



## **A Micro level Survey on the Role of Women in Climate Resilient Agriculture and Their Economic Status under Rain-fed District of Himachal Pradesh, INDIA**

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*(Received 05 December, 2018, Accepted 12 March, 2019)*

*(Published by Research Trend, Website: [www.researchtrend.net](http://www.researchtrend.net))*

**ABSTRACT:** Agricultural sector woman plays a vital role, because it is largely a household enterprise. A Micro level survey on women's participation in Agriculture and input of climate resilient Agriculture on rural women in the Mann-Panchayat, Nadaun-Tehsil, Hamirpur district of H.P. was evaluate with the objectives of the nature and degree of involvement of rural women of different socio-economic groups in farming and home-based activities especially in term of operations, time spent, period of involvement and technologies being used as well as assess the employment, work load, standard of living, income, education, decision making and community participation etc. Women in India are major producers of food in terms of value, volume and number of hours worked. Nearly 63 percent of all economically active men are engaged in agriculture as compared to 78 per cent of women. Almost 50 percent of rural female workers are classified as agricultural laborers and 37% as cultivators. About 70 percent of farm work was performed by women. It is observed that women play a significant and crucial role in agricultural development and allied fields including, main crop production, live-stock production, horticulture, post-harvesting operations, agro/social forestry, fishing etc.; it is a fact long taken for granted but ignored since ages. To study the role of women in agriculture and changes in their position at micro level, that is village level and the gender discrimination in land, labor and wage market, an attempt has been made through stratum wise data of sample size of women-headed and man-headed cultivars families in study areas. In hilly family system, women participate in agriculture but they do not get either full wage or recognition as the assets are controlled by mainly male head. The decision makers are principally males and family resources utilization is accordingly influence. In NICRA village's survey, these have been a declining trend in the sex ratio. The percentage of female educated from primary to graduates and above is lower than males. Women headed families in study villages have lesser income but percentage saving over gross income have been highest in case of women headed families.

**Keywords:** Agricultural sector, household enterprise, crop production, resources utilization, women headed families

### **I. INTRODUCTION**

Status and role of women are linked to the cultural practices and social system of the country. Women contribute a significant part of the GDP of a country, yet, they are not treated at par with men in many aspects of life. India ranks 132 out of 187 countries on the gender inequality index—lower than Pakistan (123), according to the United Nations Development Program's Human Development Report 2013. In India in spite of six decades of development, rural women continue in the grip of economic dependence, social neglect and political ignorance, preventing them from attaining their due place of society. India has a predominantly agrarian economy. 70% of her population is rural; of those households, 60% 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. Though women in rural India participate in economic activities they have little role in decision making particularly in matters related to agriculture and financial matters. Policies on women's empowerment exist at the national, state, and local levels in many sectors, including health, education, economic opportunities, gender-based violence, and political participation. However, there are significant gaps between policy advancements and actual practice at the community level. Nearly 63 percent of all economically active men are engaged in agriculture as compared to 78 per cent of women. Almost 50 percent of rural female workers are classified as agricultural laborers and 37% as cultivators. About 70 percent of farm work was performed by women.

A research study/observation on women's participation in Agriculture and input of climate resilient Agriculture on rural women in the Mann-Panchayat, Nadaun-Tehsil, Hamirpur district of H.P. was undertaken/evaluate with the following objectives:

- 1) Examine/observing/evaluate the nature and degree of involvement of rural women of different socio-economic groups in farming and home-based activities especially in term of operations, time spent, period of involvement and technologies being used.
- 2) Examine /assess the input of climatic resilient agriculture on rural women especially in terms of employment, work load
- 3) standard of living
- 4) income
- 5) education
- 6) decision making
- 7) community participation etc.

