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Socio-demographic profile and awareness of value-added products and processing methods among cassava growers in Uttara Kannada district

¹Naveen S and ²Veena S Jadhav

¹ Ph.D., Scholar, Department of Family Resource Management, College of Community Science, UAS Dharwad, Karnataka, India

² Professor, Department of Family Resource Management, College of Community Science, UAS Dharwad, Karnataka, India

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Corresponding Author: Naveen S

Abstract

This study explores the socio-demographic profile and awareness of cassava growers regarding value-added products and processing in Uttara Kannada district, Karnataka. Conducted in four taluks Joida, Sirsi, Yellapur, and Siddapur, the study involved 280 cassava growers, selected using purposive random sampling (70 from each taluk). Results show 61.43% of growers fall within the middle-age category (35-55 years), with 51.83% belonging to nuclear families. Educationally, 28.21% have completed higher secondary education. Agriculture remains the primary occupation for 67.14%, predominantly on small landholdings (less than 2.50 acres). Awareness of industrial applications such as sago (95%), glucose (94.29%), and starch (46.43%) is relatively high, but knowledge of other value-added products like dextrin and ethyl syrup is limited. Most growers (42.86%) exhibit medium awareness of cassava-based value-added products. However, processing knowledge is minimal, with 100% lacking expertise in sago processing and 97.86% unaware of cassava flour production techniques. The study underscores significant gaps in awareness and technical knowledge, impeding the growers' ability to capitalize on value-added markets. These findings highlight the urgent need for tailored education and training programs to enhance their understanding of cassava product processing and improve their economic opportunities.

Keywords: Cassava growers, socio-demography, value-added products of cassava, processing methods of cassava products, awareness and knowledge

Introduction

Cassava (*Manihot esculenta* Crantz), which was introduced into India by the Portuguese during the 17th century as a food crop, is gradually changing its role as an industrial raw material. The importance of cassava as a food crop was well recognized in Kerala, south India during the 20th century, when famine struck India at the time of the Second World War.

Globally, cassava is grown in an area of 29.65 million hectares producing 314.81 million tons with an average productivity of 10.62 tons per hectare during 2021. Nigeria (20.02%), Democratic Republic of Congo (14.51%), Thailand (9.56%), Ghana (7.20%) and Brazil (5.75%) are the major cassava producing countries. In India, cassava is cultivated in an area of 1.83 lakh hectare with a production of 6.94 million tons. India ranks second in the world in terms of productivity of cassava with 37.93 t/ha as against the world average of 10.62 t/ha (FAO, 2021) ^[2].

Cassava is cultivated in nine states, with three southern states namely Tamil Nadu, Kerala and Andhra Pradesh contributing over 97% of the total cassava production in the country (APEDA, 2022) ^[1]. Cassava is a secondary staple food in Kerala, while it is an industrial crop in Tamil Nadu and Andhra Pradesh Karnataka. Cassava is mainly used for human consumption, industrial applications and animal feed

sector in India. Around 60% of the total cassava produced in India is used as a raw material to produce starch, sago and dry chips and it has scope for wider applications in food, paper and textile industries.

Prominent Districts and Production Trends

Mysuru emerges as the leading district in cassava cultivation, with 888 hectares contributing to a production of 11,540 tonnes and an impressive yield of 12,995 kilograms per hectare. Kodagu and Uttara Kannada also stand out, with 80 hectares and 101 hectares, respectively, and substantial yields of 12,286 kilograms and 12,549 kilograms per hectare, producing 983 tonnes and 1,267 tonnes. Kalburgi and Bidar are other significant contributors, with production figures of 840 tonnes and 693 tonnes, respectively, supported by their high yields.

Livelihood and Adoption of Cassava Crop in the Western Ghats

In the Western Ghats of Karnataka, where smallholder farmers largely rely on diverse cropping systems for their livelihood, cassava plays an important but supplementary role. Its cultivation offers a unique advantage in the region, especially for households dependent on rain-fed agriculture. Cassava's resilience to drought and ability to thrive in a

range of soil conditions make it an ideal crop for the unpredictable monsoon climate of the Western Ghats. Many rural families grow cassava alongside staple crops like rice, arecanut, and coconut, using it as a fallback crop during lean seasons when other crops may not perform well.

Objective

To assess the socio-demographic profile of cassava growers and their awareness and knowledge about value-added products of cassava.

Materials and Methods

The present investigation based on the objective “To assess the socio-demographic profile of cassava growers and their awareness and knowledge about value-added products of cassava.” was carried out in the Department of Family Resource Management, College of Community Science, University of Agricultural Sciences, Dharwad.

