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Women in Cassava Cultivation in Kerala- A Critical Analysis

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Abstract

Women play a major role in agriculture as well as in cultivation of tuber crops. Cassava is a tropical tuber crop which grows well in Tamil Nadu, Kerala, Andhra Pradesh, Odisha and other northeastern states of India. In Kerala, cassava is mostly cultivated as a homestead crop and hence women raise this crop within their backyards. Women play a multifaceted role including management of household activities and caring the family. This study was conducted in Kerala state of India to analyse the profile characteristics of women involved in cassava farming along with their needs, preferences and opportunities in cassava cultivation. Two districts namely Thiruvananthapuram and Pathanamthitta were selected for the study as these districts occupy a major share of area under cassava in Kerala. A cluster of villages comprising two to three villages from each district were selected with a total sample of 65 women respondents. It was observed that 89.30 percent of the women belonged to middle aged category, and nearly 45 percent of the women were educated up to high school. Majority of the women were marginal farmers having less than 2.5 acres. Majority of the women's level of aspiration was medium and only 12.30 percent had high level of aspiration. The needs, preferences and opportunities of the farm women were assessed to formulate strategies and action plan to empower women in cassava cultivation.

Keywords : Cassava, Women, Profile characteristics, Needs, Preferences, Opportunities

Introduction

Women occupy a major part of the society and contribute remarkably to agricultural production system. Women account for 43 percent of the agricultural labour in developing countries and it is more than 30 percent in South Asia and India (FAO, 2011). This data indicates the role of women in agriculture. The nature and extent of women's involvement in agriculture varies greatly from region to region but in most of the areas women are involved in entire activities of agricultural production system except ploughing (Sanjay-Swami, 2019). Women are getting gainful employment in agricultural operations at various stages of the crop growth and thus they earn a livelihood and supplement their family income. Owing to this scenario, the development interventions in agriculture need to focus on women as an entity and should benefit them equally with men to bring gender parity. Women's decision-making processes and their adoption of new technology may be impacted if they lack access to useful information, resources and extension services. Gender mainstreaming is an important tool in agricultural developmental programmes and policies to bridge this gap and minimize the demand for increased agricultural development. Women in agriculture have

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various dimensions as they play a multifaceted role. Their involvement is witnessed in food production, but their extent of participation mostly depends on the type of crop. Dual role is played by agricultural women as they contribute to the farm as well as in their households and shoulders the responsibility of taking care of the well being of the family.

In Kerala, cassava is mostly cultivated as a homestead crop in an area of 55,664 ha with a production and productivity of 2.51 lakh tonnes and 45.02 t ha^{-1}, respectively in 2022 (GoK, 2022). Cassava requires lower levels of inputs and it grows well even in less fertile soil. Consumption of cassava is comparatively more in Kerala and hence the varieties cultivated are more suitable for consumption than industrial purpose. There is a high market demand for the varieties with good cooking quality. Mostly household farming is observed in Kerala and hence this gives more opportunity to women to raise this crop within their farms adjoining to their house. Even though women do involve in agriculture they need to be empowered to meet the challenges they face in cassava cultivation. Keeping this in view, a study was conducted with the objectives to analyse the profile characteristics of farm women, to assess the needs, preferences and opportunities of farm women in cassava cultivation and to formulate strategies and action plan for empowering women in cassava cultivation.

Materials and Methods

The study was conducted using 'ex post facto' research design during July-December 2020. Two districts namely Thiruvananthapuram and Pathanamthitta in Kerala were selected for the study as these districts have more area under cassava cultivation. A cluster of villages comprising two to three villages each from Thiruvananthapuram and Pathanamthitta districts were selected and a total sample of 65 respondents were selected using purposive sampling. The farm women who were having own land and working in their farm were selected as respondents. A structured interview schedule, focus group discussion and case study were used to collect data from the respondents. Statistical tools namely percentage, mean and standard deviation were used for interpretation of the results.

Results and Discussion

The profile characteristics of the farm women were analyzed using standard procedures and the details are given in Table 1. It could be observed that 89.30 percent of the women belonged to middle age (Table 1). This clearly indicated that young population are not much involved in cassava cultivation and middle aged women are more involved. This might be because middle aged women had more responsibilities than younger and older women. As the young women are mostly educated, they preferred jobs rather than agriculture. Only 8 percent of old aged women were involved in cassava cultivation and this might be due to their experience and cultivation of cassava from generations.