## II. REVIEW OF LITERATURE

A more comprehensive strategy can enable women to access community resources, to challenge traditional norms and to access economic resources. This will lead the women to be more autonomous in decision making in the due course [1]. Several studies conducted in India and abroad suggested that in order to increase the role of farm woman in decision making for agricultural production, dairy and other allied activities of technical nature, it is necessary to equip them with latest information so that they can play a vital role in decision making in the family [2, 3, 4, 5]. Women in age group of 36-45 years as compared to younger women and belonging to small farms and agricultural labour took decision on important matters as they earn cash income and had control over resources [6, 7]. Division of labour within the household reflected the pattern of authority structure. Women perform a greater part of domestic work and took care of children.

They were intensely involved with the maintenance of household. The fact remains that female workers contribute significantly to household income across all farm sizes and their earnings are found crucial for landless and small farm households. Yet, the status of female agricultural workers in decision making remains very poor [8]. Female agricultural workers contribute significantly to household economy, but they lack education, health and other support services and often do not have access to socio - economic voices, economic resources [9]. The major decision makers in agricultural activities are men even though women perform more agricultural related activities than men. Even they are not consulted at the time of purchase of animals and change of crops [10].

The traditional role of women as a home works remained unaltered. Decision making pattern regarding farm affairs revealed it to be more or less male domain. Farm women showed low level of participation in household decision making [11]. The household socio-economic factors that encouraged high women contributions to farm decision making were their number of years of formal education and farming experience, financial contributions to household farming activities, number of hours spent in the farm, and farm size A [12]. Empowerment of women educationally and financially (giving them more access to resources) and awareness of men on gender issues should be intensified and given utmost priority in the study area and the country at large if the clamour to achieve the Millennium Development Goals (MDGs 1 and 3- i.e. reduce poverty by half and ensure gender equity by 2015) is anything to go by Oluwatayo, 2009, Pervaiz, and *et. al* 2012) [13, 14]. Rural women in Bangladesh belong to the most deprived section of the society facing adverse conditions in terms of social oppression and economic inequality, a visible majority of them being extremely poor [15].

## III. METHODOLOGY

The observation was undertaken in 6 villages of the Mann-panchayat. One half of these villages are agriculturally progressive ones and the remaining half non-progressive. The data collection was confined to/entrusted to kvk-Hamirpur at Bara H.P. Overall guidance and supervision was provided by the CRIDA-Hyderabad, director of extension education CSKHPKV Palampur, ICAR India.

The area covered were Jangloo1, Jangloo2, Kuthera, Ghumarta, tareti and mann villages of mann panchayat respectively.

The Jangloo1, Jangloo2 and some part of kuthera areas were under the major corm crop growing (Root Crops i.e. turmeric, ginger, colocaccia and elephant foot yards) villages.

The Kuthera and the Ghumarta areas were under the major oil seed especially brown sarson (GSK-7), gobhi sarson (ONK-1) growing villages. The Mann and the Tareti areas were majorly under main crops i.e. kharif-maize, Rabi-wheat growing villages.

For sampling each selected villages was divided into three continuous and relatively homogenous strata taking into consideration agricultural development, cropping pattern, etc. From each of the three strata, two community development villages /toil were selected at random.

Further from each villages/toli two small toli of 18 families were selected randomly. Thus in all, 2 small tolis of 18 families were covered in each village of the Mann-Panchayat. Within each selected toli, all the agricultural families including labor families were listed. These families were divided into the following sex-sub strata:

- Women-headed cultivar families(without size of holding distinction)
- Women-headed landless agricultural labor families
- Man –headed families of large farm holdings
- Man –headed families of small farm holdings
- Man –headed families of marginal land holdings.
- Man-headed landless agricultural labor families.
- From 1<sup>st</sup> sub-striation three families and from remaining five strata, two families each were selected at random. Hence, in each village the size of the sample of the respondents was thirteen distributed in different groups/tolis as follows:-
- Total families:-
- 91- Women-headed cultivar families

- 92-Women-headed landless families
- 78-Man-headed families of large holdings
- 68-Man-headed families of small holdings
- 59-Man-headed families of marginal holdings
- 51-Man-headed families landless agricultural families
- When the survey was carried out in 6 villages; the sample sizes from different substrata were modified to same extent in view of local constraints. At the time of analysis data from a few covered had also to be rejected owing to various inconsistencies. The actual sample survey of holdings from different substrata in 6 villages covered are given below:

