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Characteristics influencing knowledge level of the farmers following market-led extension in fruits

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Abstract

The present study aims to understand the personal, psychological and communication characteristics of the fruit farmers who are practicing Market-led extension. The study was conducted in two districts viz., Chitradurga, Shivamogga in the year 2023. Two crops namely, Pomegranate, Pineapple were selected based on highest area under cultivation. Pomegranate was selected from Chitradurga, Pineapple from Shivamogga. From each district two taluks were selected based on highest area under cultivation. Totally, four taluks from two districts and from each taluk 20 farmers were selected. The primary data were collected randomly from farmers from each of the taluks practicing market-led extension. Thus, framing the total sample size to 80. The findings of the study showed that nearly half the farmers belonged to middle age group in both Pomegranate (52.50%) and Pineapple (47.50%). studied up to high school in Pomegranate (27.50%), Pineapple (37.50%) and medium land holding about 50.00 per cent in Pomegranate and Pineapple (40.00%). The farmers had medium level farming experience in Pomegranate (60.00%), Pineapple (70.00%). In Pomegranate (45.00%, 52.50%) and Pineapple (52.00%, 45.00%) growers had medium level of Market orientation and Innovativeness, respectively. farmers had medium level of risk orientation in Pomegranate (42.50%) and Pineapple (57.50%). Cent per cent of the farmers were motivated by High returns in both crops. Majority of the Pomegranate (70.00%) and Pineapple (60.00%) farmers shows medium level of the Cosmopolitaness. In Pomegranate, more than half of the Pomegranate (52.50%) farmers and 35.00 per cent of Pineapple growers had belonged to medium level of Cyber Proficiency. Whereas, majority of farmers in Pomegranate (60.00%), Pineapple (75.00%) belonged to medium level of Overall Information Seeking Behavior. Factors like education, innovativeness, farming experience, market orientation, risk orientation, information seeking behaviour and cosmopolitaness were having highly associated with knowledge level. Knowledge and skills on Market-led extension is essential for Effective marketing, profitability and enhance their livelihood.

Keywords: Market-led extension, characteristics, fruits, vegetables

Introduction

In Present scenario, Agriculture is full of challenges and threats in order to compete with the international market and even in our local markets. In order to overcome this challenges government has come out with some new policies and technologies. This created a plenty of opportunity for the rural farmers to make use of these new technologies effectively and enhance their remunerations from the farming. Indian agriculture has made rapid progress in all the sectors in the last half century by augmenting the annual food grain production from 51 million tonnes in the early fifties to 330.50 million tonnes (2022-23). Horticulture sector is gaining popularity day by day, the area under cultivation and total production of the horticultural crops was 12.77 million hectares and 76.56 million tonnes during 1991-92, is now increased to 27.48 million hectares and 334.60 million tonnes, with fruit production at around 1,07,507 million tonnes and vegetable production at around 2,09,143 million tonnes (Anon., 2022a) ^[1]. Horticulture sector covering only 8 per cent of the total cropped area in the country, contributing 24.50 per cent to the GDP, and 54.55 per cent to the export earnings in the agricultural sectors.

Horticulture as become integral part of food and nutritional security and an essential ingredient of economic security. It has been successful in keeping pace with the rising demand of a growing population and steered the country to a status of self-sufficiency but on other hand farmers were failed to realize the profit over the cost investments (Singh, 2014; Thakur, 2019) ^[10, 12]. To overcome this the extension system had played its role untiringly in transfer of production technologies from lab to land besides the agricultural scientists, farmers and marketing network.

Besides the production technologies, the extension workers now have to get equipped with market information which requires imparting new training skills to the extension personnel. This invites for a transfer of new extension approaches involving productivity to profitability, subsistence to commercial agriculture, commodity-oriented to farming systems orientation, local market to export markets, mono-cropping to crop diversity and so on.

A market-led extension acts as a tool for delivery of adequate and quality information to farmers for making effective decisions on production and marketing issues in order to realize an optimum return over their investment (Shitu *et al.* 2013) [9].

