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### An assessment on the entrepreneurial behaviour of cassava growers in Thiruvananthapuram district of Kerala state

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#### Abstract

The study was conducted in two blocks of Thiruvananthapuram district of Kerala state during 2020-2021 to analyse the entrepreneurial behaviour of cassava growers. The Ex-post-facto research design has been adopted in the present study. A total of 120 cassava growers were selected using simple random sampling techniques from three villages in each block. Personal interview method was used to collect data and appropriate statistical tools were applied to analyse the data. Regarding different dimensions of entrepreneurial behavior among cassava growers, findings indicated that 43.33% exhibited a medium level of innovativeness, while 41.67% fell into the medium category for achievement motivation. Similarly, 35.83% showed a medium level of economic motivation, and 38.33% possessed a medium level of technical competency. Additionally, more than one-third (38.33%) demonstrated a high level of decision-making ability, while 40.83% exhibited a medium level of risk-bearing ability. Furthermore, an equal proportion (35.00% each) showed medium and high levels of information-seeking behavior, and 40.00% displayed a medium level of scientific orientation. Around 46.67% showed a medium level of leadership orientation, 45.00% displayed a medium level of management orientation, and 38.33% exhibited a medium level of marketing strategy. The overall entrepreneurial behavior score based on the cumulative raw scores of all the eleven dimensions revealed that, more than half (52.50%) of them belonged to medium entrepreneurial behaviour, followed by high (27.50%) and low (20.00%) entrepreneurial behaviour categories, respectively.

**Keywords:** Entrepreneurial behaviour of cassava growers, ex-post-facto research design

#### Introduction

Agriculture, which is the mainstay of India's rural sector, holds significant importance in both socio-economic development and revenue generation. However, there has been a noticeable decline in the agriculture sector's contribution to the GDP which has prompted discussions about potential solutions to address farmers' issues through a transformative approach. One promising avenue involves shifting resources from monoculture towards a more diversified mix of crops, particularly emphasizing horticultural crops. This shift towards diversification in agriculture is seen as a promising sign for addressing the challenges faced by farmers.

Roots and tubers have historically played a significant role in addressing poverty and ensuring food security. They provide approximately six percent of the world's dietary calories and are considered crucial food crops alongside cereals and grain legumes (Anonymous, 2015) [3]. In addition to being staples in the diets of people in developing countries, they serve various purposes such as animal feed, starch production, and the making of fermented foods and beverages. Cultivating tubers is recognized as an effective means to improve income, food security, employment opportunities, and earnings through value addition.

Cassava (*Manihot esculenta*), often referred to as the "king

of tropical tuber crops," is widely grown as a root crop in tropical regions. Cassava cultivation is widespread across thirteen states in India, with the highest production concentrated in the southern states of Kerala, Tamil Nadu, and Andhra Pradesh. The introduction of cassava to India can be traced back to the Portuguese from Brazil, who brought it to the Malabar region of Kerala state during the 17th century (Edison *et al.*, 2006) [7]. Considered a vital crop for food security, cassava is cultivated in various production systems in Kerala, including monocrop and intercrop methods. It is notable as a special crop due to its minimal requirement for mechanization or purchased inputs, and its ability to thrive in adverse conditions with rapid multiplication. In Kerala, cassava production has been recognized as an excellent opportunity for marketing, processing, and value addition in terms of agribusiness. While traditionally considered a "poor man's crop" and crucial for meeting basic food demands, cassava now holds potential as a commodity for value addition and industrial purposes. This transition not only enhances economic benefits at the macro level but also contributes significantly to the global expansion of cassava cultivation.

Cassava stands out as an excellent option for farmers entering the agricultural sector due to its numerous benefits. Its high yield per unit of land makes it economically feasible

for farmers, especially those with limited acreage. Furthermore, its ability to thrive in adverse environmental conditions, such as drought and poor soil quality, adds to its appeal as a crop choice. Additionally, cassava offers extensive opportunities for processing and value addition, which can greatly enhance its profitability. This includes the production of cassava flour, starch, and ethanol, as well as the creation of various food products like chips, snacks, and gluten-free alternatives. These diverse processing options not only expand market possibilities but also enable farmers to diversify their income sources.

