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Exploring the lives of women in agriculture: Socio-economic and income dynamics in Ahilyanagar, Maharashtra

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Abstract

This paper analyzes the socio-economic background and income patterns of women agricultural workers in Akole Tehsil, Maharashtra. Utilizing primary data from 120 women workers selected through systematic random sampling, primary data was collected via one-on-one interviews this allowed to explain questions clearly, build trust, and gather nuanced responses the study spans key agricultural villages and examines variables such as education, family type, employment status, and wage structure. Multiple linear regression and simple percentage method was used for data analysis. Findings highlight the complexities of women's roles in agriculture, the determinants of their income, and the nature of their participation in various crop and off-season activities. Multiple linear regression and simple percentage method was used for data analysis.

Keywords: Women in agriculture, socio-economic status, income patterns, wage structure, participation of women workers

1. Introduction

As noted by M.S. Swaminathan, women were the first to domesticate plants, laying the foundation of farming as we know it today. Globally, women account for about 38% of all agricultural production workers as of 2019 (FAO 2023) ^[3], with participation reaching 66% in Sub-Saharan Africa and 71% in Southern Asia (FAO 2023) ^[3]. In India, nearly 42% of the total agricultural workforce are women (PLFS 2022-23) and the share of rural female labor force participation has impressively increased from 24.6% in 2017-18 to 47.6% in 2023-24 (Economic Survey 2023-24). Maharashtra, a leading agrarian state, contributes around 15% of India's female main workers. Despite their substantial contributions, women's work remains largely informal, low-paid, and subject to various socio-economic constraints. Women in rural India shoulder a triad of responsibilities: agricultural, allied, and domestic work. They perform critical functions from sowing to harvesting, manage livestock, and undertake significant household tasks. However, their labor often remains unrecognized and undervalued, especially concerning wage differentials, job security, and access to resources (Kavitha 2020) ^[6].

The participation of rural women in agricultural activities forms the backbone of agrarian economies, particularly in developing countries like India. Rural women are indispensable contributors to agriculture, not only as laborers but also as caretakers of biodiversity and custodians of traditional farming knowledge (Patel and Dwaraka, 2025)

[10].

2. Objectives

1. To study the socio-economic background of women workers in agriculture
2. To examine the sources of income and wage structure of farm women workers

3. Research Methodology

The present study adopts an exploratory research approach to examine the evolving roles, contributions, constraints, and opportunities of women agricultural workers within a changing socio-economic landscape, with a focus on factors influencing their economic status. A total of 120 women agricultural workers were selected as the sample size. Systematic random sampling was employed, wherein four villages Khanapur, Gardani, Rede, and Kumbhefal were randomly chosen from among 191 villages in Akole Tehsil, Ahilyanagar District, Maharashtra. From each village, 30 women workers were systematically selected to ensure unbiased and representative data. Primary data were collected through a structured questionnaire comprising both open- and close-ended questions covering aspects such as socio-economic background, wage structure, occupation, and income sources. Data were collected through face-to-face interviews, ensuring accuracy and comprehensiveness of responses, particularly among women with lower literacy levels.

3.1 Data analysis

To examine the relationship between socio-economic factors and the income level of women agricultural workers, multiple linear regression analysis was employed. In this model, total income was taken as the dependent variable, while age, caste, family type, education, marital status, number of family members, nature of farm employment, decision-making and control over income, and income from agriculture were treated as independent variables.

Multiple linear regression model

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + U_i$$

where,

Y = Total income (₹)

X₁ = Age (years)

X₂ = Caste (social category code)

X₃ = Family type (nuclear = 1, joint = 2)

X₄ = Education (years of schooling)

X₅ = Marital status (married = 1, unmarried = 0)

X₆ = Number of family members

X₇ = Nature of farm employment (seasonal = 1, permanent = 2)

X₈ = Decision making and control over income (Herself = 1, Both = 2)

X₉ = Income from agriculture (₹)

b_i = Regression coefficients of respective variables

a = Intercept

U_i = Error term

4. Results and Discussion

Results aim to offer a clear understanding of the real-life conditions, experiences, and economic roles of women agricultural workers. The data has been systematically

organized and discussed to reflect the various aspects of their socio-economic background, income patterns, work participation.