Though the production has increased dramatically, not so much bothered about remunerative prices, small and marginal farmers generally prone to sell their produce on farm gates due to several constraints like repayment of personal hand loans and to meet domestic needs. With the globalization of market, farmers need to transform themselves from mere producers-sellers in the domestic markets to producer cum seller in a wider market sense to best realize the returns for his investments, risks and efforts.

Methodology

For present study Chitradurga and Shivamogga district were purposively selected based on highest area under fruits cultivation. Two crops were selected viz, Pomegranate and Pineapple. for Pomegranate Chitradurga was selected and for Pineapple Shivamogga district was selected. From each district two taluks i.e., Hosadurga (1958.79 ha), Hiriyur (1560.40 ha) from Chitradurga district and from Shivamogga districts, Soraba (782.69 ha), Sagara (367.22 ha) were selected based on the highest area under cultivation. From each Taluk 20 farmers following Market-led extension in fruits from last 10 seasons. Thus, the total sample for the study was 80 farmers. The data was collected by using pre tested interview schedule.

Table 1: Selection of farmer respondents for the study

Districts	Crop	Taluks	Respondents
Chitradurga	Pomegranate	Hosadurga	20
		Hiriyur	20
Shivamogga	Pineapple	Soraba	20
		Sagara	20
Total			80

Table 2: Variables and measurement tools used for the study

Variables	Measurement
Personal variables	
Age	Scale developed by Trivedi (1963)
Education	Scale developed by Trivedi (1963)
Land holding	Classification by Anonymous (1996) (Criteria prescribed by Govt. of Karnataka Land reforms act of 1996)
Farming experience	Schedule developed for the study
Psychological variables	
Market orientation	Scale developed by Samantha (1977) with suitable modifications
Innovativeness	Scale developed by Moulik and Rao (1973) with suitable modifications
Risk orientation	Scale developed by Supe (1969) with suitable modifications
Motivational factor	Procedure followed by Deci and Ryan (1991)
Communication variables	
Cosmopolitaness	Scale developed by Moulik (1965)
Cyber proficiency	Schedule developed by Sarala (2008) with suitable modifications
Information seeking behavior	Procedure followed by Gayathri (2018) [2]

Results and Discussion

For the study (Table 1) we have selected 12 variables after reviewing literature related to the study. These variables were further classified in to three categories indicating Personal, psychological and communication characteristics of the farmers practicing Market-led extension.

Personal characteristics of the farmers following Market-led extension

Age: The results revealed that, 52.50 per cent of the farmers growing Pomegranate were belonged to the middle age group followed by young age (35.00%) and only few respondents belong to old age (12.50%) category. With respect to Pineapple growers, 47.50 per cent of the farmers belonged to middle age category followed by young age (35.00%) and old age (17.50%) categories. farmers of middle age group possess the needed skills and experiences and could be efficiently and actively participate in the farming activities in comparison to farmers of other age groups. Further, rural youth were not much interested in agriculture and were in search of non-farming jobs that provide them with steady earnings. It is interesting to know that youth were also involved in agriculture due to attractive profitability of these commercial crops. The results were in line with the findings of Nitesh (2018) [6] and Geethavani (2019) [3], Vivek (2020) [17].

Education: Data revealed that, in case of Pomegranate majority of farmers had education up to the level of high school (27.50%) followed by PUC (25.00%) and middle school (20.00%). Few respondents were illiterate (17.50%). Primary school (5.00%) and graduation (5.00%) level of education. Similarly, in Pineapple one third of farmers were educated up to level of high school (37.50%) followed by middle school (22.50%) and primary school (20.00%). Equal number of respondents (7.50%) had education up to PUC and Graduation level of education. Only few numbers were illiterate (5.00%). This might be attributed to their realization of the importance of primary education and the government policy of providing free and compulsory education up to high school. The results were in accordance with the findings of Vasanthi (2017) [15] Gayathri (2018) [2] and Tyngkan (2018) [13], Vivek (2020) [17].