The entrepreneurial qualities of a cassava grower are instrumental in sustaining profitability on the farm and fostering growth within farming communities. Factors such as knowledge of farm activities, risk tolerance, social engagement, scientific inclination, and more contribute to creating an entrepreneurial environment conducive to progress in both business and agriculture. Entrepreneurship in tuber crops, particularly cassava, signifies a shift from traditional farming practices to embracing business opportunities. This transition represents a changing mode of development that capitalizes on the inherent potential of cassava cultivation for economic advancement.

### Methodology

The study was conducted in Thiruvananthapuram district of Kerala state during 2020-2021. Thiruvananthapuram district was purposively chosen for the study since it holds the top position in cassava cultivation among all districts in the state, with a cultivation area spanning 13,037.83 hectares. Additionally, it leads in cassava production, yielding 4,75,449.148 tonnes, compared to other districts in Kerala (Anonymous, 2020) <sup>[3]</sup>. Two blocks within Thiruvananthapuram district, namely Kilimanoor and Varkala, were purposefully chosen for the study due to their notable cassava cultivation areas. Kilimanoor block has the highest cassava cultivation area of 2,734.05 hectares, while Varkala follows closely with 1,305.05 hectares, surpassing other blocks in the district (Anonymous, 2020) <sup>[4]</sup>. Three villages with the highest cassava production were purposively selected from each block. After consulting with concerned officials, a list of cassava growers was compiled from the six villages. A shortlist containing detailed information about these growers was then prepared. Twenty growers were randomly selected from each village. This resulted in a total of 120 respondents for the study.

Entrepreneurial behaviour of cassava grower is operationally defined as the combination of various socio-psychological, cognitive, affective and skill traits of an individual cassava grower to operate his enterprises successfully to earn higher economic returns. The entrepreneurial behavior of cassava growers was assessed using a scale developed by Shirur (2015) <sup>[13]</sup> with suitable modifications. This scale comprises eleven dimensions: innovativeness, achievement motivation, economic motivation, technical competency, decision-making ability, risk-bearing ability, information-seeking behavior, scientific orientation, leadership orientation, management orientation, and marketing strategy. Cassava growers responded on a four-point scale ranging from "Mostly Agree" (MA), "Agree" (A), "Somewhat Agree" (SWA), to "Not Agree" (NA), corresponding to scores of 4, 3, 2, and 1, respectively,

for positive statements. For negative statements, a reverse scoring pattern was applied (1, 2, 3, and 4). Scores on the scale ranged from a minimum of 81 to a maximum of 324. Based on the scores obtained across all dimensions of entrepreneurial behavior measured in the scale for cassava growers, the respondents were categorized into three categories of entrepreneurial behaviour namely low, medium and high based on mean and standard deviation.

### Results and Discussions

Table 1 and figure 1 presents the data on the dimension-wise entrepreneurial behaviour of cassava growers.

A significant portion (43.33%) of cassava growers exhibit a medium level of innovativeness, followed by high (30.00%) and low (26.67%) levels. This prevalence of medium innovativeness among respondents may evolve from their moderate engagement in extension activities, mass media programs, and involvement in social organizations. The lower level of innovativeness is attributed to their inclination to wait for other members of the social system to adopt innovations first, observing their outcomes before deciding to adopt later. These findings align with those reported by Reddy (2004) <sup>[11]</sup> and Patel *et al.* (2014) <sup>[10]</sup>.

The data suggests that 41.67% of cassava growers exhibited a medium level of achievement motivation, followed by high (32.50%) and low (25.83%) levels. Achievement motivation plays a crucial role in driving individuals toward their goals, acting as a psychological factor that spurs farmers to pursue their objectives. The predominance of medium achievement motivation among respondents may be attributed to external influences such as familial responsibilities, educational pursuits, and the marriage of children. These factors reflect the collaborative efforts of all family members in striving towards their predetermined goals. These findings align with previous studies conducted by Ali (2017) <sup>[1]</sup> and Shreekanth and Jahagirdar (2017) <sup>[15]</sup>.