The research design is the planned structure and strategy of investigation, conceived to obtain answers to research questions (Hansraj, 1992) [3]. An exploratory study was conducted in the Uttara Kannada district, focusing on four taluks: Joida, Sirsi, Yellapur, and Siddapur. A total sample size of 280 cassava growers was selected, with 70 samples from each taluk.

In line with the objectives of the study, a purposive random sampling technique was adopted. A structured interview schedule, developed based on a thorough review of relevant literature, was used to collect the required information from cassava growers. The interview schedule was pre-tested in a non-sample area, and suitable modifications were made accordingly. Data were collected through personal interviews with the cassava growers.

Awareness was operationalized as the respondent's level of understanding of various products. To calculate the awareness levels, a awareness Index test was used for the study. A score of one was given for a correct answer and zero for a wrong answer.

$$\text{Awareness Index (AI)} = \frac{\text{Obtained knowledge score}}{\text{Maximum knowledge score}} \times 100$$

Sl. No	Category	Score
1	Low	Mean ± SD
2	Medium	Mean ± SD
3	High	Mean ± SD

Total awareness score was calculated by summing up the scores. Awareness index was worked out using the above formula. Further, respondents were arranged into categories of low, medium and high based on scores.

Knowledge was operationalized as the respondent's level of understanding of various processing technologies. To calculate the knowledge levels, a knowledge Index test was used for the study. A score of one was given for a correct answer and zero for a wrong answer.

$$\text{Knowledge Index (KI)} = \frac{\text{Obtained knowledge score}}{\text{Maximum knowledge score}} \times 100$$

Sl. No	Category	Score
1	Low	Mean ± SD
2	Medium	Mean ± SD
3	High	Mean ± SD

Total knowledge score was calculated by summing up the scores. Knowledge index was worked out using the above formula. Further, respondents were arranged into categories of low, medium and high based on scores.

Results and Discussion

The data presented in Table 1 shows that the age of the cassava growers grouped into three categories viz., less than 35 years (Young), 35 to 55 years (Middle) and more than 55 years (Old). Indicating that this age group plays a significant role in cassava farming activities. Middle-aged farmers are likely to be in their prime working years, possessing the physical ability and experience necessary for efficient farming practices. Their dominance in cassava farming may also reflect their capacity to adapt to evolving agricultural technologies and management strategies. Results showed that, the highest percentage (61.43%) of cassava growers belongs to middle (35-55 years) age group. While 23.57 per cent of the cassava growers belonged to old age group (more than 55 years) and remaining 15.00 per cent belongs to young age (less than 35 years) group. While they may bring extensive experience and traditional knowledge to farming, their participation might be limited by physical constraints or health issues. The results in line with Jadhav *et al.*, (2022) [4] reported highest percentage (65.00%) of the tuber growers belongs to middle (30-60 years) age group and only 6.66 per cent belongs to old (more than 60) age group. Joshi *et al.* (2022) [6] found that highest percentage (63.33%) of the tuber growers belongs to middle (30-60 years) age group and only 6.66 per cent belongs to old (more than 60) age group. The majority (51.83%) of cassava growers belonged to nuclear family and 48.57 per cent of cassava growers belonged to joint family. The nearly balanced representation of nuclear and joint families suggests that both family types contribute significantly to cassava farming. However, the slight dominance of nuclear families may signal challenges for labor-intensive activities, as smaller families have fewer members to participate in farming. This could lead to a greater reliance on hired labor or mechanization, potentially increasing production costs. Results were similar with Jadhav *et al.*, 2022 [4] reported that majority (95.00%) of the tuber growers belongs to nuclear family. Joshi *et al.* (2022) [6] found that majority (90.00%) of the tuber growers belongs to nuclear family and only 10 per cent tuber growers belongs to joint family. Mesta and Pushpabharati (2017) [7], reported that majority 40 per cent of the respondents belongs to nuclear family with family size 3 to 5. The distribution of cassava growers by family size highlights a concentration in medium-sized families (4-6 members), which accounts for the largest proportion (42.14%). This suggests that medium-sized families may strike a balance between the advantages of shared labor and manageable household demands. The second-largest group (32.50%) consists of small families (1-3 members).

Table 1: Socio-demography profile of the cassava growers in the study area.

