

## Work Participation of Women in Agriculture in Odisha

Dr. Lipishree Das<sup>1</sup>

---

**Abstract :** Rural women in Odisha play a significant role in agriculture and allied operations. They are actively participating in all range of agricultural activities including pre-harvesting, and post-harvesting. The rural women, besides looking after the family and performing all sorts of household activities, very actively remain busy from dawn to dusk in such agricultural operations which supplements their family income. But despite such a huge contribution, her role has yet not been recognized. A few studies have been made on this regard in the state basically in Odisha. This study is based on a multistage random sampling. In order to carry out the study, a coastal district of Odisha, named Bhadrak is selected as the sample district because of the availability of women agriculture labour. For the present study a total of 88 rural women are selected from five villages through multistage random sampling technique. Keeping in view these facts the present study has been designed to explore the extent of their participation and factors responsible in different agricultural activities. A well designed and pre-tested interview schedule has been prepared to collect necessary information from the respondents. Appropriate statistical tool are used to analyze the data and findings are shown with the help of table. The factors affecting women's participation in such operation are also identified in the study. Finally, the paper recommends a reasonable treatment to the rural women and suggests policy implication for their upliftment.

**Keywords:** agricultural activities, contribution, participation, post-harvesting, women

---

### I. Introduction

Women have always played the key role of conserving the basic life support system such as land, water, flora and fauna. They have protected the health of the soil through organic recycling and prompted crop security through the maintenance of diversity and inherent struggle. They lagged behind in technological innovations and worked with indigenous technology for food security like cleaning and winnowing of food grains (Shiva, FAO, 1991). Therefore, without intellectual and physical participation of women, it will not be possible to popularize alternative systems of land management to shifting cultivation, arrest soil erosion and health of economic plants and farm animals. Thus, it is important to study the level and extent of participation of women in agricultural sector.

It is estimated that, rural women are responsible for production of more than 55 per cent food grains and comprise 67 per cent of total agricultural labour force (Shivaram, FAO 1988). A recent estimation by FAO (2011) showed that women agricultural labour consists of 43 per cent of total world agricultural labour force. The role of women in agriculture varies from country to country. Asian women contribute to about 50 per cent of the food production. And in Sub-Saharan Africa women produce 60-80 per cent of the supply of basic food stuffs. In Indian subcontinent 70-80 per cent basic food crops are grown and produced by women. In developing countries like India where agriculture is the backbone of livelihood, women contribute immensely in basic food crop productions. In India according to census 2011 among male workers, other workers constituted a major proportion i.e. 47.20 per cent of total workers. Similarly among female workers, agricultural labourers constituted a major fraction i.e. 55.21 per cent of total workers. In Odisha, according to 2011 census 61.8 per cent of total workers are engaged in agriculture. And the percentage of agricultural labourer among total women worker is 57.8 per cent.

In India, women have played and continue to play a significant and crucial role in agricultural development and allied fields. They are involved in main crop production, agro/social forestry, fisheries etc. Women's contribution to agriculture, whether it is in subsistence farming or commercial agriculture, when measured in number of tasks performed and time spent is greater than that of men. A micro study conducted in Indian Himalayas found that, on a hectare farm, a pair of bullocks work for 1064 hours, a man for 1212 hours and a woman for 3485 hours (Shiva FAO, 1991). In the plantation sector women are the crucial labourers (Shivaram, 1988). Depending on the region and crops, women's contributions vary but they provide crucial labour from planting to harvesting and post-harvest operations. Despite working hard, spending longer hours

---

<sup>1</sup> Sr.Lecturer, Economics, Ravenshaw University, Odisha, India

and crucial contribution to agricultural production, their role has not been acknowledged. They are paid less or even left as unpaid workers.

That women play a significant and crucial role in agricultural development and allied fields including the main crop production, livestock production, horticulture, post harvest operations, agro/social forestry, fisheries, etc. is a fact long taken for granted but also long ignored. The nature and extent of women's involvement in agriculture, no doubt, varies greatly from region to region. Even within a region, their involvement varies widely among different ecological sub-zones, farming systems, castes and classes. But, regardless of these variations, there is hardly any activity in agricultural production, except ploughing in which women are not actively involved. In some of the farm activities like processing and storage, women predominate so strongly that man workers are numerically insignificant (Agarwal 2003). Studies on women in agriculture conducted in India and other developing and under developed countries all concluded that women contribute more to agricultural production than has generally been acknowledged. They are in fact the largest group of land less labourers, as most of the women do not have land rights. Although women work in the fields, homes, outside the farm, and at the markets, their male counterparts often dictate decisions over the household and its economy.

Therefore, in order to achieve over all sustainable development of agriculture, it is necessary to recognize the important role of women in agriculture and to address the problem faced by them. The role of women should be properly recognized and documented. Due to gender discrimination, women farm workers do not get sufficient attention, which results in low socio-economic status of women. Despite significant roles played by women workers, they are neglected. So there is a need to look into the problem of women worker in farming sector from the grass root level. The present study has tried to understand importance of women workers in the farming sector and their contribution to the family income. This study intends to analyze the common challenges and barriers faced by the women agricultural labourers.

From Census data 2001 and 2011, it is evident that the number of agricultural labourers has increased and the number of cultivators has decreased. In 2001, 31.7% of workforce was cultivators and 26.5% were working as agricultural labourers, whereas in 2011 they are 24.6% and 30% respectively. This shows a decline in number of cultivators by 7.1% and increase in number of agricultural labourers by 3.5%. One of the disturbing features is that, during the past several decades there has been a constantly increasing trend in the number of landless labourers. Factors like rapid growth of population, law of inheritance, rise in cost of agricultural inputs and decline in small-scale industries have been responsible for this increase (Sajjad, 1998). The phenomenon of under employment, seasonal unemployment, under development and surplus population are simultaneously manifested in the daily lives and living of agricultural labourers.