Land holdings: The results indicated that, Majority of Pomegranate growers were medium (50.00%) farmers with a land holding of 5.01 to 10.00 acres and one fourth of them belonged to the small (27.50%) farmers with 2.51 to 5.00 acres of land. Whereas 15.00 per cent of them were marginal farmers with a land holding of less than 2.50 acres, only a few of them were big (7.50%) farmers with more than 10.00 acres of land. Nearly half of the farmers in Pineapple were medium

(40.00%) farmers. Less than thirty per cent of the farmers were of small (27.50%) farmers, one fifth of them belonged to the marginal (20.00%) farmers and 12.50 per cent of them were big farmers. As we know that when a farmer take up commercial crops with a huge investment he want to get

better returns out of it. That could be possible with minimum size of holdings might be the reason for the above results. The results were in conformity with that of Geethavani (2019) [3], Vasanthi (2020) [16], Vivek (2020) [17].

Table 3: Personal characteristics of the farmers following Market-Led Extension n=80

Characteristics	Category	Criteria	Pomegranate n ₁ = 40		Pineapple n ₂ = 40	
			f	%	f	%
Age	Young	Up to 35 years	14	35.00	14	35.00
	Middle	36 to 55 years	21	52.50	19	47.50
	Old	Above 55 years	5	12.50	7	17.50
Education	Illiterate	Cannot read and write	7	17.50	2	5.00
	Primary	I-IV standard	2	5.00	8	20.00
	Middle	V-VII standard	8	20.00	9	22.50
	High	VIII-X standard	11	27.50	15	37.50
	PUC	XI-XII standard	10	25.00	3	7.50
	Graduation	Degree	2	5.00	3	7.50
Land holding	Marginal farmers	<2.50 acres	6	15.00	8	20.00
	Small farmers	2.51-5.00 acres	11	27.50	11	27.50
	Medium farmers	5.01-10.00 acres	20	50.00	16	40.00
	Large Farmers	>10.00 acres	3	7.50	5	12.50
Farming experience	Low (< \bar{x} - s)		7	17.50	4	10.00
	Medium ($\bar{x} \pm s$)		24	60.00	28	70.00
	High (> \bar{x} + s)		9	22.50	8	20.00
			\bar{x} =20.58, s=8.67		\bar{x} =19.23,s=9.40	

Farming Experience: The data inferred that, 60.00 per cent of the Pomegranate farmers had medium level of farming experience followed by high (22.50%) and low (17.50%) level of farming experience. Nearly three fourth of the Pineapple farmers had medium (70.00%) level of farming experience followed by high (20.00%) and low (10.00%)

level of farming experience. As majority of the respondents were following farming as their major occupation and all of them belong to the middle age group. this made to have influenced to come out with these results. The study was in line with Varun (2022) [14], Geethavani (2019) [3], Vasanthi (2020) [16], Vivek (2020) [17].

Table 4: Psychological characteristics of the farmers following Market-Led Extension n=80

Characteristics	Category	Pomegranate n ₁ = 40		Pineapple n ₂ = 40	
		f	%	f	%
Market Orientation	Low (< \bar{x} - s)	10	25.00	10	25.00
	Medium ($\bar{x} \pm s$)	18	45.00	21	52.50
	High (> \bar{x} + s)	12	30.00	9	22.50
			\bar{x} =22.95 s=2.87		\bar{x} =22.10 s=3.06
Innovativeness	Low (< \bar{x} - s)	7	17.50	12	30.00
	Medium ($\bar{x} \pm s$)	21	52.50	18	45.00
	High (> \bar{x} + s)	12	30.00	10	25.00
			\bar{x} =20.80 s=3.66		\bar{x} =20.30 s=2.04
Risk orientation	Low (< \bar{x} - s)	9	22.50	9	22.50
	Medium ($\bar{x} \pm s$)	17	42.50	23	57.50
	High (> \bar{x} + s)	14	35.00	8	20.00
			\bar{x} =18.65 s=3.33		\bar{x} =19.23 s=2.66

Table 5: Motivational factors influencing farmers to follow market-led extension in Fruits n=80

Sl. No.	Motivational Factors	Pomegranate n ₁ = 40		Pineapple n ₂ = 40	
		f	%	f	%
1.	Suitable Quality inputs	19	47.50	17	42.50
2.	Suitability of Agro climatic condition	22	55.00	40	100.00
3.	Regular payment	13	32.50	18	45.00
4.	Subsidy from Government	38	95.00	35	87.50
5.	In time technical guidance	40	100.00	7	17.50
6.	Access to financial support	13	32.50	16	40.00
7.	High returns	40	100.00	40	100.00
8.	Innovativeness	10	25.00	28	70.00
9.	Logistics available	13	32.50	16	40.00
10.	Proper infrastructural facility	14	35.00	17	42.50

