions, so that whole valley got representation. In all the three districts viz Shopian (South Kashmir), Budgam (Central Kashmir) and Kupwara (North Kashmir) various crops are being produced, but paddy, maize, apple and vegetables are the main and dominant ones. Apple and maize are cultivated mainly in the upper belts of the district Shopian, Budgam and Kupwara and rice is cultivated in lower and plain belts of all the three districts. Therefore the present study has been conducted in six community development (C.D) blocks of the valley, two from each district. From south Kashmir two community development blocks from district Shopian viz Keller and Shopian has been selected. Block Keller is famous for its apple and maize cultivation as the block is Kandi (hilly) in nature and the whole area is under the cultivation of fruits especially apple. Among cereals maize is produced at a large scale. The four villages- Batamaran, Avengund, Tukroo and Gatipora have been randomly selected. The villages, which have been selected from block Shopian, are Pinjura, Hirpora, Wangam and Aglar where almost the whole agricultural land is under the cultivation of all the major agricultural products and the people are mainly dependent on the agriculture. Similarly, from district Budgam, two community development blocks selected namely where; and Khag Nagam. The villages that were selected from block Khag are; Badran, Nagbal, Poshkar and Iskanderpora and the villages from block Nagam are; Bandipora, Hayatpora, Choontinar/Darwan and Dalwan and likewise from district Kupwara two blocks that were selected are; Sogam and Wavoora. The villages selected from the block Sogam include namely; Lalpora, Dardpora, Dever and Doras and similarly the villages selected from block Wavoora include Bajbir, Krusin, Dooniwara and Anwarabad. As per the report of the Economics and Statistics, the soil in the village is very fertile and is suitable for all kinds of crops.

Tools of Data Collection

For collection of data a questionnaire has been prepared in consonance with the objectives of the study and has been served to both male and female respondents

separately. In addition, observation technique was used to supplement the primary data.

Tools of Analysis:

After the collection of data from the sample area, the following tools for the analysis of data have been utilized;

1. Linear production function: In order to analyse and understand the various objectives of the thesis, the given linear production function will be widely used to a large extent. The general form of the function is:

$$Y = a + b_1L + b_2K \dots \dots \dots (1)$$

Where,

Y = the total output of the economy, a = efficiency parameter, L = women participation in the farm activities, K = men participation in the farm activities.

2. In addition to the Linear production function, the simple and multiple regression statistical tools will be used to find the impact of various economic and social variables on the women participation rate in farm activities.

Multi-regression analysis will be used to find the combined impact of various variables.

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + u_i \dots (2)$$

Where, Y = women's participation, α = intercept, X₁ = education, X₂ = woman's age, X₃ = family size, X₄ = income, X₅ = cropping farm experience, X₆ = marital status.

3. In addition to the above mentioned models for analysis, work participation model on the basis of multiple Regression model of the following type is also utilised;

$$Y = a + bX_1 + bX_2 \dots \dots \dots (3)$$

Where, Y = Work participation rate, X₁ = Agricultural land, X₂ = Total production

Analysis

The horticulture sector occupies an important position in the farming system of Jammu and Kashmir. The state has three agro-climatic conditions: sub-tropical, temperate and cold arid. Each agro-climatic region has its own potential to grow specific fruits. Temperate fruits like apple, pear, peach, plum, apricot, cheery, walnut, etc. grown at elevation of 1000 to 3000 metres above sea level are important cash-fetching fruits of the state. These fruits not only supplement the diet of the people in the state and country, but form an important item of our exports.

The horticulture sector plays a significant role in Jammu & Kashmir in providing employment. From the stage of tree plantation to the point of its marketing, it has a good potential in employment creation. There is need to explore other options, that too in the field of value added agriculture. However, the state is facing many problems in regard to the development of horticulture. It includes low productivity, great variability in important crops like walnut and almond, higher percentage of off grade fruit, poor connectivity with the market place and small and fragmented land holdings.