As mentioned earlier Indian women play an important role in agriculture activities. The condition of women agricultural labourers is extremely poor and they are one of the neglected sections of the society. As per the 2011 census, the percentage of women agricultural labourer is 55.21 and percentage of male agricultural labourer is 18.56. Women today play a pivotal role in agriculture - as female agricultural labourers as farmers, co-farmers, female family labour and (with male out-migration, widowhood, etc.) as managers of farms and farm entrepreneurs. Three-fourths of women workers are in agriculture. Among rural woman workers, 87 per cent are employed in agriculture as labourers and cultivators.

Odisha economy is agro-based and a major proportion of women in the labour force work in agriculture. A significant proportion of the labour force in the agricultural sector comprises women. In Odisha, more than 60 per cent of the total workforce is directly dependent on agriculture. According to 2001 census, out of the total male work force 34.15% were male cultivators and 26.39% were agricultural labourers, whereas, the female cultivators and agricultural labourers accounted for 20.11% and 53.90% of the total female workforce in Odisha respectively. But in 2011 census the percentage of female cultivators reduced to 13 percent and the percentage of agricultural labourer became 57.8 percent of the total female work force. There has been an increasing trend in women agricultural labour force both in India and Odisha. They are employed on small and medium sized farms as well as large industrialized farms and plantations. One of the major characteristic of these women agricultural labour is that most of them being marginal workers i.e. they work for less than 6 months a year. They do not get regular employment. Majority of them are employed on a seasonal and often a casual or temporary basis. Most of these women workers do not receive any form of social security or unemployment benefit.

Therefore it is necessary to study the condition of women farm labourers to assess their contribution and the difficulty they face in agricultural sector. This paper is an endeavour to find out empirically the nature and extent of women workers in farming sector. This study also aims at identifying the determinants of their employment. This study intends to take Bhadrak district of Odisha as the sample study area where people largely depend on agriculture.

### 1.1 Objectives

Objectives set forth for the present study are:

- (1) To assess the magnitude of women labour in agriculture;
- (2) To identify the nature and extent of agricultural activities performed by women labour employed in study area;
- (3) To ascertain the determinants of women's participation in farming activities;
- (4) To identify the issues and constraints faced by the women agricultural workers.

### 1.2 Hypotheses

The study proposes to test the following hypotheses.

- (1) That, women's participation in agriculture is mainly due to low income.
- (2) That, women participate in various types of agricultural activities.

## II. Data And Methodology

In order to carry out the study, a coastal district of Odisha, named Bhadrak is selected as the sample district because of the availability of women agriculture labour. In Bhadrak, the total number of cultivator workers is 150632 and total number of agricultural labourers is 109744. Number of female agricultural labour in the district is 32312, which comprises of 29.44% of total agricultural labour in the district. Of the seven blocks in the district, one block named Basudevapur has been selected at the first stage, based on availability of women farm workers. In the Basudevapur block total female agricultural labour is estimated at 6711, which is 20.76% of the total women agricultural labour in the district. This study is based on a multi stage random sampling.

In the second stage, a sample of five villages is selected at random to identify the magnitude of women farm workers and their contribution to their family income. The villages are Chudamuni Sureswarapur, Radhaballabhpur, Bhairavpur and Prabodhpur. In the third stage, 88 women farm households from these villages selected based on proportionate random sampling. Thus, female members of these households, who worked outside along with their household work, are the respondents of this study. Survey method is used and the selected respondents are interviewed personally through well-structured interview schedule. Data on various socioeconomic parameters have been collected through direct interview and are analyzed using appropriate statistical tool.

**First Objective:** It is based on secondary data sources like Census of India 1991, 2001, 2011 and others.

**Second Objective:** The nature and extent of women labour in terms of their various socio-economic and personal characteristics is presented in terms of simple statistical tables. Analysis has been made with basic statistics such as frequency distribution, percentage and a participation index. With the help of this index, extent of participation in various agricultural activities will be ranked. Work Participation Index is developed on this basis.

Work Participation index = regularly x 2 + occasionally x 1 + never x 0.

**Third Objective:** Descriptive statistics along with some statistical tests like regression and T-test are used for analyzing the data.

Hence, first hypothesis is tested with the help of a regression with the following dependent and independent variables basing on the nature of work and extent of participation of women in agriculture. The model is based on the analysis made by Mazumdar et.al, 2009.

$Y = f(X_1, X_2, X_3, X_4, X_5)$

Y = Work Participation Index

Work Participation Index is dependent variable

$X_1$  = Age (years)

$X_2$  = Family Income (Annual household Income in Rs)

$X_3$  = Family Size (numbers)

$X_4$  = Land Holding

$X_5$  = Level of Education (Schooling Years)

The model is:  $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$

The second hypothesis that is, women participate in various types of agricultural activities has been examined with the help of primary data obtained from the field survey. For this, simple analysis with the help of tables has been adopted.

### **III. Literature Review**

There is a vast body of literature explaining the role of women in agriculture and allied fields; however, here we mention a brief review of some of the key works.

Doss et al. (2011) in their working paper have observed that, the agriculture sector is underperforming in many countries because women, who are often a vital resource in agriculture and the rural economy, face constraints that reduce their productivity. With the help of time-use surveys, they have found that there is substantial heterogeneity among countries and within countries in women's contribution to agriculture. They show that female time-use in agriculture varies also by crop, production cycle, age and ethnic group. For these diversities, they have suggested that policies must be based on sound data and gender analysis.