Among the respondents in this study, no one was found to have education below high school level. Nearly 45 percent of the women were educated up to high school level and 25 percent had completed their graduation. Also, almost 7.69 percent of women had post-graduation degree. With 92.6% literacy, Kerala is the most literate state in the country as per a report based on GoI, 2018. There is a need for deepening gender mainstreaming to close gender gaps and achieve better gender equality, health, and economic empowerment especially in rural areas that benefits women (ADB, 2013).

It is seen from Table 1 that majority (65.63%) of the women had agriculture as their primary occupation and only 34.38% had agriculture as subsidiary occupation as they were engaged in other jobs. These results are in accordance with the study by Devaki et al., (2015), who reported that majority (61%) of the farm women were involved in agriculture and dairy activities. As cultivation of cassava demand less care, they do other income earning activities to supplement their family income. Since majority had agriculture as primary occupation it is very much important to mainstream women's concerns into effective agricultural and rural development policies, plans and programmes in order to ensure household and national food security and to ensure adequate livelihood for the rural women (Bordoloi, 2021).

The socio-economic status of the farm family is either directly or indirectly influenced by the size of the family. In farm families, if more members are there, they may contribute more towards farming as family labour. In this study the family size indicated that only 24.62% had small family (<4 members) and majority (75.38%) had big family size with more than 4 members. The results are in line of Upadhyay and Desai (2011) who reported that majority (68.33%) of the farm women had big family and only 31.87% had small family.

Farming experience is useful in early stages of adoption of a given technology when farmers are still testing its potential benefits, which later determine its retention or non adoption over time (John and Johnny, 2014). It could be seen that 33.84% were having an experience of more than 20 years and 29.23% with 10 to 20 years, which

Table 1. Profile characteristics of the respondents (n=65)

Sl.No.	Profile characteristics	F (%)
1.	Age	
	Young	02 (03.08)
	Middle	58 (89.23)
	Old	05 (07.69)
	Total	65 (100.00)
	Mean: 49.5; SD: 8.75	
2.	Education	
	High school education (VI to X)	29 (44.62)
	Higher secondary education (XI to XII)	15 (23.07)
	Undergraduate	16 (24.62)
	Postgraduate and above	05 (07.69)
	Total	65 (100.00)
3.	Occupation	
	Agriculture as main occupation	42 (64.61)
	Agriculture as subsidiary occupation	23 (35.39)
	Total	65 (100.00)
4.	Family size	
	< 4 members	16 (24.62)
	≥ 4 members	49 (75.38)
	Total	65 (100.00)
5.	Farming experience	
	< 10 years	23 (35.38)
	10-20 years	19 (29.23)
	>20 years	22 (33.84)
	Total	65 (100.00)
	Mean: 17.03; SD: 11.77	
6.	Farming experience in cassava cultivation	
	< 10 years	29 (44.62)
	10-20 years	18 (27.69)
	>20 years	18 (27.69)
	Total	65 (100.00)
	Mean: 14.16; SD: 11.44	
7.	Farm size	
	Marginal (< 2.5 acres)	62 (95.39)
	Small (2.5-5 acres)	03 (04.61)
	Total	65 (100.00)
	Mean: 0.98; SD: 0.77	
8.	Area under cassava cultivation	
	Marginal (< 2.5 acres)	64(98.46)
	Small (2.5-5 acres)	01(01.54)
	Total	65(100.00)
	Mean: 0.48; SD: 0.45	
9.	Livestock possession	
	Yes	32 (49.23)
	No	33 (50.77)
	Total	65 (100.00)
10.	Availed credit facility	
	Yes	12 (18.46)
	No	53 (81.54)
	Total	65 (100.00)

reveals that these women are involved in agriculture traditionally and they are giving due importance to agriculture as it is considered as their livelihood activity.

In cassava farming 44.61% had an experience of less than 10 years because may cultivating other crops rather than cassava. As cassava is a climate resilient crop, it is gaining popularity in the recent years due to climate change challenges. More than 50% had more than 10 years of experience with 27.69% having more than 20 years.