One more aspect of the present study is to observe the women participation in the apple cultivation. District Shopian is famous for its rich and delicious varies of fruits countrywide and apple is the king among all the varieties. Regarding the other two districts apple and other varieties are produced as well. Both men, women old or young and even children are associated with this industry in all the three districts.

Table 1: Women in Apple cultivation

Sl. No.	Activity	Shopian				Budgam				Kupwara			
		Responses				Responses				Responses			
		Male	Female	Joint	Labour	Male	Female	Joint	Labour	Male	Female	Joint	Labour
1	Application of fertilizers and insecticides	25 (19.69)	-	80 (62.69)	22 (17.32)	12 (8.28)	-	96 (66.20)	37 (25.52)	33 (19.76)	-	114 (68.26)	20 (11.98)
2	Plucking of apples	15 (11.81)	-	95 (74.80)	17 (13.39)	12 (8.28)	13 (8.97)	80 (55.17)	40 (27.59)	34 (20.35)	-	106 (63.48)	27 (16.17)
3	Packaging of apples	85 (66.93)	4 (3.15)	22 (17.32)	16 (12.60)	15 (10.34)	8 (5.52)	81 (55.86)	41 (28.28)	97 (58.08)	14 (8.39)	36 (21.55)	20 (11.98)
4	Transporting boxes	4 (3.15)	87 (68.50)	12 (9.45)	24 (18.90)	-	90 (62.06)	36 (24.83)	19 (13.11)	25 (14.98)	100 (59.88)	11 (6.58)	31 (18.56)

Source: Field Survey

The historical tracing of women's status has revealed that women had higher status in horticultural societies than in agricultural and industrial societies and in the present study we came to the conclusion that the above fact seems to hold true as is clear from the table . From the analysis of the table 1, it is very evident that in application of fertilisers and insecticides only 19.69 percent, 8.28 percent and 19.76 percent of the responses comes in favour men alone, it is the only activity

dominated by the male folk in apple cultivation. Similarly, 62.69 percent, 66.20 percent and 68.26 percent of the responses comes in favour of joint operation, that means, women are having a good contribution in applying fertilisers and insecticides. Also there are some responses in favour of labour utilisation like 17.32 percent, 25.52 percent and 11.98 percent in all the three districts viz Shopian, Shopian, Budgam and Kupwara respectively. One more activity in apple

cultivation is plucking of apple, from the trees and there are 11.81 percent, 8.28 percent and 20.35 percent of responses in favour of men alone and hardly there is any response in favour of women alone in all the three districts Shopian, Budgam and Kupwara respectively, meaning there by that women are playing a supportive role in this activity and there are highest responses in joint operation as 74.80 percent, 55.17 percent and 63.48 percent meaning there by that apple cultivation is a joint venture of men and women and women are playing a good role in cultivation this commercial crop at a highest rate. Similarly, another activity in the apple cultivation is packaging of apples in the boxes and there are numerous responses in favour of men as 66.93 percent, 10.34 percent and 58.08 percent in all the three districts except district Budgam. And there are 3.15 percent, 5.52 and 8.39 percent of responses in favour of women alone in Shopian, Budgam and Kupwara respectively. Furthermore, there are responses in favour of joint operation as 17.32 percent, 55.86 percent and 21.55 percent of responses in all the sampled districts Shopian, Budgam and Kupwara respectively and also some of the responses were found in favour of labour utilisation as this industry is considered as labour intensive industry like 12.60 percent, 28.28 percent and

11.98 percent in all three districts respectively. Lastly, one more activity in apple cultivation is transportation of packaged boxes from the place of cultivation to the place of loading or marketing and women are having a good share in this as only a few responses are recorded in favour of men alone as 3.15 percent and 14.98 percent in Shopian and Kupwara respectively and no response was recorded in district Budgam and there are highest number of responses in favour of women alone in all the three districts as 68.50 percent, 62.06 percent and 59.88 percent in all the three districts respectively. There are some responses also found in favor of joint operation as 9.45 percent, 24.83 percent and 6.58 percent of responses in all three sampled districts respectively. And also there are some responses in favour of labour utilisation as well like 18.90 percent, 13.11 percent and 18.56 percent of responses in Shopian, Budgam and Kupwara respectively.