4.1 Socio-Economic Background of Women Agricultural Workers

This section presents the socio-economic profile of women agricultural workers from the selected villages of Akole Tehsil in Ahilyanagar district, where agriculture is the primary occupation. The analysis includes key variables such as age, caste, education, family type, marital status, family size, nature of farm employment, decision-making role, income from agricultural wages, and total family income.

Table 1: Descriptive Statistics

Variable	Average	SD	CV (%)
Age	36.44	7.56	20.76
Caste (Rank)	2.2	1.14	51.90
Family Type (Rank)	1.33	0.34	30.12
Education	2.84	1.01	35.67
Marital Status	1.07	0.34	32.27
Family Size	4.87	1.99	40.90
Nature of Farm Employment	1.25	0.43	34.93
Decision Making & Control	1.26	0.44	35.05
Income from Agriculture (₹)	28808.33	6198.8	21.51

Women respondents are predominantly (43.33%) fall within the 30 to 40 years age group, indicating that this age bracket represents the most active and productive phase of life for rural women. A significant proportion, 52.5% (63), of respondents had attained secondary education, indicating that more than half had access to basic schooling. 104 out of 120 living in nuclear family settings. Many lack significant decision-making power or control over their own income.

Table 2: Impact of Socio-Economic Factors on Income

Sr. no.	Particular	Coefficients	Std. Error	T value
1	Intercept	26713.82	66083.30	0.40
2	Age (yrs.)	979.82	947.05	1.03
3	Caste (Rank)	-1751.67	5624.34	-0.31
4	Family Type (Rank)	480302.6 ***	47558.32	10.09
5	Education	-6327.28	7232.84	-0.87
6	Marital Status	-51662.6 ***	18313.79	-2.82
7	No. of Family Members	-40518.5 ***	8169.52	-4.95
8	Nature of Employment	39481.36 **	16200.17	2.43
9	Decision Making Control over Income	605.57	14936.39	0.04
10	Income from Agricultural Wage	4.27 ***	1.12	3.81
	R ²	0.74		

*** significant at 1% level, ** significant at 5% level

The R² value of 0.74 indicates that 74% of the variation in total income is explained by the selected independent variables, demonstrating a strong fit of the regression model. Among the independent variables, four factors are found statistically significant at the 1% level Family Type, Marital Status, Number of Family Members, Income from Agricultural Wages. Additionally, Nature of Employment is significant at the 5% level. Family Type shows a highly significant and positive influence on income. This suggests

that being in nuclear allows women to contribute to income, possibly due to fewer earners. Income from Agricultural Wages positively affects total income and is significant at the 1% level. This is expected, as wage earnings are a direct component of family income and reflect the active economic contribution of women workers. Nature of Employment, significant at the 5% level, suggests that women with more stable, possibly permanent or regular seasonal work, tend to earn more than those in irregular.

4.2. Sources of Income and Wage Structure

Table 3: Crop-Wise Participation

Crop	Total Participation	Average per Village	Percentage
Tomato	112	28	39.58
Onion	110	27.5	38.87
Sugarcane	43	10.75	15.19
Wheat	18	4.5	6.36

Highest involvement of farm woman workers was observed in Tomato and Onion crop as in these crops operations like staking, transplanting, weeding, harvesting needs to be carried out. These operations demands laborious work.