Lal and Khurana (2011) in their research article has tried to link with the important role played by the women in agriculture and the gender discrimination and its negative impact on socio-economic status of women. They have opined that there is under estimation and under valuation of rural women's work in the space of development.

Satyavathi, et al. (2010) in their research paper, on "Role of Farm Women in Agriculture, Lesson Learned" have investigated that how the advent of green revolution and mechanization of agriculture in India has further deteriorated the condition of rural farmwomen. Though green revolution resulted in an increase in the cash incomes in rural household, but to cover the costs of technological inputs women are forced to work as agricultural labourers, unpaid labourers that augmented women's high labour burden.

Sharma (1984) in her article "Caste Class and Gender: Women's Role in Agricultural Production in North India" has mentioned that female participation in production activities mirrored caste and class position. She has viewed that the position of Indian women under capitalistic development policy has worsened. She has argued that the proportion of women workforce or the sex ratio in the agricultural sector has increased. However, the number of women cultivators have declined and they are pushed to extremely casual unskilled labour.

Mazumdar et al. (2009) have observed that, in case of agricultural activities women labourers are mainly involved in homestead gardening, harvesting and post-harvesting operations. The most important factor for seeking employment or involvement in various activities by the women is to meet family needs followed by increasing family income.

Damisa et al. (2007) in their article have viewed that due to inadequate level of information on the level of women participation in agriculture, there has been under estimation of their importance in agriculture and hence led to neglect in policy issues. They found that the level of the disposable income, tenure rights and the level of the contribution of women to agriculture are the key determinants of women participation in agriculture production.

Rais et al. (2013) in their research paper have tried to assess the economic status of rural women involved in agriculture and livestock forming activities in Pakistan. He has showed that majority of the respondents have income from agriculture but a very few of them are employed, The research has revealed that the strong participation of women in activities such as crop production, livestock husbandry, poultry keeping, and food grain processing and storage, home management and handicraft making.

Mishra (2009) has found that it is the wage, which affects mostly the efficiency of women agricultural labourers. The other major factors affecting the efficiency were use of leisure time, family pressure, age, family support, distance, health, use of labour saving devices and inter-personal relationship. She has viewed that empowerment should aim at changing the nature and direction of the power structures, which marginalizes the women labourers.

Thus, studies on women in agriculture conducted in India and other developing countries showed that women's participation and contribution to agriculture is a regular phenomenon. In order to study the role of women in farming activities in Odisha where literature is scanty in this regard, this work is a humble attempt with the said objectives.

### **IV. Analysis And Observations**

#### **4.1. Magnitude and Nature of Women Agriculture Labour**

Rural women play multi-dimensional role ranging from household activities to farm activities. Looking at the important roles played by rural women it is important to find out the magnitude of women labours over the years in India, change in their growth rate, their share in different crop productions, the amount of time devoted by them, wage they get during the years and their involvement in decision making process. So that it will give us a clear picture about the condition of women agricultural labourers over the years in India. This section is based on secondary data obtained from various Censuses 1991, 2001, 2011 and other secondary sources.

**Statistics about Women Workers in India:**

**Table-1: Percentage of Main and Marginal Female Workers**

Total female population	586.5 million
Work participation rate of female	25.50%
main female workers	50.60%
marginal female workers	40.40%

Source: Census 2011

The above data show that total female population in India is 586.5 million. Out of which women work participation in India is only 25.5%. It comprises 59.6% of main female workers and 40.4% of marginal female workers.

Among male workers, agricultural labourers constitute 24.64 per cent of total workers, while among female workers; agricultural labourers constitute a major proportion i.e. 55.21 per cent of total workers in India in 2011 census. In case of Odisha it is 57.78 per cent. The participation of rural women in agriculture is increasing in spite of scientific and technological developments. The share of farmwomen in agricultural operations has been shown in table 2.

**Table-2: Share of Farm Women in Agricultural Operation**

Activity	Involvement (%)
Land Preparation	32
Seed cleaning and Sowing	80
Inter Cultivation Activities	86
Harvesting, Winnowing, Dying, Cleaning And Storage	84

Source: National Commission for Women, New Delhi Report (2005)

The above table shows that women are largely involved in inter cultivation activities (86%), Harvesting etc. (84%) and in seed cleaning and sowing activities (80%). Much of these agricultural works are by nature physically demanding, involving long periods of standing, stooping, bending, and carrying out repetitive movements in awkward body positions. Even when technological change has brought about a reduction in the physical drudgery of agricultural work, it has introduced new risks, notably associated with the use of sophisticated machinery and the intensive use of chemicals often without appropriate safety measures, information and training. The demand for agricultural women labour in India fluctuates according to the seasons according to different regions and this is reflected in the nature of the workforce. Hours of work tend to be extremely long during planting and harvesting.

**Table-3: Type of Activities Performed by Women Agricultural Labour**

Activities	Average Hours/Minute
Domestic Activities	7.55
Agriculture And Allied Activities	7
Sleep	6.5
Rest and Recreation	2.15
Total	23.2

Source: National Commission of Women, New Delhi Report (2005)

The table shows average time spent by women worker in household activities, agricultural activities and other activities.