Psychological characteristics of the farmers following Market-led extension

Market orientation: Results indicated that, majority of Pomegranate growers (45.00%) had medium level of market orientation, 30.00 per cent of farmers had high level of market orientation, while 25.00 per cent of farmers had a low level of market orientation. Likewise in case of Pineapple growing more than half of the farmers had medium (52.50%) level of market orientation trailed by low (25.00%) and high (22.50%) level of market orientation. Being a commercial crop, farmers have got various avenues to market their produce to get higher profitability. Thus, farmers tend to choose the marketing channels with the utmost care to ensure highest price for their produce. Apart from this their level of education, accessibility to different sources of information might have influenced to have these results. The findings were in harmony with that of Gayathri (2018)^[2], Geethavani (2019)^[3], Vasanthi (2020)^[16].

Innovativeness: Majority of the farmers in the Pomegranate had medium (52.50%) level of innovativeness and 30.00 per cent of them exhibited high level of innovativeness. Less than twenty per cent had low (17.50%) level of innovativeness. When we look on farmers of Pineapple crop, nearly two third of them had medium (45.00%) level of innovativeness followed by high (30.00%) and low (25.00%) level of innovativeness. As both the crops were highly commercial crops need to follow the scientific method of cultivation to get more profitability and better yield farmers always used to think creatively and innovatively. Along with this they were cosmopolite had better access to the different sources of information might be the reason for the above results. The results were in agreement with the findings of Patil (2018)^[7], Vineetha (2018), Gayathri (2018)^[2].

Risk orientation: Results shows, majority of the farmers in both Pomegranate (42.50%) and Pineapple (57.50%) had medium level of risk orientation. Whereas, farmers with high

level of risk orientation were 35.00 per cent and 20.00 per cent, respectively and in both Pomegranate and Pineapple. Same per cent of respondents (22.50%) had low level of risk orientation in both Pomegranate and Pineapple. This might be due to the fact that being a commercially crop need intensive care and had to take up intime activity for better growth and returns. This crop involves lot of initial investments and labour-intensive farmers hence need to take risk to their medium to high level of risk orientation. The obtained results were similar to the findings of Reddy (2017)^[8], Vivek (2020)^[17].

Motivational factors: In both Pomegranate and Pineapple cent per cent of farmers were motivated by high returns and in time technical guidance. 95.00 per cent of them motivated by subsidies from government. Suitable agro climatic situations (55.00%) and suitable quality inputs (47.50%) were also motivated farmers. More than thirty per cent of farmers were motivated by proper infrastructural facility (35.00). Equal number (32.50%) of respondents got motivated by access to financial support and logistics available in Pomegranate. In Pineapple, nearly fifty per cent of them motivated by regular payment (45.00%), suitable quality inputs (42.50%) and proper infrastructural facility (42.50%). Equal responses (40.00%) towards logistics available and access to financial support. Nearly two third of the respondents were motivated by subsidy available from government (35.00%). The motivation of farmers to cultivate pomegranates and pineapples was driven by the promise of high returns, which were influenced by factors such as profitability, export potential, adaptability. These fruits offer a compelling combination of economic viability and market potential, making them attractive choices for farmers seeking to maximize their income and financial stability in the agricultural sector. Similar results were reported by Gayathri (2018)^[2].