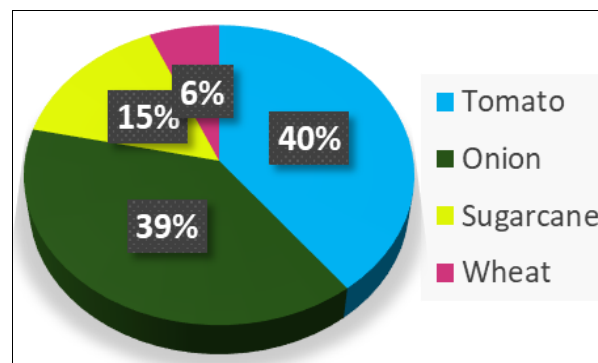


Fig 1: Operations carried out by farm women workers

Table 4: Participation in Agricultural Operations

Operation	Total Participation	Average per Village	Participation Percentage
Staking	88	22	14.36
Transplanting	112	28	18.27
Harvesting	118	29.5	19.25
Pesticide Application	0	0	0.00
Threshing	15	3.75	2.45
Loading and unloading	52	13	8.48
Weeding	112	28	18.27
Manuring	5	1.25	0.82
Carrying Harvested Products	83	20.75	13.54
Sowing	28	7	4.57

Transplanting, harvesting, weeding, and carrying harvested products are the principal operations performed by women. No participation was reported in pesticide application, likely due to health and social barriers. Highest participation of woman workers noticed in harvesting operation (19.25%) as

cropping pattern of studied area includes tomato and onion as major crops. Farm women workers showed high participation in labor intensive operations according to collected data.