**Table 1: Stratum-wise distribution of sample size.**

Villages / Tolis	Families	Agri-Labor	Man headed cultivar families			Agri-Labor	Total
			Large	Marginal	Small		
Jangloo-1	11	10	12	10	08	06	56
Jangloo-2	15	19	13	11	09	07	74
Ghumarta	19	17	11	10	12	09	76
Kuthera	13	15	10	09	07	08	62
Tareti	16	18	15	13	10	11	83
Mann	17	13	17	15	13	10	85

Interview method was followed for data collection. Data in respect of villages were collected from Panchayat secretary, Ward panchayat member, VCRMC committee member of respective village, village patwari other village level workers. For data in respect of other items of the study, respondent were interviewed. Women respondents were interviewed from each selected family especially.

- A comprehensive set of schedules was developed on the basis of review of literature and discussion with scientists from the subject vegetable science, Agronomists, animal science, home science and agro-economics etc.
- Set of five schedules were used for data collection
- These were:
  - Schedule no.1:-village particulars
  - Schedule no.2:-Family particulars
  - Schedule no.3:-Adoption of improved and climatic resilient agricultural technologies.
  - Schedule no.4:-Impart of climatic resilient agri-practices on rural women.
  - Schedule no.5:-Participation of women in different enterprises, income derived and expenditure incurred
- Analysis of data was made using village level micro - scale- frequency, percentage, range and arithmetic mean statistics.

#### **Background information/Basic benchmark survey of sampled families**

About 78 per cent of the sample families belonged to lower casts (scheduled caste, scheduled tribes and backward classes). This is more or less in conforming with general distribution pattern of caste in the Nadaun Tehsil of Hamirpur-district. Three fourth sampled families had katcha houses. Only 20 percent had pakka houses and remaining 15 percent had mixed type of houses. Higher percentage of female headed both cultivator and agricultural labor families had katcha house than those of male headed families. The trend was just reverse in respect of pakka house.

Majority in both female headed and male headed cultivator families were having crop-husbandry as the main occupation. Animal husbandry was found a subsidiary occupation. Higher percentage of male headed cultivator families reported crop husbandry as main occupation than female headed cultivator families. However, it was just opposite in case of crop husbandry as subsidiary occupation.

As usual, majority in both male headed and female headed agricultural labor categories were having agricultural labor (Manrega) as main occupation. As 29 percent of female headed cultivator, 37 percent of male headed cultivator, 67 percent of female headed agricultural labor and 62 percent of male headed agricultural labor families had no subsidiary occupation. Never the less about 12percent of house hold had two or more subsidiary occupation. Illiteracy amongst adult female (13.8%) was higher compared to adult male (9.4%) in respect of the sample cultivator families. The sex disparity continued among children also, but to a lesser extent (5.3% for female child and 2.3 for male child). In the three sets vise read only, read and write, and primary school level or higher, discrimination against female was evident both amongst adults as well as among children.

Agricultural labor families showed higher illiteracy compared to cultivator families, among adult female labor, illiteracy was high at 29.9 percent and even among adult male labor it was 13.1 percent. A majority of male as well as female children of agricultural labor families were illiterates.

## IV. RESULTS

### *Possession of house-hold items*

Majority (61.4%) of the respondent had motor-cycle in their possession, Radio, T.V, mobile, washing machine, sewing machine, pressure cookers and refrigerator were possessed by 82.0%, 97.0%, 98.0%, 26.0%, 81.0%, 98.0%, 33.0% of respondents respectively. More number of male headed families possessed house-hold items as compared to female headed families irrespective of cultivator or labor categories. As much as 96 percent of respondents had possessed at least one house hold items.

### *Possession of farm items*

Among the farm items, desi plough, cows, buffaloes, sheep, goats and poultry were possessed by 61.0, 33.0, 70.5, 23.5, 35.0 and 19.5 percent of the respondents. Higher percentage of male headed families possessed all farm items than female headed families. About 89 percent of respondents had possessed at least one farm item.

