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Original Research Paper

Gender analysis and empowerment of women and men in Cassava (*Manihot esculenta*) production in Kerala

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ABSTRACT

Women's participation is vitally important in agriculture so also in cultivation of tuber crops. In Kerala, cassava is cultivated mostly in homestead farming with active participation of the women. Gender analysis was conducted to map the profile characteristics and empowerment of men and women. Hundred respondents doing cassava cultivation were selected from Thiruvananthapuram and Pathanamthitta districts of Kerala. Majority (61.53%) of the women and men (68.57%) had medium level of participation in cassava cultivation. The overall empowerment index of men (0.86) was more than women (0.78). Employment generation and economic benefits in cassava cultivation for men and women were also assessed.

Keywords : Cassava, gender, women empowerment

INTRODUCTION

In India, the share of men workers was 51% in rural areas, whereas, it was 75.90% for women in agriculture (GoI, 2022). Women in agriculture play multifaceted role as they work both in farm and at home and involved in multiple agro-based enterprises like agriculture, dairying, poultry, fisheries and processing. Women participate in cultivating almost all crops and especially in tuber crops is witnessed in India. Cassava assures food security to the families and is designated as a women friendly crop. It requires low input and it is an encouraging crop for women as their access to agricultural inputs is less (Kiriti & Tisdell, 2003). In Kerala, cassava is mostly grown as household crop and women involve substantially. It provides employment and income generation to women. Women need to be empowered to address the challenges they face in farming and in their daily life. Keeping this in view, a study was conducted to assess the profile characteristics, gender roles and analyze empowerment indices of men and women in cassava production in Kerala.

MATERIALS AND METHODS

The research study was conducted using ex post facto research design during July-December 2020. Two districts of Kerala namely Thiruvananthapuram and Pathanamthitta were selected purposively as these districts have more area under cassava and three villages from each districts were selected. One hundred respondents were selected from both the districts which included 65 women and 35 men. Men and women who had cassava cultivation as primary occupation were selected purposively. Women empowerment was measured using the Women Empowerment Index in Agriculture (WEAI) which evaluates women's role and extent of participation in cassava production in five domains *viz*., domains (5DE) of women empowerment.

Domains (Indicators*)
Production
Input in productive decisions (1/10)
Autonomy in production (1/10)
Resources
Ownership of assets (1/15)
Purchase, sale or transfer of assets (1/15)
Access to and decisions on credit (1/15)
Income
Control over use of income (1/5)
Leadership
Group membership (1/10)
Speaking in public (1/10)
Time
Workload (1/10)
Leisure time (1/10)

*Weightages are given in parenthesis

The Women Empowerment Index in Agriculture (WEAI) developed by IFPRI (2012) and Alkire et al. (2013) was modified and adopted in this study. The women empowerment index in cassava was calculated based on mean score for different domains of women empowerment with corresponding weightages.

Participation of the respondents was measured on a 3 point continuum scale in the order of importance from mostly participated, participated and never participated and measured against 15 practices in production and processing. A structured interview schedule, focus group discussion and case study were used to collect data from the respondents. Statistical tools namely percentage, mean, standard deviation and Chi-square analysis were used for interpreting the results.

RESULTS AND DISCUSSION

Profile characteristics

Majority (89.23%) of the women were middle aged, while, 45% women and 57.14% men had high school education. This result disagrees with Matanmi et al. (2017), stated that majority (53.75%) of cassava processors are devoid of formal education. Majority (65.63%) of the women and men (60%) had agriculture as their primary occupation. These results coincide with Devaki et al. (2015) who reported that 61% women were doing agriculture and dairy. Majority (50%) had more than 10 years experience in cassava production and this coincides with the findings of Onyemauwa (2019).

Aspirations and empowerment are linked, as higher aspirations results in more empowerment (Nandi & Nedumaran, 2021). Aspirations are crucial to the welfare of the impoverished in rural areas (Kosec & Mo, 2017). Majority of the women (72.30%) and men (77.14%) had medium level of aspiration. Majority (50.76%) of women and men (68.57%) possessed medium innovativeness. Kiran et al. (2022) stated that majority of the farmers had medium level of (1.99) innovativeness based on mean score value. Middle