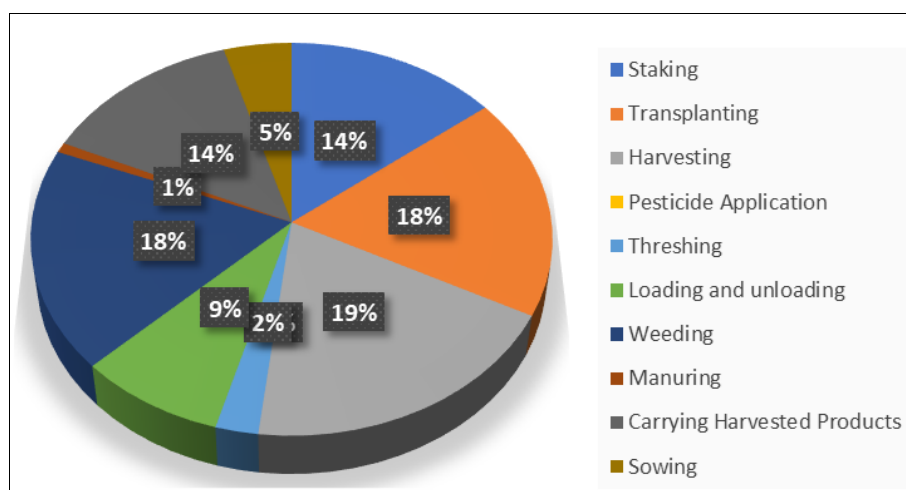


Fig 2: Operations carried out by farm women workers

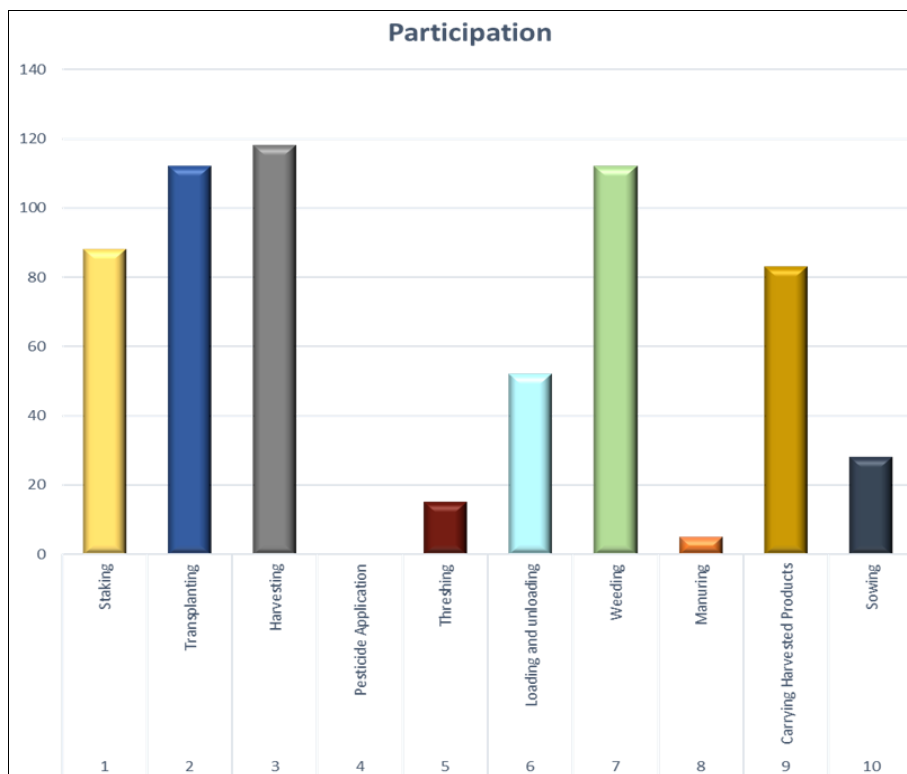


Fig 3: Operation wise participation of women workers

Table 5: Off-Season Work and Income

Work type	No. of Workers	Avg. Income (₹)	Income%	Participation%
Firewood cutting	38	4000.26	11.38	11.98
Vegetable vending	93	8,471.50	24.10	29.33
Caste profession	1	3,410	9.70	0.31
Poultry	91	5,346.15	15.21	28.70
Livestock Management	94	13,912.87	39.59	29.65
Total	-	22,813.17	100.00	100.00