Every twelve of eighteen families sampled kept bovines (buffaloes/cows) while in respect of agricultural labor-families, only about 10% of 12 kept such animals. Male headed families somewhat more frequently kept bovines as well as other animals compared to corresponding types of female headed families. The proportion of families keeping poultry over the total sample was about one in twelve (families) in respect of the families who have kept bovines /other animals, the mean number was about four.

However, in respect of the families who have kept poultry mean number was nearly one.

### *The utilization/The time spent*

Labour time spent on animals was relatively more for male headed families as compared to female headed families.

In respect of cultivators, male headed families spent on an average 8.1 hours per day against 6.7 hours per day for the female headed ones. In respect of agricultural labor families, male headed families spent on an average about 4.5 hours per day as against 3.5 hours per day for the female ones.

Adult females and males accounted for about 33 and 25 percent respectively of the time spent. Female children were rarely involved in animal maintenance while male children contributed for about 10 percent of the overall time spent on animals.

### *Land holding leasing and cropping*

Almost all sampled cultivators owned land. The average holding size for female headed families was only about two third of the mean holding size for male headed families. However, cropping intensity was of the same order for female as well as male headed families. In addition to their own, about 10 percent of the sampled families' leered in land for cultivation. Maize in summer cropping and wheat in winter was also getting popular.

### *Adoption climatic resilient agriculture*

Every 15 out of 18 sampled cultivator families, male headed, adopted at least one of the recommended improved farm technologies, commercial cropping and improved crop variety secured third and fourth position in respect of popularity.

In respect of all these four technologies, female headed cultivator lagged behind somewhat as compared to male headed families. Use of herbicide was rare or by the recommendation, awareness through NICRA. Percentage was higher for the male headed cultivator class followed by female headed cultivator class. Amongst agricultural labor families, adoption of the same (even one) was limited to one in thirty. The position in respect of improved home stead technologies was somewhat better. Use of fertilizer was the most popular one adopted by about 85 percent of the sample families, It was followed by use of high yielding varieties and plant protection chemical (all in kitchen garokn). Adoption of improved animals or poultry was limited to only one in eighteen samples.

### *Contact with extension agencies / NICRA Programs*

VCRMC Chairman committee members, Krishika-mitra the principal extension agencies serving the rural farm families. Even in respect of these agencies, frequent contact is about 78% of the sampled families. Contact with KVK, NICRA staff and Block level officer were reported 88%, 97% and 47% of the families respectively.

Participation in the specified activities (training, group meeting, field visit intervention etc.) was limited to about 86% of the sampled families.

Training followed by visit to field intervention were the two most important activities performed by about 85% and 80% of sampled families respectively. Group meeting, awareness camped visit to research station /KVK were about 90% each. Some of the sampled families availed two or more benefits.

Every these out of the five cultivator families listened to farm/Kisanbanni/krishidarshan home based agricultural programs in radio and T.V most of the listeners & viewer had radio, T.V. in their own homes. However, regular listening & viewing was relatively limited, listening & viewing some time being more than practice followed. Viewing agri.-programs on mobile internet (online) also gaining popularity.

Access to printed material was limited to about three in seven of sampled families. Even amongst them, newspaper was the most common, access to farm periodical or pamphlets being rare except NICRA, extension pamphlets.

Inter-personal contact was used popularly, being reported positive by nearly 95% of sampled families. Out of every ten sampled families, seven had daily contacts while additional three had weekly. Taking or giving technical information was relatively high to twenty two in twenty five only.

#### *Time Spent*

The average time per day spent on various farm activities by the housewives was about five and quarter hours. Of this ,cooking was the principal item which accounted for 1.75hrs followed by washing /cleaning (0.61hr) and child care (0.56hr) food preservation ,grain processing and storage together accounted (0.93hr) per day. Fetching water and fuel and during preparation accounted for bulk of the remaining time spent at home. The total time spent per day by the housewives in the cultivator families was 7.5 hrs and that of agricultural above families 9.5 hrs. Female agricultural labor families spent on an average about 3.5 to 4hrs per day on work out side home (home stead, on farm and off farm) while it was much lower for cultivator families. Deere (2005) identifies a number of potential sources of underestimation of female employment in labour markets, and in agriculture in particular [16].