Table 1 : Profile characteristics of women and men

Profile characteristics	Women (n=65) F (%)	Men (n=35) F (%)
Age		
Young (< 35 years)	2 (3.08)	5 (14.29)
Middle (35-60 years)	58 (89.23)	17 (48.57)
Old (>60 years)	5 (7.69)	13 (37.14)
Education		
High school (VI to X)	29 (44.62)	20 (57.14)
Higher secondary (XI to XII)	15 (23.07)	6 (17.14)
UG and above	21 (32.31)	9 (25.72)
Experience in cassava production		
< 10 years	29 (44.62)	9 (25.71)
10-20 years	18 (27.69)	11 (31.43)
> 20 years	18 (27.69)	15 (42.86)
Occupational status		
Agriculture as main occupation	42 (65.63)	21 (60.00)
Agriculture as subsidiary occupation	22 (34.37)	14 (40.00)
Level of aspiration		
Low (women: < 3.29; men: < 2.06)	10 (15.38)	5 (14.29)
Medium (women: 3.29 to 6.25; men: 2.06 to 5.62)	47 (72.30)	27 (77.14)
High (women: > 6.25; men: > 5.62)	8 (12.30)	3 (8.57)
Innovativeness		
Low (women: < 1.54; men: < 1.29)	9 (13.84)	2 (5.71)
Medium (women: 1.54 to 2.9; men: 1.29 to 4.73)	33 (50.76)	24 (68.57)
High (women: > 2.9; men: > 4.73)	23 (35.38)	9 (25.71)

Table 2 : Extent of participation in cassava production

Activity	Mean participation score		Mean difference
	Women respondents (n=65)	Men respondents (n=35)	
Land preparation	2.21	2.48	-0.27*
Selection of variety	2.36	2.85	-0.48***
Selection/planting of setts	2.38	2.80	-0.41***
Sett treatment	1.86	2.02	-0.16 NS
Organic inputs application	2.44	2.57	-0.12NS
Fertilizer application	1.76	2.25	-0.48***
Irrigation	2.16	2.34	-0.17NS
Intercultural operations	2.41	2.42	-0.01NS
Cropping system/crop rotation	2.30	2.77	-0.46***
Pests management	2.00	2.31	-0.31*
Diseases management	1.96	2.34	-0.37**
Harvesting	2.29	2.71	-0.42***
Grading and marketing	2.09	2.48	-0.39**
Value addition	1.95	1.65	-0.29*
Storage of planting materials	2.23	2.45	-0.22NS
Overall participation	2.16	2.43	-0.26***

***, ** and * indicates at 1%, 5% and 10% level of significance, respectively; NS - non significant

aged women with higher literacy level with medium level of aspiration and innovativeness were involved in cassava production (Table 1).

Participation in cassava cultivation

Local farming systems decide the responsibilities of men and women in agricultural production (Huvio, 1998). Data presented in Table 2 reveals that, highly significant difference was observed in selection of variety (0.48), planting setts (0.41), fertiliser application (0.48) and harvesting (0.42). This finding was supported by Zimba et al. (2023) who stated that farmers prefer yield and grain size, whereas, women prefer grain production. Non significant differences were observed in sett treatment, organic inputs application, irrigation, intercultural operations and storage, which supports findings of Okolo (1986) and Chinasaokwu (2012). In value addition, women participation was more with a mean difference of 0.29. Rahman (2000) reported that women had active participation in post harvesting. Awotona et al. (2022) stated that both gender were cultivating cassava. Women involvement was more in value addition as it requires skill, patience and time.

Empowerment index of women in cassava production

Women empowerment is a process where women have the authority to control, possess ownership of resources and take decisions (Kabeer, 2001). Table 3 indicates that the mean empowerment score of women and men were almost similar but significant in some indicators. Men had more score in input in productive decisions (2.74) than women (2.41) which was significant. As reported by Tsegaye et al. (2012) men make all the important decisions regarding cropping pattern, use of seeds and technology. Men scored higher (2.74) than women (2.32) in autonomy in production. The gender norms that govern asset ownership with higher value favour men rather than women (Deere & Doss, 2006; Deere et al., 2013).

Table 3 : Empowerment index of women in cassava

Empowerment indicator	Mean empowerment score		Mean difference
	Women respondents (n=65)	Men respondents (n=35)	
Input in productive decisions	2.41	2.74	-0.327***
Autonomy in production	2.32	2.74	-0.41***
Ownership of assets	2.30	2.60	-0.29**
Purchase, sale or transfer of assets	2.16	2.54	-0.37***
Access to and decisions on credit	2.36	2.54	-0.17NS
Control over use of income	2.33	2.80	-0.46***
Group membership	2.55	2.31	0.239 NS
Speaking in public	2.26	2.31	-0.052NS
Workload	2.46	2.74	-0.281**
Leisure time	2.33	2.62	-0.290**
Overall empowerment	2.35	2.59	-0.243***
Empowerment index	0.86	0.78	-0.08**

*** and ** indicates at 1% and 5% level of significance, respectively; NS - non significant

Gender gaps in accessing credit are due to lack of collaterals and dependence on informal sources (Purva Khera, 2018). Data reveals that access and decisions on credit were more for men (2.54) so also control in income (2.80). As the income earned by women is less they might have no say in spending.