**4.2. Work and Payment**

According to Joshi (1999), the productivity of female labour is very low in agriculture sector. At 1980-81 price in 1950- 51, the productivity per labour was Rs. 2305 which increased to Rs. 2794 and further increased to Rs. 3157 in 1990. Whereas in the mining and mineral sector it was 13417, in manufacturing sector it was Rs. 11099, power, gas and water supply sector Rs.14608, construction sector of Rs. 16210, commerce and business Rs. 13136 and in other service sector, it is Rs. 14625. Thus, productivity of women agriculture labour is very low compared to other sectors. They largely do manual labour which is time consuming, very tiring in nature and increases women’s workload. It is already mentioned that as per census data women labour in agriculture is increasing. One of the important reasons is that men migrate in search of better-paid jobs. The estimates for changes in the last 5-7 years show declines in employment ranging from 20 per cent to as much as 77 per cent. Women are filling this vacuum. They face meagre wages, long hours, hazardous work and sexual

harassment. Figures from the census show that, amongst rural women, the percentage of marginal workers (defined as working for less than 183 days per year) has increased significantly from 8.1 per cent in 1991 to 14.2 percent in 2002. During the same period, there was a sharp fall in the percentage of main workers (more than 183 days a year), especially male workers, coming from rural areas. The figures thus show a casualization and feminization of the workforce in rural areas, with the number of marginal women workers becoming larger and more significant, while male main workers in rural areas have declined. Women are forced to accept work in agriculture in their own village under very bad conditions because they cannot migrate as easily as men can. The dependence of women's labour on family farms, especially during the peak periods in sowing and harvesting has become very common.

Farmers, on the other hand, also seem to prefer women as agricultural workers. The land owner is faced with the increasing costs of production required for modern agriculture. He finds that he can squeeze his labour costs by using lower-paid women workers. For instance, women are preferred to men in North 24 Parganas (West Bengal) by the owners because they are docile, require lower wages and are less lazy than men. (NCW, 2005). Similarly, the work of women within family-based agriculture is preferred because it is cheaper than hired labour. Women agricultural workers, although they represent a big proportion of all women workers, continue to receive lower wages than men. The Ministry of Labour puts the difference at 60 per cent of men's wages, while the Indian Labour Journal showed that women received 75 per cent of men's earnings.

Discrimination against women in the payment of wages is wide spread in India. Women workers are in general classified as those belonging to the organized and unorganized sectors. The economic conditions of women are obvious from the fact that 94% of them are found in unorganized sector leaving only 6% in the organized sector. Out of the 94% of the female labourers found in the unorganized sector, nearly 80% belong to agriculture since India is still, by and large an agricultural country (Mallaiah, 2007). The low rates of wage for women labourers are due to the unorganized nature of employment, the case with which hired labour can be substituted by family labour, the seasonal nature of the demand for labour and the traditional classification of agricultural jobs into male and female. This clearly shows that the so-called less skilled jobs are relegated to rural agricultural women and paid lower wages. The wage differentials prevailing in some states are given in table-4. While earnings from agricultural work have not improved for women, modernization of agriculture has in some cases brought new kinds of problems.

**Table 4: Wage Rates of Male and Female in Indian Agriculture**

State	Wage rate for men (in Rupees)	Wage rate for women (in Rupees)
Haryana	50-60	25-30
Uttar Pradesh	60	35-40
West Bengal	40	25
Andhra Pradesh	40-50	25-30
Odisha	50-60	35-40

Source: NCW (2005) and Mishra (2009)

The above data show that women labourers are getting very low wages and males are getting more than that of females. States like West Bengal, Andhra Pradesh and Odisha where mostly Paddy is cultivated, women contribute immensely by working for 15-60 days (Mishra, 2009). In Haryana where green revolution has brought a tremendous increase in wheat cultivation through the use of HYV seeds, mechanization and modern technologies has resulted in increase in cost of production. To reduce this cost women labourers are preferred to hired labours. Women's contribution to agricultural operations, animal husbandry and other economic activities is very significant as they provide 60-70% of labour to these sectors. They play a crucial role in crop security, sustainability and livestock management.

Women's suggestions are not given due consideration in the decisions pertaining to agricultural sector. It is because the majority of women are illiterate. They do not have the knowledge about the latest techniques of farming and have restricted mobility due to several cultural taboos. The National Commission of Women in their report have showed that male members of the family only ask for the consent of female members, however their suggestions or objections are not taken in to account. Sharmistha Chowdhry (2004) has observed the participation of women and men in decision making in agriculture in Odisha context which is portrayed in table-5.

**Table- 5: Decision Making in Agricultural Activities (%)**

Decision Making Areas	Male	Female	Male and Female
Purchase of Fertilizer	90.2	2.9	6.8
Purchase of Animals	93.1	-	6.8
Purchase of Agricultural Equipments	92.1	1.9	5.8
Changing of Crops	96	-	3.9

Selling of Crops, Cereals Or Vegetables	83.9	10.7	5.3
---	------	------	-----

Source: Chowdhry (2004)

The above data show that how negligible women’s participation in decision making process. Though women play an important role in livestock management, they do not make any decision regarding its purchase. In crop selling only 10.7 per cent of women take decision. Decision to change crop production is taken by 96% men. On average, a woman spends 14 hours a day working in and outside the home. During harvesting season she spends about 16 hours a day. But it is unfortunate that their role and contribution are not recognized. In addition to this, due to low education level and lack of information about technologies rural women face relative isolation from public life. Thus, there is a hesitation to come out and interact. At times, even the suggestions of well-informed rural women are ignored or are not taken seriously because men consider it disgraceful to accept the decision of women. This is because traditionally men have been major lawmakers of society. Many policies and decisions neglect women and undermine their abilities and roles.

#### 4.3. Socio-Economic Characteristics of Women Agricultural Labour

In order to study the nature of women agricultural labourers in the study area, various data on their socio-economic characteristics of 88 respondents (randomly selected) from five villages of Bhadrak District have been collected and presented. The overall socio-economic characteristics of the respondents are presented in Table 6.