Sl. No.	Particulars	Unit	Joida	Sirsi	Yallapur	Siddapur	Pooled
	Sample farmers	Nos	n1=70 (100%)	n2=70 (100%)	n3=70 (100%)	n4=70 (100%)	n=280 (100%)
I	Age of cassava growers						
1	Young (<35)	Nos	11 (15.71)	12 (17.14)	9 (12.86)	10 (14.29)	42 (15.00)
2	Middle (36-50)	Nos	46 (65.71)	48 (68.57)	37 (52.86)	41 (58.57)	172 (61.43)
3	Old (>50)	Nos	13 (18.57)	10 (14.29)	24 (34.29)	19 (27.14)	66 (23.57)
II	Family type						
1	Nuclear	Nos	40 (57.14)	35 (50.00)	32 (45.71)	37 (52.86)	144 (51.83)
2	Joint	Nos	30 (42.86)	35 (50.00)	38 (54.29)	33 (47.14)	136 (48.57)
III	Family size						
1	Small (1-3)	Nos	15 (21.42)	32 (45.71)	25 (35.71)	19 (27.14)	91 (32.50)
2	Medium (4-6)	Nos	37 (52.86)	20 (28.57)	19 (27.14)	42 (60.00)	118 (42.14)
3	Large (7-9)	Nos	10 (14.29)	14 (20.00)	16 (22.86)	7 (10.00)	47 (16.79)
	Very large (>9)	Nos	8 (11.43)	4 (5.71)	10 (14.29)	2 (2.86)	24 (8.57)
IV	Education						
1	Illiterates	Nos	19 (27.14)	2 (2.86)	5 (7.14)	4 (5.71)	30 (10.71)
2	Primary	Nos	14 (20.00)	20 (28.57)	10 (14.29)	12 (17.14)	56 (20.00)
3	Middle school	Nos	10 (14.29)	15 (21.43)	10 (14.29)	22 (31.34)	57 (20.36)
4	High school	Nos	12 (17.14)	18 (25.71)	12 (17.14)	2 (2.86)	44 (15.71)
5	Higher secondary/ Post-high school diploma	Nos	15 (21.43)	13 (18.57)	23 (32.86)	28 (40.00)	79 (28.21)
6	Graduate	Nos	-	-	6 (8.57)	2 (2.86)	8 (2.86)
7	Post-graduate	Nos	-	2 (2.86)	4 (5.71)		6 (2.14)
V	Occupation						
a	Agriculture (Main)	Nos	60 (85.71)	50 (71.43)	46 (65.71)	32 (45.71)	188 (67.14)
b	Agriculture and other subsidiaries	Nos	9 (12.86)	18 (25.71)	18 (25.71)	37 (52.86)	82 (29.29)
c	Employer	Nos	1 (1.43)	2 (2.86)	6 (8.57)	1 (1.43)	10 (3.57)
Sl. No.	Particulars	Unit	Joida	Sirsi	Yallapur	Siddapur	Pooled
VI	Land holding (acres)						
1	Marginal (< 2.50)	Nos	19 (27.14)	30 (42.86)	32 (45.71)	23 (32.86)	104 (37.14)
2	Small (2.50-5.00)	Nos	24 (34.29)	18 (25.71)	26 (37.14)	15 (21.43)	83 (29.64)
3	Semi-medium (6.00-10.00)	Nos	22 (31.43)	15 (21.43)	10 (14.29)	28 (40.00)	75 (26.79)
4	Medium (11.00-25.00)	Nos	5 (7.14)	5 (7.14)	2 (2.86)	3 (4.29)	15 (5.36)
5	Large (>25.00)	Nos	-	2 (2.86)	-	1 (1.43)	3 (1.07)
VII	Area under cassava crop (acres)						
1	Marginal (< 2.50)	Nos	50 (71.43)	41 (58.57)	50 (71.43)	28 (40.00)	169 (60.36)
2	Small (2.50-5.00)	Nos	15 (21.43)	19 (27.14)	14 (20.00)	34 (48.57)	82 (29.29)
3	Semi-medium (6.00-10.00)	Nos	5 (7.14)	10 (4.29)	6 (8.57)	8 (11.43)	29 (10.36)
4	Medium (11.00-25.00)	Nos	-	-	-	-	-
5	Large (>25.00)	Nos	-	-	-	-	-
VIII	Farming experience						
1	Low (Up to 8 years)	Nos	6 (8.57)	20 (28.57)	31 (44.29)	22 (31.43)	79 (28.21)
2	Medium (9-6 year)	Nos	11 (15.71)	38 (54.29)	37 (52.86)	35 (50.00)	121 (43.21)
3	High (>17 years)	Nos	53 (75.71)	12 (17.14)	2 (2.86)	13 (18.57)	80 (28.57)
VIII	Cassava farming experience						
1	Low (Up to 8 years)	Nos	9 (12.86)	24 (34.29)	38 (54.29)	25 (35.71)	96 (34.29)
2	Medium (9-6 year)	Nos	10 (14.29)	34 (48.57)	30 (42.86)	33 (47.14)	107 (38.21)
3	High (>17 years)	Nos	51 (72.86)	12 (17.14)	2 (2.86)	12 (17.14)	77 (27.50)
IX	Annual income						
1	Less than Rs 25,000	Nos	6 (8.57)	2 (2.86)	-	1 (1.43)	9 (3.21)
2	Rs. 26,000-50,000	Nos	12 (17.14)	3 (4.29)	4 (5.71)	10 (14.29)	29 (10.36)
3	Rs. 51,000-75,000	Nos	14 (20.00)	10 (14.29)	2 (2.86)	14 (20.00)	40 (14.29)
4	Rs. 76,000-1,00,000	Nos	20 (28.57)	7 (10.00)	38 (54.29)	15 (21.43)	80 (28.57)
5	Rs.1,01,000-2,00,000	Nos	11 (15.71)	12 (17.14)	5 (7.14)	20 (28.57)	48 (17.14)
6	>Rs. 2,00,000	Nos	7 (10.00)	36 (51.43)	21 (30.00)	10 (14.29)	74 (26.43)