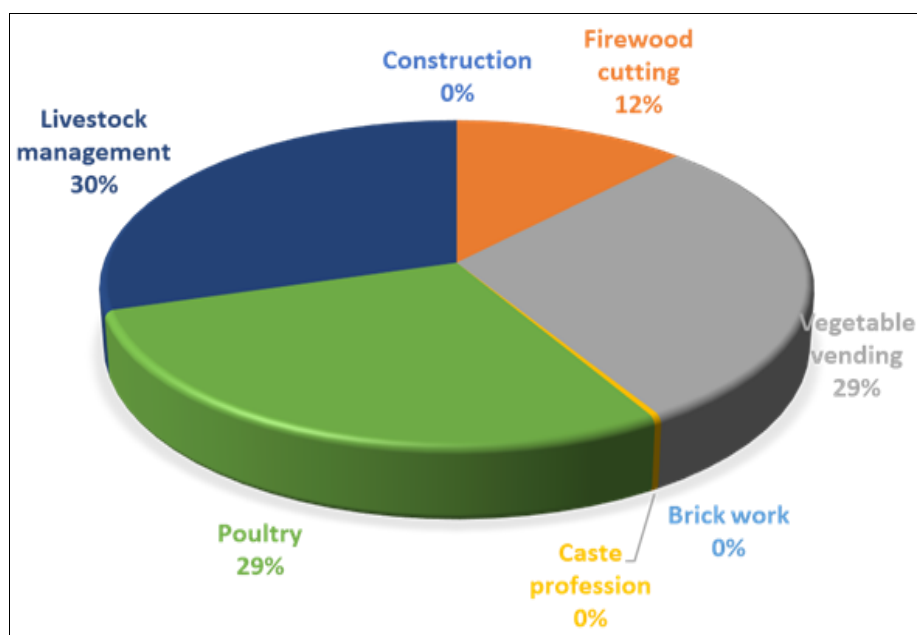


Fig. 4: Work done in fallow season by women workers

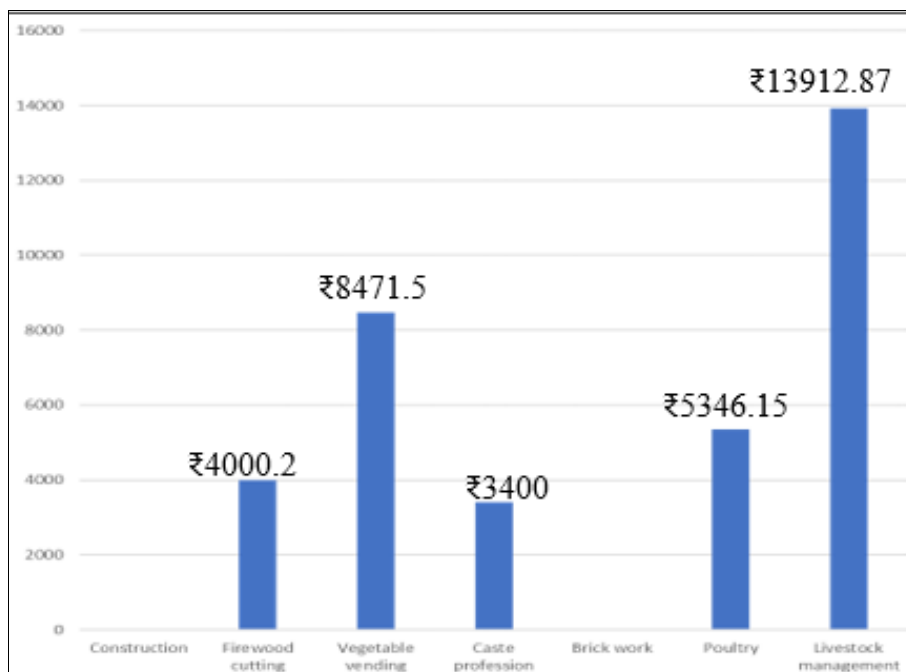


Fig. 5: Income from work done in fallow season

Women diversify into vegetable vending, poultry, and livestock management during the fallow season these form a substantial additional income source. The highest income gained during fallow season is via Livestock management which contributes ₹13,912.87 annually to income of women workers.

Table 6: Wage structure

Sr. No.	Operation	Average Wage Rate (₹)
1	Staking	284.82
2	Transplanting	350
3	Harvesting	317.37
4	Threshing	314.51
5	Loading and unloading	238.46
6	Weeding	271.87
7	Carrying Harvested Products	220.48
8	Sowing	238.96
9	Pesticide Application	0

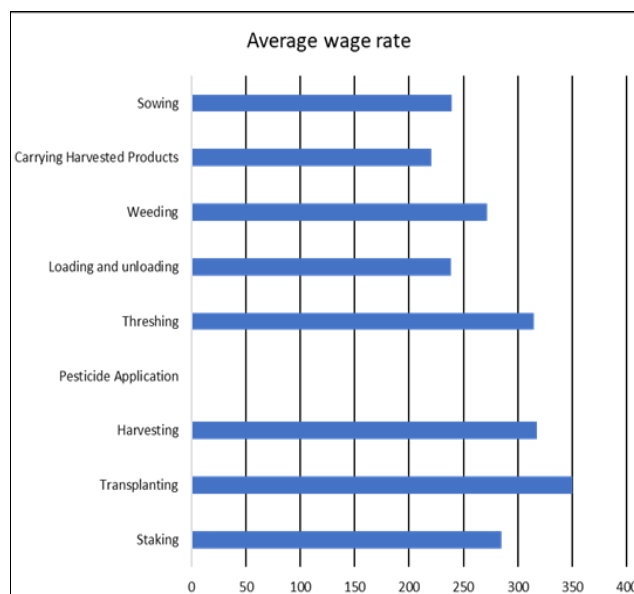


Fig 6: Operation wise average wage rate

Wage Payment Frequency

Sr. No.	Mode	No. of Workers
1	Daily	9
2	Weekly	83
3	Fortnightly	25
4	Monthly	3

Transplanting and harvesting offer the highest daily wages (₹317.37), while carrying harvested products and sowing yield the lowest. Most payments are weekly (83); very few women receive monthly wages, indicating continued informality in wage disbursement. The wage patterns observed in this study are consistent with those reported by Jose (2022) ^[5], indicating similar trends in agricultural wage rates across regions.