Group membership and speaking in public had no significant differences between men and women. In group membership women had high score (2.55). Women are working in groups under the schemes and projects implemented at villages and have collective voice and bargaining power. The overall empowerment index of men (0.86) significantly higher than women (0.78). In indicators like decision making and autonomy in production the mean difference was higher for men as they dominate these areas from generations due to the societal structure and pattern. The difference in the empowerment level may be due to social, psychological, technical and economical aspects prevailing in the study areas.

Employment generation potential of cassava

The data presented in Table 4 revealed that the employment (man-days) generated in cassava cultivation in one ha, women had considerable man-days (10) in intercultural/ weeding/earthing up activities and also in harvesting/packing/and transportation (10). The gross labour man-days for men were 102 and 35 for women. Total number of man-days is estimated to be 137. When women earn less than men for the same work, it often leads to economic dependence and can result in higher rates of poverty and economic insecurity. Lower wages for women results in reduced access to resources which are crucial for socioeconomic advancement.

Table 4 : Man-days generated for cassava (1 ha)

Farming practices	Women	Men	Total
Land preparation	5	45	50
Sett making/planting	6	4	10
Application of fertilizers/manures/ pesticides	4	8	12
Intercultural operations	10	15	25
Harvesting/packing/transportation	10	30	40
Total man-days	35	102	137

Table 5 : Economic value generated for cassava cultivation for one ha

Farming practice	Women (Rs.)	Men (Rs.)	Total (Rs.)	Women share (%)	Men share (%)
Land preparation	2750	38250	41000	6.71	93.29
Sett making	3300	3400	6700	49.25	50.75
Application of fertilizers/ manures/pesticides	2200	6800	9000	24.44	75.56
Intercultural operations	5500	12750	18250	30.14	69.86
Harvesting/packing/transportation	5500	25500	31000	17.74	82.26
Total	19250	86700	105950	18.17	81.83

Table 6 : Constraints in cassava production

Constraint	Mean score	Rank
Lack of access to good quality planting materials	2.08	VII
Poor shelf life of tubers	2.18	V
Price fluctuation	2.52	III
Less knowledge and access to crop loans and subsidies	2.12	VI
High labour cost	2.57	II
Wild animals attack	2.69	I
Erratic rainfall/weather aberrations	2.34	IV

Economic value generation potential of cassava

Table 5 indicated that in one ha of cassava production, the total economic value realized was more for men (Rs. 86700) than women (Rs.19250). Total share of men was 81.83 per cent and women were 18.17 per cent. Involvement of men was more in all the activities of cassava production and this gives more economic gain to men. When women earn less than men for the same work, it often leads to economic dependence which further entrench cycles of poverty and limit opportunities for upward mobility. This perpetuates a cycle of inequality by limiting women's ability to invest in domestic front.

Constraints in cassava production

Women perceived few constraints in cassava production which were ranked based on the mean score (Table 6). First constraint was wild animals attack (I), followed by high labour cost (II), price fluctuation (III), weather aberrations (IV), poor shelf life of tubers (V), less knowledge and access to crop loans and subsidies (VI) and lack of access to good quality planting materials (VII). Akinnagbe (2010) stated that less availability of planting materials, technical knowledge, pests and diseases were the major problems in cassava. Wild animals attack is a major problem since they damage the crops. Labour cost is also high and 40 per cent of the cost of cultivation is for labour. Women friendly technologies like cost effective mechanization are the way out to reduce labour cost. Price fluctuation affects their overall net-profit. Technological and financial interventions are required to meet the challenges faced by women. Constraints such as access to quality planting materials, less access to crop loans and subsidies are directly related to gender dynamics. Access to resources and credit are mostly related with gender and this is also reflected in the study which needs attention.

CONCLUSION

Women in cassava production are getting earnings and employment through their participation. Promoting group membership by suitable interventions in cassava sector especially value addition benefits women to bring gender parity. FPOs/SHGs can support women with scientific farming approaches, processing and value addition to enhance the income of farm women to make them 'self-reliant'. Women's participation may be enhanced by providing them the right to ownership of land, access to education, exposure to improved technologies through training, women friendly extension services and policies and implementing

policies that ensure equal pay for equal work. Expanding access to financial services and credit will enable them to have financial power. Strengthening agricultural extension services to reach women with relevant information, resources, and digital technologies will empower women.

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