While these families may face challenges in providing sufficient labor for cassava farming, they might benefit from reduced household expenditure and greater adaptability to modern farming technologies, which often require fewer labor inputs. This group could represent an emerging trend of smaller households due to changing societal structures, urban migration, or economic constraints. Large families (7-9 members) make up 16.79% of the cassava-growing population. Finally, very large families (more than 9

members) form a small percentage (8.57%). Similar results found with Sigde *et al.* (2014)^[8] found that the majority of the respondents (52.84%) had 5 to 7 family members followed by the respondents having less than 5 members in their family and the respondents having more than 7 members in their family. Thus it was concluded that majority of respondents belong to middle size family (Having 5 to 7 family members). Sharma *et al.* (2015)^[10] reported that that family size of majority of the participants

(55.00%) and non-participants (56.67%) was medium size family (5-7 members). The educational profile of cassava growers indicates that a significant proportion (28.21%) have attained higher secondary or post-high school diploma levels, suggesting that education beyond basic schooling is relatively common in this group. This level of education may equip growers with better skills for managing farming activities, adopting modern agricultural practices, and utilizing available resources efficiently. The next largest groups are those who completed middle school (20.36%) and primary school (20.00%) education. These growers may rely more on traditional farming knowledge and practices, which can be effective but may limit their ability to fully exploit advancements in agricultural technology and innovation. High school graduates constitute 15.71%, reflecting a moderate level of formal education. This group might represent a transition between traditional and modern farming approaches, as their education level provides foundational skills for adopting newer methods. The illiterate group (10.71%) represents a notable segment of the cassava-growing population. These growers may face challenges in accessing written agricultural information, applying advanced techniques, or navigating formal agricultural support systems. Literacy programs and accessible extension services could greatly benefit this group. Graduates (2.86%) and post-graduates (2.14%) form a small proportion of cassava growers. Similar Sreekanth (2019) ^[9] reported that, 49.17 per cent of the respondents (cassavas growers) were educated up to collegiate level followed by 19.17 per cent of the respondents were educated up to higher secondary (11th to 12th std), then followed by post graduates educates which forms 16.67 per cent of the respondents. The high school category was found to be 12.50 per cent whereas illiterate, primary school and middle school categories were observed to be 0.83 per cent only. Average education of respondents shown to be appeared for degree level education. Jadhav *et al.*, 2022 ^[4] fund that majority of the tuber growers were illiterate (51.66%) and 6.66 per cent of them completed high school education. Joshi *et al.* (2022) ^[6] reported that majority of the tuber growers were illiterate (36.66%) and 6.66 per cent of them completed high school education. Regarding occupation, majority of the cassava growers main occupation was agriculture (67.14%) and 29.29 per cent cassava growers belonged to agriculture and other subsidiaries viz., dairy farming, fishery and seedling or plantation crop seedlings and remaining 3.57 per cent belonged to agriculture with employer. The similar results fund with Jadhav *et al.*, 2022 ^[4] reported that majority of the tuber grower's main occupation was agriculture (100.00) in study area. Around 90 per cent of the farmers were involved in agriculture. Similar results fund with Joshi *et al.*, (2022) ^[6] majority of the tuber grower's main occupation was agriculture (86.66%) in study area. The results are in reported with Jaganathan *et al.* (2019) ^[5], major source of income in study area was agriculture (83.54%). And also, the results similar with Mesta and Pushpa Bharati (2017) ^[7], around 90 per cent of the farmers were involved in agriculture. Highest percentage (37.14%) of the cassava growers were having marginal land (less than 2.50 acre), followed by 29.64 per cent of the cassava growers having small land (2.50-5.00 acre), Together, these two groups account for nearly two-