**Table- 6: Socio-Economic Characteristics of Women Agricultural Labour**

Characteristics	Observed Score	Mean	Standard Deviation
Age (Years)	21-55	38.614	7.696
Education (Years of Schooling)	0-7	1.057	1.865
Family Size	02-Jul	5.295	1.366
Land Ownership (in Decimal)	0-150	30.114	43.078
Annual Family Income (000’Rupees)	Dec-42	27.022	6.21

Source: Field Survey

Age Group: The distribution of women agricultural labourers (WAL) in different age groups is shown in the table below.

**Table- 7: Age-Wise Distribution of Women Agricultural Labourers**

Age	Number of WAL	Percentage
18-28 Years	10	11.36
29-39 Years	34	38.63
40 Years Above	44	50
Total	88	100

Source: Own Survey

From the 88 respondents, it is found that 44 female agricultural labourers belong to the age group of 40 and above and they constitute 50% of total respondents of the study. 34 women are in the age group of 29-39 years, which is 38.63% of total respondents. Only 10 people belong to the age group of 18-28, which is 11.36%. Majority of the respondents i.e., women agricultural labourers belong to lower caste. 56 out of 88 belong to the lower castes, which is 63.63% of total respondents.

**Education Level:** From the data collected, it has been found that a few of women agricultural labourers are literate. Only 25 i.e. 28.41 respondents are literate and that too very low education level. Out of them only 11 respondents can read and write only, same number of respondents have primary level education and only 3 respondents have attended up to middle school. The table shows that there is high level of illiteracy among the women agricultural labourers in our study. About 71.59% i.e. 63 respondents do not have any education at all.

**Table-8: Educational Status of Women Agricultural Labourers**

Literate		Illiterate	
Number of WAL	Percentage	Number Of WAL	Percentage
25	28.41	63	71.59

Source: Field Survey

**Family Size:** If we look at the family size of the respondents, majority of them i.e. 57.95 % are having large families (6 and above family members) i.e., 34.09% have medium families and 7.95 % have small families.

**Table-9: Family Size of Women Agricultural Labourers**

Size	Number of WAL	Percentage
Small (Up To 2)	7	7.95
Medium (3-5)	30	34.09
Large (6 And Above)	51	57.95
Total	88	100

Source: Field Survey

**Land Holding:** From the following table it is evident that most of the women agricultural labourers are land less. About 60.23% of women agricultural labourers do not have their own land. 32.95% of the agricultural workers are having land up to one acre. Only 6.82% of workers have land holding between 1-2 acres.

**Table-10: Land Holding Pattern of Women Agricultural Labourers**

Area	Number of WAL	Percentage
Up to 1 Acre	29	32.95
1-2 Acre	6	6.82
No Land	53	60.23
Total	88	100

Source: Field Survey

**Annual Family Income:** The annual family income from all sources is very low in case of women agricultural labours. From the data obtained, it is found that only 3.41% of them have annual family income above Rs.36000. About 45.45% have family income that ranges between Rs.20001 and Rs.28000. 29.55% respondents have family income between Rs.10001 and Rs.20000. 21.59% respondents have family income between Rs.28001-36000.

**Table -11: Annual Family Income of Women Agricultural Labourers (in Rs.)**

Annual Income	Number of WAL	Percentage
10001-20000	26	29.55
20001-28000	40	45.45
28001-36000	19	21.59
36000 and above	3	3.41
Total	88	100

Source: Field Survey

All these socio economic characteristics explain the condition of women agricultural labourers in the study area. The features are reflected in their work participation. They are mostly involved in unskilled work having no or very less access to time saving technologies. In order to study the extent of participation of women agricultural labourers in various agricultural activities data have been collected from 88 respondents.

#### 4.4. Participation in Various Agricultural Activities

Participation refers to taking part in activities in various types of work often with others. If there is a need, there is participation. Rural women have very hectic life. Her work starts from dawn and ends at mid-night. The daily routine work begins from house cleaning, fetching drinking water, dish washing, laundry, preparing food for family, care of children, and sewing clothes. In addition to this, they take part in various agricultural activities. In the study area, the women workers take part in various agricultural activities. The distribution of respondents according to their participation in various agricultural activities has been shown in Table 12 along with participation indices and rank order.

Work participation is classified in to three categories i.e. Regular, Occasional and Never. These categories have been assigned the weighted score of 2, 1 and 0 respectively.



**Table- 12: Work Participation Index (WPI) Of Women Agricultural Labourers**

Sl. No	Items	Extent of Participation				
		x <sub>2</sub>	x <sub>1</sub>	x <sub>0</sub>	Participation Indices	Rank Order
1	Land Preparation	0	23	65	23	
2	Applying Manure	0	26	62	26	
3	Uprooting Seeding	22	39	27	83	
4	Planting Seeding	13	58	17	84	
5	Applying Fertilizer	15	31	42	61	
6	Drain Preparation	0	7	81	7	
7	Weeding	26	38	24	90	V
8	Applying Irrigation	0	11	77	11	
9	Fencing	0	16	72	16	
10	Appling Insecticides	0	31	57	31	
11	Homestead Gardening	42	26	20	110	II
12	Harvesting	11	60	17	82	
13	Post Harvest Operation	31	38	19	100	III
14	Grading	0	0	88	0	
15	Storage	17	59	12	93	IV
16	Rearing Poultry	19	18	51	56	
17	Rearing Livestock	68	17	3	153	I

Participation indices = regularly x 2 + occasionally x 1 + Never x 0

Source: Field Survey

The table shows that large number of women agricultural labours is involved in Rearing Livestock, Homestead Gardening and Post Harvest operations as their ranks are I, II and III respectively. Out of 88 respondents, 68 (77.3%) respondents are regularly involved in rearing livestock and 17(19.3%) are occasionally involved. Livestock is the primary subsistent activity used to meet household food needs as well as supplement farm incomes. Majority of them own some livestock, especially Cattle, Goat and Pig. Studies have revealed rural women earn extra income from the sale of milk and animals.