It is evident that 35.83% of cassava growers fall into the medium level of economic motivation, closely followed by high (35.00%) and low (29.17%) levels. This distribution could be attributed to the substantial investments made by farmers to achieve higher yields. Consequently, they are highly motivated to explore innovative ideas and improve marketing practices to increase profitability. These findings are consistent with studies conducted by Nagesh (2006) <sup>[9]</sup> and Sharma *et al.* (2014) <sup>[10]</sup>.

The majority of cassava growers (38.33%) demonstrated a medium level of technical competency, with high (34.17%) and low (27.50%) levels following closely behind. Technical competency encompasses understanding and skills in farming practices aimed at ensuring higher yields and profits. The prevalence of a medium level of technical competency among respondents can be attributed to their moderate level of information and knowledge spanning all aspects of cassava cultivation, marketing, and processing operations. These findings are consistent with those reported by Shirur (2015) <sup>[13]</sup>.

A significant proportion of cassava growers (38.33%) demonstrated a high level of decision-making ability, with medium (36.67%) and low (25.00%) levels following closely behind. The respondents' high decision-making ability could be attributed to their extensive experience in cassava cultivation, enabling them to make informed

decisions at the right time. Additionally, the majority of cassava growers being middle-aged may have contributed to their ability to anticipate changes and make effective decisions regarding the adoption or rejection of innovations. These findings are consistent with those observed by Sharma *et al.* (2014)<sup>[10]</sup> and Sumana (2017)<sup>[17]</sup>.

A majority of cassava growers (40.83%) were categorized as having a medium level of risk-bearing ability, followed by high (31.67%) and low (27.50%) levels. The

predominant medium level of risk-bearing ability may stem from their apprehension about potential failure in adopting new farming practices. Their cautious nature leads them to fear a decline in income, especially considering farming as a primary source of livelihood. Consequently, they tend to wait for other farmers to adopt new technologies first before they themselves adopt them. These findings are supported by studies conducted by Doddamani (2014)<sup>[6]</sup>, Wanole (2016)<sup>[18]</sup>, and Sumana (2017)<sup>[17]</sup>.

**Table 1:** Dimension-wise entrepreneurial behaviour of cassava growers

Sl. No.	Dimension	Category	Cassava growers	
			Number	Percentage
1.	Innovativeness	Low (<19.61 score)	32	26.67
	Mean: 20.92	Medium (19.61-22.23 score)	52	43.33
	SD: 2.62	High (>22.23 score)	36	30.00
2.	Achievement motivation	Low (<17.85 score)	31	25.83
	Mean: 18.91	Medium (17.85-19.97 score)	50	41.67
	SD: 2.12	High (>19.97 score)	39	32.50
3.	Economic motivation	Low (<25.75 score)	35	29.17
	Mean: 26.57	Medium (25.75-27.39 score)	43	35.83
	SD: 1.64	High (>27.39 score)	42	35.00
4.	Technical competency	Low (<19.57 score)	33	27.50
	Mean: 21.03	Medium (19.57-22.49 score)	46	38.33
	SD: 2.92	High (>22.49 score)	41	34.17
5.	Decision making ability	Low (<19.76 score)	30	25.00
	Mean: 20.83	Medium (19.76-21.89 score)	44	36.67
	SD: 2.13	High (>21.89 score)	46	38.33
6.	Risk bearing ability	Low (<21.49 score)	33	27.50
	Mean: 22.48	Medium (21.49-23.47 score)	49	40.83
	SD: 1.98	High (>23.47 score)	38	31.67
7.	Information seeking behaviour	Low (<23.51 score)	36	30.00
	Mean: 24.13	Medium (23.51-24.74 score)	42	35.00
	SD: 1.23	High (>24.74 score)	42	35.00
8.	Scientific orientation	Low (<18.47 score)	32	26.67
	Mean: 19.48	Medium (18.47-20.48 score)	48	40.00
	SD: 2.01	High (>20.48 score)	40	33.33
9.	Leadership orientation	Low (<9.80 score)	34	28.33
	Mean: 10.90	Medium (9.80-12.00 score)	56	46.67
	SD: 2.20	High (>12.00 score)	30	25.00
10.	Management orientation	Low (<26.34 score)	28	23.33
	Mean: 28.43	Medium (26.34-30.52 score)	54	45.00
	SD: 4.18	High (>30.52 score)	38	31.67
11.	Marketing strategy	Low (<17.39 score)	32	26.67
	Mean: 18.92	Medium (17.39-20.45 score)	46	38.33
	SD: 3.06	High (>20.45 score)	42	35.00