thirds of cassava growers, emphasizing the reliance on small land parcels for cassava cultivation. These smallholders likely face challenges such as limited production capacity, constrained access to mechanization, and dependency on intensive labor. 26.79 per cent growers having semi-medium land (6.00-10.00 acre), reflecting a moderate level of land access that could enable greater productivity and diversification compared to smaller holdings. This group has the potential to adopt improved farming techniques, benefiting from economies of scale and better access to resources. 5.36 per cent of the cassava growers having medium land (11.00-25.00 acre) and 1.07 per cent having large land (more than 25.00 acre) group. Similar results fund in Sreekanth (2019) ^[9] nearly three fourth of the cassava farmers (73.33%) had marginal size of land holding (up to 1.00 ha) followed by 22.50 percent cassava farmers had small size (1.01 to 2.00 ha) of land holding, while respondents having semi medium (2.01 to 4.00 ha) was 3.33 per cent and respondents having medium farm size (4.01 to 10.00 ha) was 0.84 per cent and there was no respondent who belonged to large size (above 10 ha) category. Mean land holding shows that an average land holding of cassava farmers in study area was 1.12 hectares. Joshi *et al.* (2022) ^[6] found that highest percentage (56.66%) of the tuber growers were having small land (0-5 acre) and few tuber growers were possessing large (more than 10 acres) land. Jadhav *et al.*, 2022 ^[4] reported that with respect to possession of agriculture land, highest percentage (65.00%) of the tuber growers were having small land (0-5 acre) and few tuber growers possessed large (more than 10 acres) land. The farming experience of cassava growers shows a balanced distribution across three categories, with the largest proportion (43.21%) having medium experience (9-16 years). Growers with high farming experience (>17 years) account for 28.57% of the population. A comparable proportion (28.21%) of cassava growers have low farming experience (up to 8 years). Similar results fund with Fayaz (2015) ^[11] in his study on impact of entrepreneurial behaviour on farming performance of cotton growers in Kurnool district of Andhra Pradesh discovered that majority (64.17 per cent) of the respondents had medium level of farming experience followed by low (19.17 per cent) and high level of experience (16.66 per cent) in farming. Jadhav *et al.*, 2022 ^[4] found that 46.66 per cent of the tuber growers having 10 to 20 (medium) years of tuber cultivation experience and only 13.33 per cent having more than 20 (High) years of experience. The cassava farming experience of growers reflects a range of expertise, with the majority (38.21%) having medium experience (9-16 years) in cassava cultivation. Growers with low cassava farming experience (up to 8 years) make up 34.29%, indicating that a significant portion of farmers are relatively new to cassava cultivation. The high-experience group (>17 years) constitutes 27.50% of cassava growers. The results in line with Jadhav *et al.*, 2022 ^[4] found that 46.66 per cent of the tuber growers having 10 to 20 (medium) years of tuber cultivation experience and only 13.33 per cent having more than 20 (high) years of experience. Sreekanth (2019) ^[9] majority of the respondents (69.17%) had medium level of experience in cassava cultivation (7.1 to 24 years), whereas 19.16 per cent and 11.67 per cent of the respondents had high (24.1 and above years) and low level (up to 7 years) of farming

experience in cassava cultivation. A significant majority (60.36%) of cassava growers cultivate cassava on marginal areas (less than 2.50 acres), indicating that most farmers rely on very limited land resources for production. This highlights the prevalence of smallholder agriculture in cassava farming and underscores potential challenges such as limited economies of scale, resource constraints, and low output per farmer. Another 29.29% of growers cultivate cassava on small land areas (2.50-5.00 acres). Smaller proportions (10.36%) of cassava growers have semi-medium areas (6.00-10.00 acres) under cassava cultivation. These farmers may have relatively better access to resources and the potential to adopt improved farming practices and technologies compared to their counterparts with smaller landholdings. The absence of medium (11.00-25.00 acres) and large (>25.00 acres) landholdings under cassava cultivation suggests that cassava farming is predominantly a smallholder activity in the study area. The on par results found with Jadhav *et al.* (2022) ^[4] With respect to possession of agriculture land, highest per cent (65.00%) of the tuber growers were having small land (0-5 acre) and few tuber growers were possessing large (more than 10 acres) land. Mesta and Pushpabharati (2017) ^[7], reported that the majority 73.33 per cent of the respondents having less than 5 acres land. The annual income distribution among cassava growers reflects varying economic conditions within the farming community. The majority (28.57%) of the cassava growers belonged to income range (Rs.76, 000-1, 00, 000), followed by 26.43 per of the cassava growers belonged to