In the study area, mostly women are engaged in cleaning of animal, sheds, watering and milking the animals. They are also responsible for collection, preparing dung cakes an activity that also brings additional income to poor families. Evidently, rural women are involved in almost all livestock related activities. Except grazing, all other livestock management activities are predominantly performed by females. Majority of women are involved in shed cleaning and collection of farmyard manure. It is evident that the women are playing a dominant role in the livestock production and management activities.

Homestead gardening is the second most participated activity of women agricultural labourers in the study area. Women are superior in decision making in homestead activities. They grow different kind of vegetables at their back yard garden, which helps in meeting their family's need for food and nutrition. About 42 (47.7 %) women agricultural labourers are involved in homestead gardening regularly, 26 (29.5 %) respondents do it occasionally.

The third highest participated activity in the study is post harvest operations. 31 (35 %) respondents are regularly involved in post harvest operations, and 38 (43.2%) are occasionally involved in post harvest operations. After harvest, it is very important to handle the crop with utmost care so that it does not get damaged. These operations include cooling, cleaning, sorting and packing of the produce to keep away from getting moisture, other chemical reactions or from further deterioration like cutting, crushing or bruising. This post harvest treatment largely determines the quality of the produce. Therefore it shows that how women labours play a crucial role in maintaining the quality of food crops.

Fourth important participated activity by our respondents is storage. 17 (19.3%) respondents are involved regularly and 59 (67 %) are doing it occasionally. After cooling, cleaning and sorting the crops it is very important to store them properly in adequate place so that it does not get damaged. This work is mostly done by women.

Weeding is also one of the most participated works of women agricultural labourers. In the study, 29.5 % (26) and 43 % (38) of the respondents are involved in weeding on regular and occasional basis respectively. It is important to control the weed growth otherwise; it may hamper the growth of productive crops or reduce the crop quality by contaminating the product. These women labourers play an important role in plucking the annual weeds to secure the growth of the plants.

So, in all these activities women agricultural labourers largely take part and contribute immensely to livestock production, food security etc. However, there are some other works in which their participation is not up to the mark. Women workers in our study are not actively involved in works like grading, fencing, drain preparation or applying irrigation.

**4.5. Possible Determinants of Women’s Involvement in Agricultural Activities**

There are various causes, which are responsible for women to work as agricultural labourers. They mostly belong to poor families. The causes are not mutually exclusive. We have tried to find out the important causes for which women labourers work in agriculture in the study area. They were asked about the reasons and were asked to give priority to different reasons. On the priority basis the first priority is given a weighted score of 3, second priority is given a weighted score of 2 and third priority has been assigned the value of 1. We have formed a table based on the data obtained for better understanding. The table is as follows.

**Table-13: Causes of Involvement of Women Labourers in Various Agricultural Works**

Causes	Priority			Total Score	Final Rank
	I	II	III		
To Meet the Basic Family Needs	29	47	4	185	II
Absence of Male Earning Members	6	3	4	28	
Low Family Income	68	17	3	241	I
To Meet Personal Needs	0	4	17	25	
To Meet Additional Family Requirements	3	21	60	111	III

Total Score= I×3 + II×2 + III×1

Source: field survey

From the above table 13, we come to know that in the study area, women participate in various agricultural activities because of the following reasons:

Women labourers participate in various agricultural activities in order to meet the basic family needs, low family income, to meet additional family requirements, absence of male earning members and to meet personal needs. Accordingly on the priority basis total score is obtained against each reason. Among the various reasons low family income has the highest total score of 241. Here, 68 (77.3 %) respondents viewed it as their first priority reason for which they work, 17 (19.3%) viewed it as the second most important reason and 3 (3.4 %) respondents assigned it as the third prior reason. It is obvious because most of them belong to vary low annual family income group. By participating in various agricultural activities, they try to contribute to their family income so that family needs could be fulfilled.

The second most important reason, which is responsible for women’s participation in various activities, is to meet the basic needs of the family. It got the total score of 185. 29 (32.9 %) respondents rated it first priority cause, 47 (53.4 %) viewed it as their second priority cause and 4 (4.5 %) people take it as their third priority. As most of the families have very low income, it becomes difficult for them to fulfil their basic needs of food, clothing and shelter. Therefore, women workers choose to participate in different agricultural activities.

Women are working to meet the additional family requirements like better food, clothing etc. It is the third highest ranked cause, which got the total score of 111. 3 (3.4 %) people viewed as their first priority, 21 (23.8%) people take it as their second priority and 60 (68.2 %) people consider it as third priority cause for involvement in various agricultural activities. Besides the basic needs there are also some other needs in the family. For example education of their children, medical charges, marriage or some unforeseen contingencies etc. The low family income at times gets insufficient to meet these requirements. Therefore, women come forward to take on the family burden.

Labour allocation between household activities and agricultural activities of women worker is influenced by various socio-economic and cultural factors. They may be negatively or positively affect the overall participation of women in economic activities. Therefore, this aspect needs to be studied. As observed in rural areas women from well to do families do not generally engaged in outside works. They mostly devote their time to childcare and other household activities. Similarly, in our study nobody from upper caste families is working as the agricultural labour. About 63.6% of our total respondents belong to lower castes. Similarly, family values, number of earning persons in the family determine the level of involvement of women in outside works. In order to know which factor plays significant role in their participation a regression analysis has been prepared.