Table 6: Communication characteristics of the farmers following Market-Led Extension n= 80

Characteristics	Category	Pomegranate (n ₁ = 40)		Pineapple (n ₂ = 40)	
		f	%	f	%
Cosmopoliteness	Low (< \bar{x} - s)	3	7.50	6	15.00
	Medium ($\bar{x} \pm s$)	28	70.00	24	60.00
	High (> \bar{x} + s)	9	22.50	10	25.00
		$\bar{x} = 24.70$ s=6.73		$\bar{x} = 36.23$ s=7.96	
Cyber proficiency	Low (< \bar{x} - s)	7	17.50	17	42.50
	Medium ($\bar{x} \pm s$)	21	52.50	14	35.00
	High (> \bar{x} + s)	12	30.00	9	22.50
		$\bar{x} = 9.80$ s=1.79		$\bar{x} = 10.50$ s=2.48	
Information seeking behaviour					
Informal source	Low (< \bar{x} - s)	14	35.00	3	7.50
	Medium ($\bar{x} \pm s$)	9	22.50	22	55.00
	High (> \bar{x} + s)	17	42.50	15	37.50
		$\bar{x} = 13.00$ s=1.97		$\bar{x} = 13.40$ s=1.57	
Formal source	Low (< \bar{x} - s)	9	22.50	7	17.50
	Medium ($\bar{x} \pm s$)	21	52.50	21	52.50
	High (> \bar{x} + s)	10	25.00	12	30.00
		$\bar{x} = 14.88$ s=1.73		$\bar{x} = 19.05$ s=1.52	
Mass media	Low (< \bar{x} - s)	12	30.00	5	12.50
	Medium ($\bar{x} \pm s$)	19	47.50	29	72.50
	High (> \bar{x} + s)	9	22.50	6	15.00
		$\bar{x} = 12.25$ s=2.00		$\bar{x} = 12.13$ s=1.42	

Communication characteristics of the farmers following Market-led extension

Cosmopolitaness: Results shows that 70.00 per cent of the farmers had medium level of cosmopolitaness followed by high (22.50%) level of cosmopolitaness. Negligible number of respondents had low (7.50%) level of cosmopolitaness in Pomegranate. In case of Pineapple farmers, majority of farmers had medium (60.00%) level of cosmopolitaness followed by high (25.00%) and low (15.00%) level of cosmopolitaness. This might be due to the fact that, better transportation development has made them to have better accessibility with better transportation and communication facility. As the crop requires regular management and monitoring need to visit market for marketing the produce periodically as they had multiple picking and get the benefits given the government programmes might have resulted in cosmopolite nature of respondents. This is in line with the findings of Gayathri (2018)^[2], Vasanthi (2020)^[16].

Cyber proficiency: The results depicted in Table 4, point outs that 52.50 per cent of Pomegranate farmers had medium level of cyber proficiency and 30.00 per cent of farmers had High level of cyber proficiency. Followed by low (17.50%) level of cyber proficiency. Likewise, majority of the farmers in Pineapple had low (42.50%) cyber proficiency followed by medium (35.00%) and high (22.50%) level of cyber proficiency. These results might be due to the fact that in present society information technologies had developed very well and all the framers had awareness about this. Cyber technology was affordable and accessible for all the farming community even their education level, exposure to outside world, access to different sources of information had resulted the above. The findings were in agreement with that of Sowjanya (2017)^[11] and Vivek (2020)^[17].

Information seeking behaviors

Informal source: When we observe the informal sources of information, in Pomegranate farmers had high (42.50%) access to informal source followed by low (35.00%). However, 22.50 per cent of the farmers had medium access to informal sources of information. Similarly, in case of Pineapple majority of the respondents were medium (55.00%) access to informal source followed by high (37.50%) and low (7.50%) access to informal source of information. They can provide information based on needs and requirement as they already exist in present agro ecosystem might have resulted for the above results. These results were in line with Vasanthi (2017)^[15].

Formal source: It was astonishing to know that equal number (52.50%) of respondents from both Pomegranate and Pineapple had medium access to formal source of information followed by high (25.00%), (30.00%) and low (22.50%)

(17.50%) access to formal sources, respectively. This might be due to the fact that as all the crops were highly remunerative needs timely advices and skillful management. Farmer's level of education cosmopolitaness and innovativeness resulted to have above results.

Mass media source: Results indicated that, less than half of Pomegranate farmers had medium (47.50%) access to mass media followed by low (30.00%) and high (22.50%) access category. whereas in Pineapple nearly three by fourth of farmers had medium (72.50%) access to mass media followed by high (15.00%) and low (12.50%) access to mass media source of information. As mass media was one of easily available sources of information in all the time. Even information can be stored and used in future this might have resulted for the above results.