Land is considered as one of the imperative socio-economic indicators in the agricultural sector and rural development. Majority (95.38%) of the women were marginal farmers with an area of less than 2.5 acres. Mostly women were involved in agriculture at household farm level. In Kerala, mostly cassava is grown as household crop and the area of cultivation is marginal to small. This finding is supported by Pawan and Sujeeth (2022) who stated that majority of the respondents fell in small to medium category of land holding. Table 1 revealed that the mean area in which cassava is cultivated was 0.48 acres as these women belonged to marginal and small category. Cassava is mostly cultivated in their households along with other crops and in some areas, it is grown as an intercrop with other crops.

Majority (50.77%) did not possess any livestock, but 49.23% had livestock. In Kerala, mostly the house type is single, and there is enough space to rear livestock within their backyard. Moreover, women derive supplementary income from livestock rearing thus adding income to their families by utilising their time effectively. The leisure time may be made productive by engaging themselves in income earning activities.

It is an interesting finding that only 18.46% of the women had availed credit facility for agricultural purpose and majority (81.54) had no credits against them. With the existing income they are managing the family expenditure, and it may be sufficient to a certain extent for their household and agriculture purpose. Most of the women are members of selfhelp groups and thus they get supplementary income by participating in income generating activities.

Level of aspiration

Level of aspiration means reflecting a person's or group of persons' orientation towards a goal. High level of aspiration is used to indicate relative level of goal specification. Based on the scores, the respondents were categorized as low, medium and high using mean (4.76) and standard deviation (1.47).

Table 2. Distribution of farm women according to level of aspiration (n = 65)

Sl.No.	Category	Frequency	Percentage
1.	Low (< 3.29)	10	15.38
2.	Medium (3.29 to 6.25)	47	72.30
3.	High (> 6.25)	8	12.30
	Total	65	100

$X^2 = 44.52$; $p < 0.001$

Aspirations of the rural poor play a significant role in shaping their activities and investments. Specifically, women's empowerment could be supported through raising aspirations (Nandi and Nedumaran, 2021). The aspirations of the rural poor are recognized as an essential dimension of their well-being (Kosec and Mo, 2017). If the well being of the women is to be made better off, it is imperative to understand and nurture their aspirations. Majority of the women's level of aspiration was medium and only 12.30 percent had high aspirations (Table 2). The medium level of aspiration may be due to their education.

Innovativeness

Innovativeness indicates behavioural changes and may refer to the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than any other member of the system. Based on the scores, the respondents were categorized as low, medium and high using mean (2.22) and standard deviation (0.06)

Table 3. Distribution of farm women according to innovativeness (n = 65)

Sl.No.	Category	Frequency	Percentage
1.	Low (< 1.54)	9	13.84
2.	Medium (1.54 to 2.9)	33	50.76
3.	High (> 2.9)	23	35.38
	Total	65	100

$X^2 = 13.41$; $p < 0.01$

Majority (50.76%) had medium level of innovativeness and 35.38% had high innovativeness (Table 3). The women are independent, and they have the ability to think wider and that could be the reason for their innovativeness. This study is in accordance with the report given by Kiran et al. (2022), who stated that the mean score of innovativeness was 1.99 with majority of the farmers in medium level category, followed by low and high.

Needs of farm women in cassava cultivation

The needs of farm women were collected on a three point continuum *viz*., most important, important and least important with a score of 3, 2 and 1, respectively. The frequency of each response category was found out

Table 4. Needs of farm women in cassava cultivation (n=65)

Sl.No.	Needs of farm women	Mean Score	Rank
1	Training on improved technologies of cassava cultivation	2.83	I
2	Training on value addition in cassava	2.78	III
3	Quality planting materials of improved varieties of cassava	2.74	VI
4	Subsidies/Critical inputs	2.68	VII
5	Pre and post harvest machineries to reduce drudgery	2.31	X
6	Demonstrations on improved varieties/ technologies	2.77	IV
7	Credit/Loan facilities	2.82	II
8	Crop insurance scheme	2.76	V

and respective frequencies were multiplied by the score allotted to it, then they were added and divided by the number of the respondents which gave the mean score for different needs of farm women for ranking.