**4.6. Regression Model**

Here in this section, to explore the relationship between various socio economic characteristics of the women and the extent of their participation in agricultural activities, a regression model is used. A multiple regression analysis has been done by taking Work Participation of Women agriculture labourer as dependent variable and Age(years), Family Size(numbers), Education, Annual Family Income and Land Holding as independent variables to find out the important determining factor of women work participation. The work participation index is calculated by summing up all the activities done by the women either regularly or occasionally by giving a value of 2 for regularly and 1 for occasionally. The result of the regression is presented below in table 14.

**Table 14: Regression Analysis**  
Dependent Variable = Overall Work Participation of Women Labour

Model	Unstandardized Coefficients		Standardised coefficients		
	B	Standard Error	Beta	t	
(Constant)	15.433	1.211	-	12.745	R= 0.660 R <sup>2</sup> = 0.436
Age	-0.016	0.021	-0.07	-0.795	
Family Size	0.137	0.126	0.105	1.093	
Education Level	-0.159	0.084	-0.166	-1.888	
Annual Family Income	0	0	-0.664	-6.213*	
Land Holding	0.025	0.35	0.007	0.072	

\* Significant at 5 per cent level

The results obtained from the above regression analysis shows that the significant factors which influence the work participation of women labourers is annual family income. It means higher the family income lower the work participation of women and vice versa. This proves that women participate in agricultural activities due to low family income. Low family income makes women to work outside to supplement the family income. This result is supported by Damisa et.al (2007) in their paper “Women Participation in Agricultural Production” where it has been found out that level of income is negatively significant implying an inverse relationship with the level of participation of the women in agricultural production. Educational level is also negatively associated with work participation. An increase in educational level results in less participation by women in farm activities. Similar result is obtained by (Mazumdar et. al, 2009). But here educational level is a factor affecting the women participation rate though not significant. So, the important reasons for the involvement of women in various types of activities were to increase the family income followed by low level of education.

## V. Conclusion And Findings

Rural women are the major contributors in agriculture and its allied fields. Her work ranges from crop production, livestock production to cottage industry. From household and family maintenance activities, to transporting water, fuel and fodder. Despite such a huge involvement, her role and dignity has yet not been recognized. Women’s status is low by all social, economic, and political indicators. They face lots of socio-economic constraints, gender constraints, and cultural constraints. All these constraints play a vital part in determining the nature and extent of work they do.

Owing to social taboos, ignorance, financial constraints, inadequate education facilities, and non-availability of lady teachers in rural girls’, schools have not opened the doors of literacy for them. This results in high illiteracy among the rural women workers. Due to lack of education, they are unaware of modern technologies, machineries and their uses. This lack of knowledge is responsible for their insignificant role in decision-making process. They are reluctant and hesitant to participate in public interactions.

They face discrimination in labour market, as they do not get the remuneration at par with the men workers. Their occupational choices are also limited due to social and cultural constraints, gender bias in the labour market, and lack of supportive facilities such as childcare, transport, and accommodation in the formal sector of the labour market. Women’s labour power is considered unskilled and inferior because of employers’ predetermined notion of women’s primary role as homemakers. Because of discrimination against female labour, women are concentrated in the agricultural sector of labour market. Their work is low paid, low status, casual, and lacks potential upward mobility.

### 5.1. Problems faced by Women Agricultural Workers

Women workers face many problems in agricultural sector, which hinder their growth and act as the main obstacles in their path of progress. All these problems have made women to stay at subsistence level women and lead a low status life. These problems are mentioned below.

- Hardly any women holding of agricultural productive resources such as land, animals, and machinery.
- Women are not associated with the decision-making process, either inside or outside home.
- Women perform all un-mechanized agricultural tasks and perform multiple tasks, which add more burden to them.
- Women workers in agriculture suffer from high illiteracy rate among them and drop-out of schools. Women earn fewer wages than men, especially in joint, informal and private sector.

Broadly, the problems of women agricultural workers can be classified into two groups viz., social and economic. Social problems stem from the low status of agricultural women workers in the rural hierarchy and the economic problems are due to inadequacy of employment opportunities, poor security of tenure, low income and inadequate diversification of economic activity in rural areas. The women workers are dispersed, unorganized and generally have poor bargaining power. Circumstances force many of them either to borrow, from time to time, from private sources for consumption purposes or to meet social obligations and some of them end up as bonded labourers. They are one of the exploited sections of the society. Most of the women agricultural labourers do not have land holdings. But they are involved in Homestead gardening in which they grow various vegetables and in livestock management activities where they get dairy products. After the family consumption if they are left with some surplus they are not able to sell it in the market where they can get appropriate price. The surplus products are sold locally at very low price or they get damaged. Ignorance of the agricultural labourers as well as low reach to the organized market system results in low access to marketing system.

### **5.2. Findings of the Study**

The findings of the present study reveal that female labour participates in different agricultural activities. Moreover the followings are the findings of the present study.

- i. Participation of rural women is apparent in diverse forms of agricultural activities. Women labourers are mainly involved in rearing livestock, homestead gardening, harvesting and post-harvesting operations. In the study area, mostly women are engaged in cleaning of animal, sheds, watering and milking the animals. They are also responsible for collection, preparing dung cakes an activity that also brings additional income to poor families. Evidently, rural women are involved in almost all livestock related activities.
- ii. Women work participation in India is only 25.5%. It comprises of 59.6% main female workers and 40.4% of marginal female workers. Out of the total female population in India about 41 % of women are involved in agricultural sector. According to 2011 census in Odisha the percentage of female cultivators reduced to 13 percent and the percentage of agricultural labourer became 57.8 percent of the total female work force. There has been an increasing trend in women agricultural labour force both in India and Odisha.
- iii. The most important factor for seeking employment or involvement in various activities by the women is to increase family income followed by to meet family needs.
- iv. About 45.45% respondents have family income that ranges between Rs.20001- Rs.28000. 29.55% respondents have family income between Rs.10001- Rs.20000. 21.59% have family income between Rs.28001- Rs.36000. This shows their financial contribution to family.
- v. Among the possible determinants the significant factor which influences the work participation of women labourers in our study area is low annual family income. Another factor like educational level is negatively associated with the overall participation index but not significant.