An equal proportion of cassava growers (35.00% each) were classified as having medium and high levels of information-seeking behavior, followed by a low (30.00%) level. Various sources of information such as Krishi bhavan, Kerala State Department of Agriculture, State Agriculture Universities, input dealers, etc., can significantly assist cassava growers in obtaining necessary information. This trend could be attributed to their diverse exposure to different mass media and interpersonal channels, enabling them to access the right information for their agricultural progress. The tendency of some respondents to exhibit low

information-seeking behavior might come from a lack of interest and awareness regarding the value of information. This could potentially be addressed by increasing their interactions with extension professionals and exposing them to various mass media sources such as newspapers, radio, and television. Similar findings were reported by Reddy (2004)<sup>[11]</sup> and Ali (2017)<sup>[1]</sup>.

The results reveal that 40.00% of cassava growers exhibited a medium level of scientific orientation, followed by high (33.33%) and low (26.67%) levels. The prevalence of a medium level of scientific orientation among the majority of

cassava growers could be attributed to their scientific approach towards various aspects, influenced by factors such as education level, risk-bearing ability, farming experience, extension contact, and participation in social and mass media. These factors collectively contribute to fostering their interest, particularly in scientific aspects related to agricultural progress. Similar results were reported by Sharma *et al.* (2014)<sup>[10]</sup> and Sumana (2017)<sup>[17]</sup>.

A larger proportion of cassava growers (46.67%) were categorized as having a medium level of leadership orientation, followed by low (28.33%) and high (25.00%) levels. This trend could be attributed to their moderate level of cosmopolitanism and inclination towards sharing information, which enables them to informally influence other farmers and exchange ideas. Many respondents demonstrated a willingness to share information gathered from various sources related to farming and encourage fellow farmers to adopt new ideas suitable for their farm conditions. However, some individuals exhibited a low level of leadership orientation, possibly due to their reluctance to engage in cooperative activities, training programs, demonstrations, and exhibitions. This reluctance might be addressed by involving cassava growers in various training programs, exhibitions, and field visits to successful farms, thereby enhancing their technical knowledge and leadership orientation. Similar findings were reported by Nagesh (2006)<sup>[9]</sup> and Bennur (2011)<sup>[5]</sup>.

A significant proportion of cassava growers (45.00%) were classified as having a medium level of management orientation, followed by high (31.67%) and low (23.33%) levels. This distribution may be attributed to their extensive experience in independently managing their farms and their ability to make prompt and informed decisions. They engage in thorough planning before the planting season, ensuring availability of inputs such as planting material, farmyard manure, fertilizers, and plant protection chemicals. Moreover, they actively seek out better market opportunities to maximize profits. Another contributing factor could be their exposure to various extension activities such as field days and exhibitions. By maintaining contact with progressive farmers and extension agents, they gain valuable insights that enable them to actively participate in production and marketing activities, thereby enhancing their management orientation. These findings are consistent with those reported by Nagesh (2006)<sup>[9]</sup>, Sumana (2017)<sup>[17]</sup>, and Kolgane *et al.* (2018)<sup>[8]</sup>.

It is obvious that 38.33% of cassava growers were

categorized as having a medium level of marketing strategy, followed by high (35.00%) and low (26.67%) levels. The plausible reason behind this distribution could be the considerable experience of cassava growers in marketing, enabling them to effectively reach potential customers and secure better prices for their products. They demonstrate proficiency in identifying suitable marketing avenues and strategies to enhance profitability. Awareness of marketing facilities, price fluctuations, marketing channels, and market prices plays a crucial role in enabling farmers to make informed decisions to maximize profits. Furthermore, their exposure to various marketing situations and facilities equips them with the knowledge to navigate marketing challenges effectively. However, some individuals exhibit low levels of marketing strategy, possibly due to limited experience and lack of awareness about market dynamics. This gap could be addressed through increased interaction with fellow farmers to share market price information and efforts to reduce price fluctuations. Consequently, their interest in acquiring better marketing information and strategies, along with improved marketing facilities, can be enhanced. Similar findings were reported by Shirur (2015)<sup>[13]</sup>.