income was (>Rs.2,00,000) range, 17.14 per cent of the cassava growers having income (Rs.1,00,001-2,00,000) range, 14.27 per cent of the cassava growers having income (Rs.51,000-75,000) range, 10.36 per cent of the growers having income (Rs.26,000-50,000) range and 3.21 per cent of them having income (<Rs.25,000) range. The income distribution underscores the economic disparities among cassava growers. The similar results are reported by Raju Jat (2016) showed that majority of the beneficiaries 36.00 per cent were of medium annual income group followed by 34.70 per cent were high annual income group and 29.30 per cent were low annual income group respectively. Anu (2017) found out that about 36 percent of the respondents had low annual income. 35 per cent of the farmers had medium annual income and only 29 per cent of the respondents have high level of income. Sreekanth (2019) ^[9] reported that majority of the respondents 56.67 per cent had high annual income (Above ₹.3,00,001), followed by medium (Rs 1,50,001 to 3,00,000) by 33.33 per cent respondents, while the low annual income (up to Rs.1,50,000) was possessed by 10.00 percent of the respondents. Jadhav *et al.*, (2022) ^[4] reported that 58.33 per cent of the tuber growers fall in medium income (Rs. 1-2.5 lakh) group and 25 per cent of them belongs to high income (more than 2.5 lakh) group. Joshi *et al.* (2022) ^[6] the present study indicates that, 50 per cent of the tuber growers fall in medium income (Rs. 1-2.5 lakh) group and 20 per cent of them belongs to high income (more than 2.5 lakh) group.

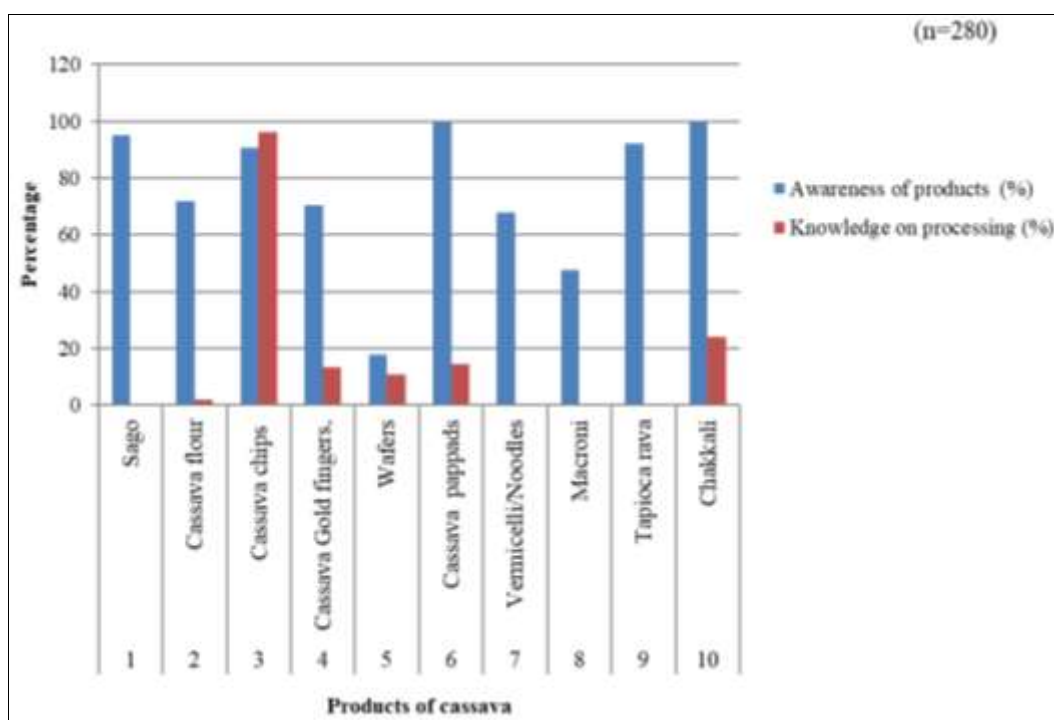


Fig 1: Awareness and knowledge of cassava growers regarding value-added products and processing.