### **5.3. Suggestions to Improve Condition of Women Agricultural Labourers:**

It is very important for the countries like India to address the problems and issues faced by rural agricultural farm women. Ignoring their role means ignoring agricultural development of the country, which no country would try to afford. There are several developmental projects, extension programmes has been introduced by the government to provide training for the skill development of women and to provide better access to productive resources. But the important thing is that there should be proper execution of these projects and they should reach women workers. Agricultural policies and technology must seek to eliminate drudgery, to improve economic efficiency and wages for the time spent by women. On the basis of the study to improve the condition of women in agriculture sector the following suggestions are made:

- Equal rights should be given to women to own land and other properties.
- Ensuring that, women's unpaid work and contribution to on-farm and off-farm production should be recorded in national account.
- Making appropriate technologies available to rural women which focus on utilizing locally available materials.
- Revising legislation which guarantees equal pay for work of equal value, improving working conditions and enforcing legal rights.

- Recognition of labour work of working women in the rural economy may be accounted in monetary terms.
- More facilities should be provided to poor rural women for land, agricultural and livestock extension services.
- Priority must be given to women in accessing credit on soft terms from banks and other financial institutions for setting up their business, for buying properties, and for house building so that they do not get exploited by the landlords.
- Measures should be taken to enhance women's literacy rates. A separate education policy for women workers may serve the purpose.
- Women must be involved in decision-making bodies that have the potential to introduce structural changes. This action will bring some changes in the gender relations in the society.

The study “Work participation of women in agriculture in Odisha” is based on both primary data and secondary data. In this paper the work participation of women agricultural labourers in various agricultural activities have been taken into account. From the results it has been found that the respondents are mostly involved in activities like rearing livestock, homestead gardening and post harvest operations. It has also been found that low family income, fulfilment of basic family needs and to meet additional family needs are the main causes of involvement of women in farming sector in the study area.

To conclude, women constitute about 49% of our population. And their participation in agriculture is large. They are the pioneers of sustainability in food production. Therefore, along with the governmental efforts, individual efforts must be taken to change the mindset of the society towards the women workers. They should be treated equal with men in case of payment of wages, decision-making and access to other sources. Steps must be taken to provide education to them. It can be concluded from the study that despite the constraints, there is high level of work participation of women in agricultural production.

### **References**

- [1]. Shiva, *Most Farmers in India is Women* FAO, New Delhi, 1991.
- [2]. Shivaram, *Women and food Security* FAO, New Delhi, 1988.
- [3]. *The State of Food and Agriculture*, FAO, United Nations, 2011.
- [4]. B. Agrawala, *Agricultural Modernization and The Third World Women: pointers from the literature and Empirical analysis*, ILO, Geneva, 2003.
- [5]. H. Sajjad, *Employment of Landless Labourers* BR Publishing Corporation, Delhi, India, 1998.
- [6]. *Census of India, 1991, 2001, 2011*.
- [7]. *Census of Orissa, 2011*.
- [8]. Mazumdar et.al, *Nature and Extent of Rural Women’s Participation in Agricultural and Non-Agricultural Activities*, *Agriculture Science Digest*, 29 (4), 2009, 254-259.
- [9]. C. Doss, *The Role of Women in Agriculture*, *Agricultural Development Economic Division*, The food and agricultural division of the United Nations, 2011.
- [10]. R. Lal, A. Khurana, *Gender Issues: The Role of Women in Agricultural Sector*, *Zenith International Journal of Business Economics and Management Research*, Vol.1, 2011.
- [11]. C. Satyavathi, et.al, *Role of farm women in agriculture: Lessons learned*, SAGE publications, New Delhi, 2010.
- [12]. M. Sharma, *Cast, Class and Gender: Women’s role in agricultural production in North India*, *Women and International Development Program*, Michigan state university, Hawali, 1984.
- [13]. M.A. Damisa, *Women Participation in Agricultural Production: A Probit Analysis*, *Journal of Applied Sciences*, 7 (3), 2007, 412-416.
- [14]. Rais.M et.al, *Economic Assessment of Rural Women Involved in Agriculture and Livestock Farming Activities*, *Wudpecker Journal of Agricultural Research*, ISSN 2315-7259, Vol. 2(4), pp. 2013, 115 – 121.
- [15]. S. Mishra, *Life of Women Agricultural Labourers in Orissa*, *Orissa Review*, 2009.
- [16]. M. Joshi, *Women Rural Labourers: Problem and Prospects*, APH Publishing Corporation, New Delhi, 1999.
- [17]. *Report of the National Task Force on Technological Empowerment of Women*, National Commission for Women, New Delhi, 2004.
- [18]. L.C. Malliah, *Economic Discrimination of Women in Indian Labour Market*, Baba Saheb Bhim Rao Ambedkar Central University, Lucknow, India, 2007.
- [19]. S. Chowdhry, *Invisible Activities of Rural Women* *Kurukshetra*, Vol. 52, No. 9, 2004.
- [20]. *District Statistical Hand Book, Bhadrak District of Odisha*, 2009.