The data presented in Table 2 and Figure 2 reveals that a majority of cassava growers, approximately 52.50%, exhibit a medium level of entrepreneurial behavior, followed by 27.50% categorized as high and 20.00% as low. This distribution may be attributed to a significant portion of growers demonstrating moderate levels of innovativeness, achievement motivation, economic drive, technical competency, risk tolerance, information-seeking behavior, scientific inclination, leadership qualities, management skills, and marketing strategies. Additionally, factors such as rising input costs, insufficient knowledge of advanced farming techniques, limited access to agricultural advisory services, and apprehension about entrepreneurial failure could contribute to this pattern. These findings align with previous studies by Anitha (2004)<sup>[2]</sup>, Patel *et al.* (2014)<sup>[10]</sup>, Shirur *et al.* (2014)<sup>[14]</sup>, and Sofegar (2017)<sup>[16]</sup>. The prevalence of a medium level of entrepreneurial behavior among cassava growers suggests that they adopt a balanced approach to entrepreneurship. In this context, growers demonstrate a willingness to innovate and take risks, but they do so cautiously and with careful consideration. This balance allows them to explore opportunities for growth and innovation while mitigating potential risks and ensuring stability in their operations.

**Table 2:** Overall entrepreneurial behaviour of cassava growers

	Category	Cassava growers	
		Number	Percentage
Entrepreneurial behaviour Mean: 228.61 SD: 18.86	Low (<219.18 score)	24	20.00
	Medium (219.18-238.04 score)	63	52.50
	High (>238.04 score)	33	27.50
	Total	120	100.00