Impact factor of various Regressants on work participation in Apple Cultivation

It has been found from empirical results that education, income and work experience have inverse relationship with women work participation rate in apple cultivation as is depicted in the table 2.

Table 2: Regressants on work participation in Apple cultivation

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig
		B	Std. Error	Beta		
1	(Constant)	1.054	.066		15.939	.000
	X1	-.233	.009	-.775	-25.842	.000
	X2	.012	.023	.018	.513	.608
	X3	.004	.003	.040	1.334	.183
	X4	-1.746E-6	.000	-.033	-1.104	.270
	X5	-.001	.000	-.061	-1.854	.064
	X6	.023	.050	.015	.467	.641

a. Dependent Variable: Y

Table 2 shows that one stage (Illiterate, Primary, 10th and Higher) increase in education leads to 0.23 percent decline in women participation in Apple cultivation while with the increase in income and experience, work participation decreases by 1.746 percent and 0.001 percent respectively. But, age, family size and marital status shows a positive impact like 0.12 percent, 0.004 percent and 0.023 percent respectively on work

participation rate. Standard error of all these statistical coefficients is less than the half of the values of the coefficients and all the statistical coefficients except income and experience are statistically insignificant.

Similarly the R2 value of this model is more than 0.5, implies that that there is 57 percent impact of all these variables on the dependent variable as is shown in the following table 3.

Table 3: R2 values of Apple Cultivation.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
dimension01	.785a	.616	.611	.17965

a. Predictors: (Constant), X6, X1, X4, X3, X5, X2

Composition/Contribution of Gender to the Apple production

Total output as a function of combination of male/female participation, as is depicted in table 4.

Table4: composition/ contribution of gender (Male/Female) to Apple production.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig
	B	Std. Error	Beta		

1	(Constant)	584.108	54.943		10.631	.000
	L	15.217	41.181	.018	.370	.712
	K	72.003	56.548	.061	1.273	.204

a. Dependent Variable: Y

From the analysis of table 4 it has been found that males contribute more than females in the total output of Apple production. As per analysis 15.21 percent contribution in apple production is due to females and 72 percent by females. But due to some sampling errors, standard error of both these coefficients is higher (41 for females and 56 in case of males) than the values and their difference are statistically significant.

Impact of Agricultural land productivity on women work participation

Work participation in general parlance is having a positive correlation with the factors like irrigation, rainfall, agricultural land and many other factors that contribute to it. But as per the empirical results, there is negative relationship between irrigation and women work participation as is depicted in table 5.

Table 5: Relationship between irrigation, productivity and Work participation

Model	Unstandardized Coefficients		Standardized Coefficients		T	Sig
	B	Std. Error	Beta			
1	(Constant)	.959	.051		18.978	.000
	X1	-.016	.028	-.027	-.566	.572
	X2	-2.143E-6	.000	-.041	-.846	.398

a. Dependent Variable: Y

From the analysis of the table 5, it is evident that there is 0.16 units decline in women work participation by 1 unit increase in irrigation, because, there may be many reasons, but the main reason that has been observed in agrarian economies, that with the increase in standard of living, there is a structural transformation of employment from primary (agriculture) to secondary or tertiary sectors (services and manufacturing etc. respectively) of economy, because, as production or productivity of land increases with increase in irrigation, the main effect is on the standard of living which increase automatically, where people then take a shift from agriculture to other sectors of the economy.

the other hand their share in the total productivity of the apple is very low, this is serious concern.

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CONCLUSION

Women in appcultivation are engaged in their full vigor, they actively participate in almost all activities. It has been underlined from the analysis of the data that women participate in all those activities which are human driven and require much efforts and energy. Women have a busy schedule of work in theapple orchids as mostly the work in the well suitable to women folk except application of insecticides. But from the analysis on the one hand it has been found out that women are participating in almost all activities, but on