#### *Income and Expenditure*

Average monthly income was highest in male headed families compared to corresponding female headed earned Rs. 7000-11000 as against Rs. 5000-7000-/-by female headed one. In respect of agricultural labor class, the income for male and female headed were Rs. 6000 and 4500 respectively. Similar trends were also seen in respect of expenditure. The saving (income less expenditure) was the highest for the male headed labor families, expenditure at home was the principal share, on farm/homestead being about 25% for cultivator families and about 5% for agri. Labor families.

Among the various home items/accessories, food accounted for a little over one half of the total expenditure on all home items/accessories (for all family classes), clothing accounted for about 15 %. Expenditure for cloth for women somewhat exceeded that of man. Children education, fuel and light and health care/medicine were other items which accounted for four to five percent of the total expenditure on home item.

Out of monthly expenditure of about 3500 Rs. on farm/homestead, about 33% was spent on seed /fertilizer/plant protection chemicals/pesticides, about30% on labor wages and 30% on animal feeds, medicine. The balance amount was shared by irrigation (one family out of five) Poultry feed / medicine etc.

## **V. CONCLUSION AND DISCUSSION**

Increased agri-production is a function of increased inputs in terms of resources, advanced technologies and materials. In farming system of distt. Hamirpur especially NICRA villages, the family as a whole contributes towards agri-production. Hence relative role of family members with special reference to women, their linkages and relationships in job opportunities and interactions of favorable variable of production need to be promoted. The majority of the family structure in Himachal Pradesh varies from place to place and regions to regions. In hilly family system, women participate in agriculture but they do not get either full wage or recognition as the assets are controlled by mainly male head. The decision makers are principally males and family resources utilization is accordingly influence. In NICRA village survey, these have been a declining trend in the sex ratio. The percentage of female educated from primary to graduates and above is lower than males. Women headed families in NICRA villages have lesser income but percentage saving over gross income has been highest in case of women headed families. This reveals that women have more saving habits. While about adult females account for over1/3<sup>rd</sup> of the time spent on animals, female children are rarely involved in animal upkeep. Average land holding size for female headed families has been smaller land holding families, males migrates for more earning in urban areas and females act as head. Women are equally good in taking more crops from land in a year for their better livelihood. In respect of adoption of agri-technologies, women somewhat lagged man, may be because of their limited access to various department and agencies except NICRA –HMR, printed materials, credit and exposure agricultural and sister concerned to mass media.

## **VI. SUGGESTIONS & POLICY RECOMMENDATIONS**

As our study has shown women's status in cultivating households remains low in all social, economic, and political indicators. This will require a change in the patriarchal values and concerted efforts by the civil society and the government for empowerment of women. We would like to make the following suggestions for the betterment of women folk:

One of the most important measures to empower the rural women would be to give them ownership right on land along with their husbands, which should be duly recorded in land records. This will not only make them economically empowered, but will also help them to get credit for productive work. Government agencies working in the field of agricultural and rural development should consciously focus on women workers as a special category. They should be provided proper training in agriculture and animal husbandry to improve their efficiency and knowledge. Steps are to be taken to ensure the access of rural women to agricultural and livestock extension services and support mechanisms and facilities. Women in female headed households and women with disability should be

provided credit on soft terms by banks and other financial institutions for agriculture and livestock, setting up their own business, house building, etc. Education program focusing on adult rural women should be undertaken to make them literate and improve their knowledge base to discharge their economic and domestic duties efficiently. Women should be provided larger representation in programs dealing with rural and agricultural development so that they can pay greater attention to women. Programs should be developed exclusively for women to build leadership skills for managing agricultural community based development activities.

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