It is clear from the Fig.1 shows the cassava as raw material for industrial products sago was the most recognized product, with 95 per cent of cassava growers aware of its industrial use, followed by Starch (46.43%) was recognized by of cassava growers and Awareness of glucose were 94.29 per cent. while dextrin, ethyl, and fructose syrup were

(100%) of cassava growers unaware of these products. Edible Cassava Products Cassava pappads, pakoda, and chakkali had cent per cent (100%) awareness among the respondents. The majority (95% and 90.71%) of cassava growers were aware of sago and cassava chips in study area. Followed by Cassava flour and tapioca rava were 71.79 per

cent and 92.14 per cent, respectively. Cassava Gold fingers, vermicelli/noodles, and vade were aware by 70.36 per cent to 95.71 per cent of cassava grower. Awareness of wafers, macroni, biscuits, bread, cake, and ice cream was low, with the majority of respondents unaware of these products. By-products of cassava for animal feed cassava leaves were universally recognized as cattle feed, with (100%) of cassava growers aware of this use. Only few 8.93 per cent of them aware Silkworm feed from cassava leaves in the study area. No awareness was found for thippi flour for fish feed and bharda for swine feed, with (100%) of respondents unaware of these applications. Poultry feed was recognized by only 0.71 per cent of cassava growers. Non-edible cassava applications for industrial use majority gums had 68.21 per cent awareness among cassava growers, followed by biodegradable plastic bags and textile starch were known

by 20.71 per cent and 43.21 per cent of cassava growers, respectively. Awareness of oxidized starches, methane gas production, explosives, cosmetics, pharmaceuticals, and construction materials was absent, with cent per cent of cassava growers unaware of these products. Paper made from cassava was recognized by 46.07 per cent of respondents, pharmaceuticals had awareness from 20.71 per cent of cassava growers. The similar results observed with a major cassava-growing region, found that only 30% of farmers were aware of cassava's potential in value-added industries. In another study in Ghana, about 45% of farmers had limited awareness of cassava's industrial uses and the economic potential of cassava starch and flour. Ramanathan *et al.* (2019)^[12] in Tamil Nadu revealed that 40% of farmers were unaware of cassava's use as animal feed.

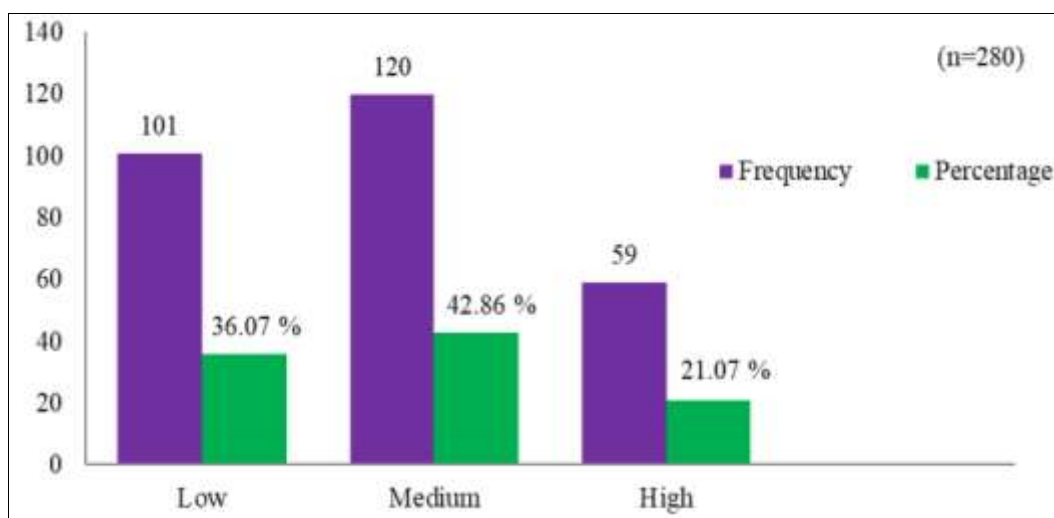


Fig 2: Distribution of cassava growers based on their level of awareness about cassava value-added products in the study area.

Table 21 shows that the majority of respondents (42.86%) had a medium level of knowledge about value-added products, followed by 36.07 per cent with low knowledge and 21.07 per cent with high knowledge. Similar results found with Abdoulaye (2014)^[13] Low awareness (For

awareness level of between 0-39 per cent, (b) Average awareness (For awareness level of between 40-69 per cents; and (c) High awareness (For awareness level of between 70-100%). Sharma & Verma, (2019)^[14].