7. Conclusion

The participation of women in agricultural activities is closely linked to their socio-economic background. Factors such as family type, number of family members, marital status, nature of farm employment, and women's income from wages were found to have a significant influence on the total family income, as shown through multiple regression analysis. Farm women are primarily involved in physically demanding tasks such as harvesting, transplanting, weeding, staking, and loading/unloading of produce. Among these, harvesting emerged as the most commonly performed activity. During non-cropping or fallow seasons, livestock management becomes the predominant occupation for women, offering relatively higher returns compared to other off-season work. Wage payments are generally made on a weekly basis, but inconsistencies and disparities persist across different types of agricultural operations. These findings underscore the need for more equitable wage structures and support mechanisms to enhance the livelihoods of women agricultural workers.

8. Suggestions

To improve the socio-economic status and working conditions of farm women, key interventions include enforcing minimum wage laws with regular audits to ensure fair pay, and forming SHGs or unions for collective bargaining. Promoting fair trade practices among cooperatives and buyers can create a transparent market. Appointing women as supervisors enhances leadership and representation. Basic facilities like toilets, resting sheds, and drinking water at farms are essential for their well-being. Training in integrated farming systems (crop, dairy, poultry, horticulture) offers diversified income. Childcare centers near farms can support working mothers, improving their participation and livelihoods.

9. References

1. Akpa AF, Amegnaglo CJ, Chabossou AF. Women's engagement in agriculture and income inequality in sub-Saharan Africa. *Soc Sci Humanit Open*. 2024;9:100888.
2. Costa V, Piedrahita N, Mane E, Davis B, Slavchevska V, Gurbuzer YL. Gender and Work in Agrifood Systems: Background paper for The status of women in agrifood systems, FAO 2024. 2023.
3. Food and Agriculture Organization of the United Nations (FAO). The status of women in agrifood systems. Rome: FAO; 2023.
4. Government of India. Economic Survey of India 2023-24. Ministry of Finance, Department of Economic Affairs; 2024.
5. Jose AV. Wage rates in agriculture. *J Found Agrar Stud*. 2022;12(1).
6. Kavitha M. A study on the socio-economic conditions of female agricultural labour in the district of Coimbatore. *Int J Manag*. 2020;11(9):1894-902.
7. Kolekar P, Chavan RV, Bharati SV. Pomegranate productivity in farmer producer organizations: A socio-economic perspective. In: *Research advances and challenges in agricultural sciences*. Vol. 6, Chapter 10. New Delhi: AkiNik Publications; 2024. ISBN: 978-81-972413-6-9.
8. Ministry of Statistics and Programme Implementation (MoSPI). Annual report: Periodic Labour Force Survey (PLFS), 2023-24. Government of India; 2024.
9. Office of the Registrar General & Census Commissioner, India. Census of India 2011. Ministry of Home Affairs, Government of India; 2011. Available from: <https://censusindia.gov.in/>
10. Patel GS, Dwarka B. Study the participation of rural women in agriculture activities. *Adv Res*. 2025;26(3):94-102.
11. Sabar W, Rahim A, Rahman A. The role of women's agricultural workers and household economic resilience. *J Ilmu Sos Hum*. 2023;12(1):52-9.
12. Thanda M, Waris A, Reddy RG, Kumari BA. Socio-economic profile of rural farm women and their decision-making pattern in agricultural activities in Mulugu district of Telangana. *Int J Agric Ext Soc Dev*. 2024;7(7):420-424.