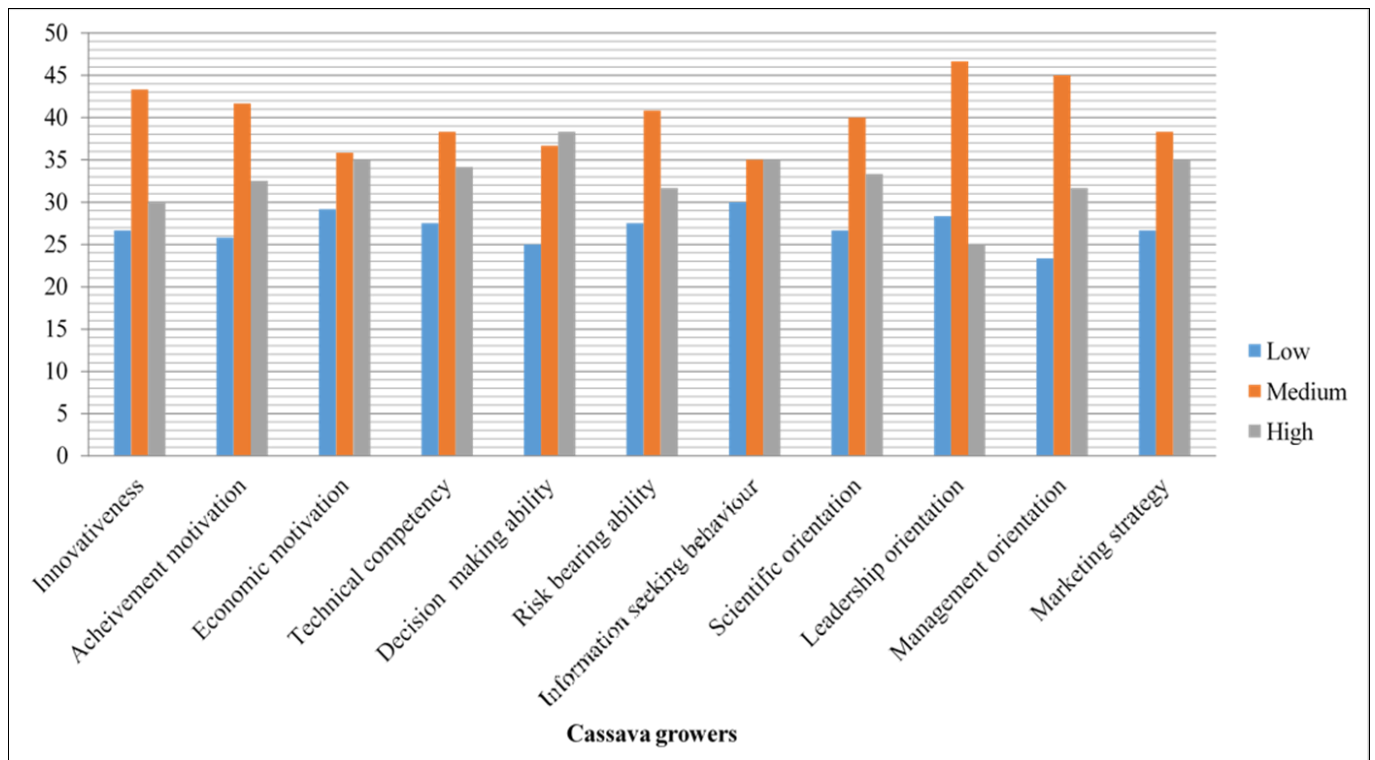


Fig 1: Dimension-wise entrepreneurial behaviour of cassava growers

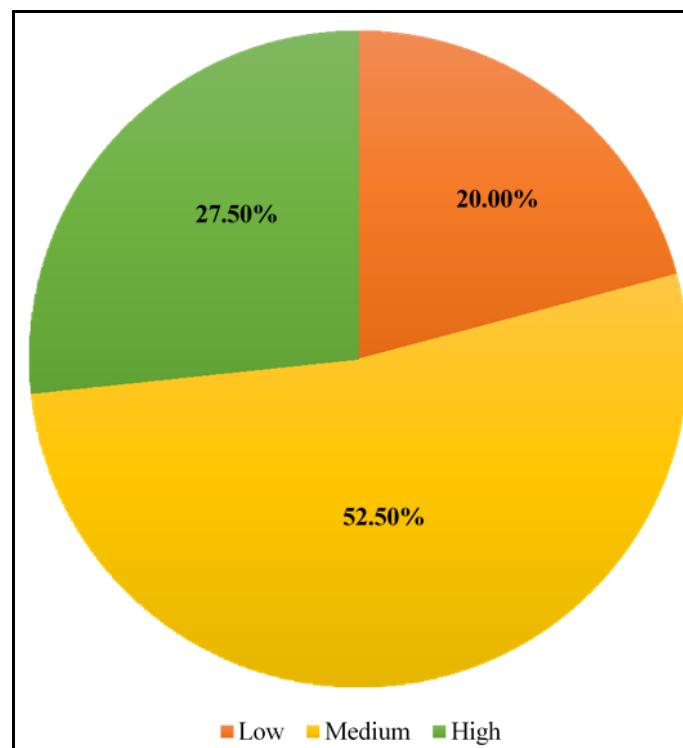


Fig 2: Overall entrepreneurial behavior of cassava growers

**Conclusion**

Based on data collected during the study, it can be determined that the majority of cassava growers exhibited a medium level of entrepreneurial behaviour. However, it's worth noting that a smaller percentage of growers fell into the high category of entrepreneurial behavior, despite the district being a leading producer of cassava. It is imperative to facilitate access to information and resources regarding

innovative farming techniques, market trends, and business opportunities for cassava growers. This can be achieved by establishing farmer support centers or online platforms where growers can access relevant expertise. Additionally, promoting networking and collaboration among cassava growers, researchers, industry experts, and government agencies is crucial for fostering knowledge exchange and innovation, leading to enhanced entrepreneurial practices.

Advocating for policies that support entrepreneurship and innovation in the agricultural sector, including favorable regulatory frameworks, tax incentives, and infrastructure development, is essential. Furthermore, organizing tailored comprehensive training programs focused on entrepreneurship covering areas such as business planning, marketing strategies, financial management, and risk assessment is necessary.

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