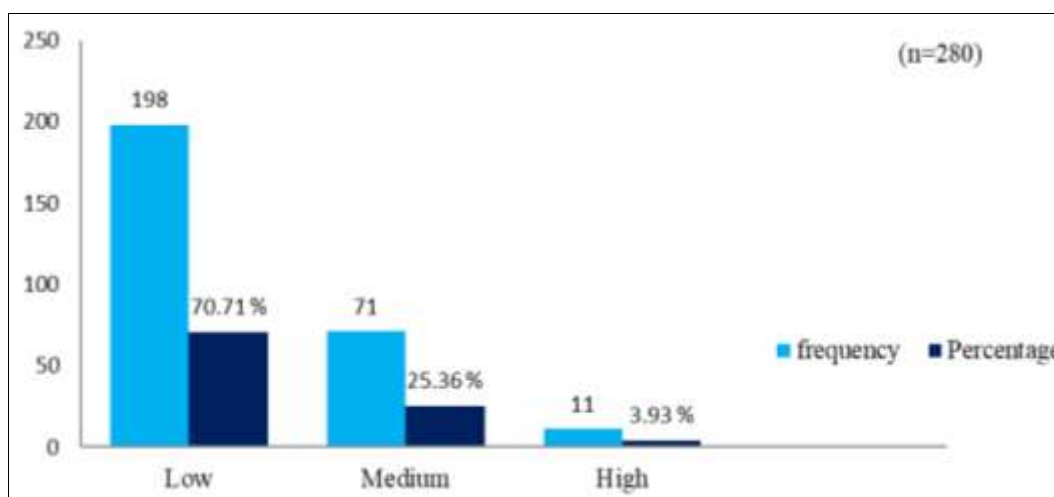


Fig 3: Distribution of cassava growers based on their level of knowledge about the processing of value-added cassava products in the study area.

Cassava pappads and chakkali were cassava growers cent per cent (100%) were aware of cassava pappads as a value-added product, but (85.36 and 23.93%) did not have the knowledge to process them, respectively. Followed by 95.00 per cent of cassava grower's awareness of sago as a cassava value-added product. However, no cassava growers had knowledge of how to process it, as all cassava growers cent per cent (100%) indicated they did not know the processing method. Cassava rava, cassava rava had high awareness, with 92.14 per cent of cassava growers indicating they were aware of it. Despite this, none of the respondents (100%) had knowledge of its processing. Cassava chips the majority (96.07%) of cassava growers were aware, regarding knowledge of the processing, 90.71 per cent of the cassava growers had knowledge about processing. Followed by 71.79 per cent of the cassava growers were aware of cassava flour, in terms of knowledge of the processing, 2.14 per cent of cassava growers knew how to process cassava flour, while 97.86% did not. Awareness of cassava gold fingers was with 70.36 per cent aware of it. Among those who were aware, 13.21 per cent had knowledge of the processing, while 86.79 per cent were not familiar with how to process cassava into gold fingers.

The majority of cassava growers (67.86%) were aware of vermicelli/noodles as a cassava product, while 32.14 per cent were not. None of the cassava growers knew how to process vermicelli or noodles from cassava, as cent per cent (100%) lacked processing knowledge. Followed by awareness of macroni as a cassava product was moderate, with 47.5 per cent of cassava growers aware of it, and 52.5 per cent were not. Similar to other products, none of them (100%) had knowledge of how to process macaroni from cassava. Awareness of cassava wafers was low, with only 17.86 per cent of cassava growers indicating awareness. Additionally, 82.14 per cent of respondents were unaware of this product. Knowledge about the processing of wafers was even more limited, with only 10.71 per cent knowing how to process them, while the remaining 88.21 per cent had no knowledge. The supporting results with Raghavendra *et al.* (2021) ^[15] in Andhra Pradesh and Karnataka showed that only 15% of cassava farmers were aware of bio-ethanol production from cassava. Singh *et al.* (2018) ^[16], reported that 60% of the cassava farmers in Kerala had minimal knowledge of cassava's potential beyond food uses, with many unaware of its applications in industries such as textiles, pharmaceuticals, and bio-fuels.

Conclusion

The socio-demographic profile of cassava growers reveals key insights into the farming community, with a predominant middle-aged group engaged in cassava cultivation. Most growers belong to small or medium-sized families and are primarily involved in agriculture as their main occupation. Education levels vary, but a significant portion has completed higher secondary education, suggesting openness to adopting modern practices. The majority of cassava farmers own small landholdings, with limited farming experience. Awareness of value-added cassava products, particularly industrial products like sago, is widespread, though knowledge of processing these products remains limited. The majority of farmers are not familiar with processing cassava into value-added items

such as flour, chips, and noodles. There is a noticeable gap in knowledge regarding cassava's non-edible uses for animal feed and industrial applications. Overall, while cassava growers show awareness of the potential of cassava, there is a significant need for training and information dissemination to enhance processing knowledge and improve productivity. The findings underscore the importance of extending education and technological support to cassava growers for better integration into value-added industries.

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