The needs of the farm women were assessed to identify the gaps in their occupation. Training on improved technologies of cassava cultivation (I) was the topmost need reported by the farm women with a mean score of 2.83 out of maximum obtainable score of 3 (Table 4). These results also get support from Mudakuti and Miller (2002) who concluded that six areas were reported by the respondents as the highest needs in crop production in which the second area was information about new agricultural technologies. Adopting new technologies helps the farm women to increase the yield and income. The other major need was availing credit to expand their cultivation (II). Rural women face more problems and difficulties in gaining access to credit and extension education services related to agriculture, livestock management and food security (Achamyelesh, 2000). Training on value addition is also felt as the third most important need as the participation of women is more in value addition. Cassava tubers cannot have long shelf life and hence when there is a glut in the market women can go for value addition. They can prepare chips, noodles, pasta and other snacks using cassava flour. Starch and sago are also few among the value added products which are made on commercial basis. Quality planting material was also given as the fourth need as they were not able to get good quality planting materials. Planting material is the basic input to grow a good crop with better yield. Crop insurance scheme was also important as crop insurance coverage for cassava is very limited. Government has introduced many crops insurance schemes, and the farm women need to be made aware about the schemes to cope up with the unforeseen disasters.

Preferences for cassava varieties

The preferences for cassava varieties as perceived by farm women were collected on a three point continuum *viz*., most important, important and least important with a score of 3, 2 and 1 respectively. The frequencies of each response categories were found out and respective frequencies were multiplied by the score allotted, then they were added and divided by the total number of the respondents to get the mean score for the different preferences of farm women.

The first preference given by the women was to the good cooking quality of the tubers, as in Kerala, the cassava is cultivated for table purpose (Table 5). Women are selling the tubers in the local markets where people prefer good edible quality tubers as it is mainly used for culinary purpose. The second preference was for high yielding potential, because the yield at their fields is low when compared to the high yielding varieties. Short duration variety was also preferred by them as cassava varieties used by them are of more than 8 months duration. If the crop duration is less, they can even cultivate two crops in a year. As cassava tubers are perishable, storing for a longer period is a problem and they are compelled to sell immediately. If the keeping quality is good, they can be sold based on market demand, ensuring better price.

Table 5. Preferences for cassava varieties (n = 65)

Sl.No.	Preference	Mean Score	Rank
1	Short duration varieties	2.65	III
2	Good cooking quality	2.91	I
3	High yielding potential	2.83	II
4	Good keeping quality	2.63	IV
5	Pest and disease resistant varieties	2.35	VII
6	Suitable for cropping system	2.34	VIII
7	Climate resilient/Drought resistant varieties	2.46	VI
8	Suitable for organic farming	2.60	V

Opportunities in cassava cultivation

The opportunities in cassava cultivation as perceived by farm women were collected on a three point continuum viz., most important, important and least important with a score of 3, 2 and 1 respectively. The ranking was done based on the mean score values obtained for different opportunities as perceived by farm women.

From Table 6, it is observed that women assigned first rank to cassava cultivation as it is suitable for homestead farming/cropping systems/integrated farming systems. Mostly cassava is cultivated in homesteads and intercropping system is followed. The second opportunity is that there are scope for value addition as the tubers are having more commercial value after processing and value addition. In addition to this, ICAR-Central tuber crops research Institute (CTCRI) has developed many value added products and there is a lot of scope for market as the market preference for these products is high. Many self-help groups are involved in cassava value addition and they are earning their livelihood. The other opportunities are linking crop insurance scheme (III), yield enhancement by adopting improved technologies (IV) and suitability for varied agro climatic and edaphic conditions. Cassava can be cultivated in areas with

limited rainfall, high temperature and low fertility soils (El-Sharkawy et al.,1993).

Table 6. Opportunities in cassava cultivation (n = 65)

Sl.No.	Opportunities	Mean Score	Rank
1	Suitable for homestead farming/cropping systems/ integrated farming systems	2.88	I
2	Scope for value addition in cassava by linking women SHGs/FPOs	2.75	II
3	Linking crop insurance scheme for cassava	2.71	III
4	Enhancing yield by adoption of improved technologies	2.60	IV
5	Suitable for different agro climatic and edaphic conditions	2.51	V
6	Source of food for farm animals	1.91	VI

Conclusion

Women play a distinct role in cassava cultivation, which impacts the production and family income. Women should be encouraged to actively participate in all aspects of cassava cultivation starting from planting, cultivation, harvesting and marketing to earn high income. Their needs, preferences and opportunities in cassava cultivation are to be considered while developing policies and programmes for women empowerment in cassava cultivation. Women friendly technologies are to be developed and popularized through various capacity building programmes by research and development organizations. Holistic efforts are warranted from research organizations, developmental departments, marketing agencies, credit organizations and other stakeholders for empowering women in cassava cultivation in Kerala.

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