Factors influencing on Knowledge level of farmers following Market-led extension

In case of Pomegranate farmers Characteristics of the farmers such as age, farming experience, market orientation, risk orientation, information seeking behaviour and cosmopolitaness found to be highly significantly associated with their knowledge about market-led extension at 1.00 per cent level of significance. Education, innovativeness, and cyber proficiency found to be significantly associated with their knowledge about market-led extension at 5.00 per cent level of significance. Whereas characteristics of Pineapple farmers like education, innovativeness, cyber proficiency, farming experience, market orientation, risk orientation, information seeking behaviour and cosmopolitaness were having highly associated with knowledge at 1.00 per cent level of significance followed by age which was significantly associated at 5.00 per cent level of significance. When we want to adopt market based cropping system one must be innovative in finding new ventures and education plays an important role in understanding the technologies and acquiring the skills. In present context import business platform was through cyber world. In this case cyber proficiency has motivated them to acquire knowledge on market-led extension. Farmers who were more risk-averse were likely to invest in acquiring knowledge to reduce uncertainties associated with farming practices and they may learn about risk management strategies, such as crop insurance, diversification, or sustainable practices. Information seeking behaviour has symbiotic association because they actively seek information were more likely to adapt to new technologies, best practices, and scientific advancements as these crops were commercial crops for them. Their proactive approach to acquiring knowledge keeps them updated and improves their decision-making skills. This might be the reason for the above results. Similar results were reported by Kavadi (2015)^[5] and Gayathri (2018)^[2].

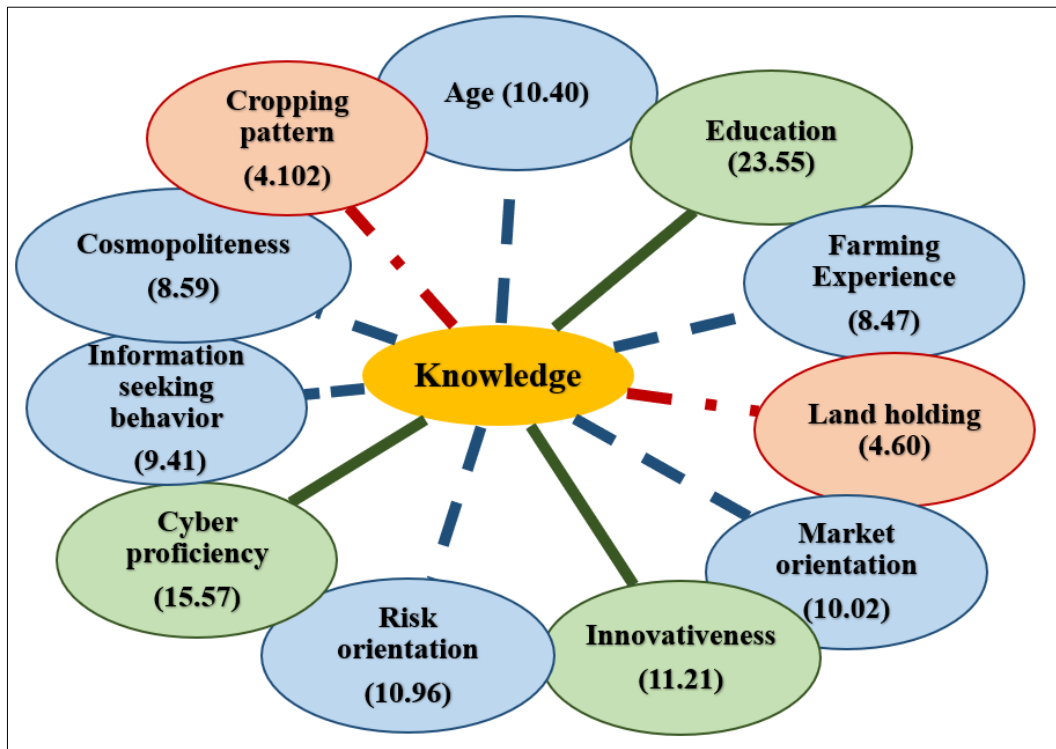


Fig 1: Association between knowledge and characteristics of the farmers in Pomegranate (n=40)

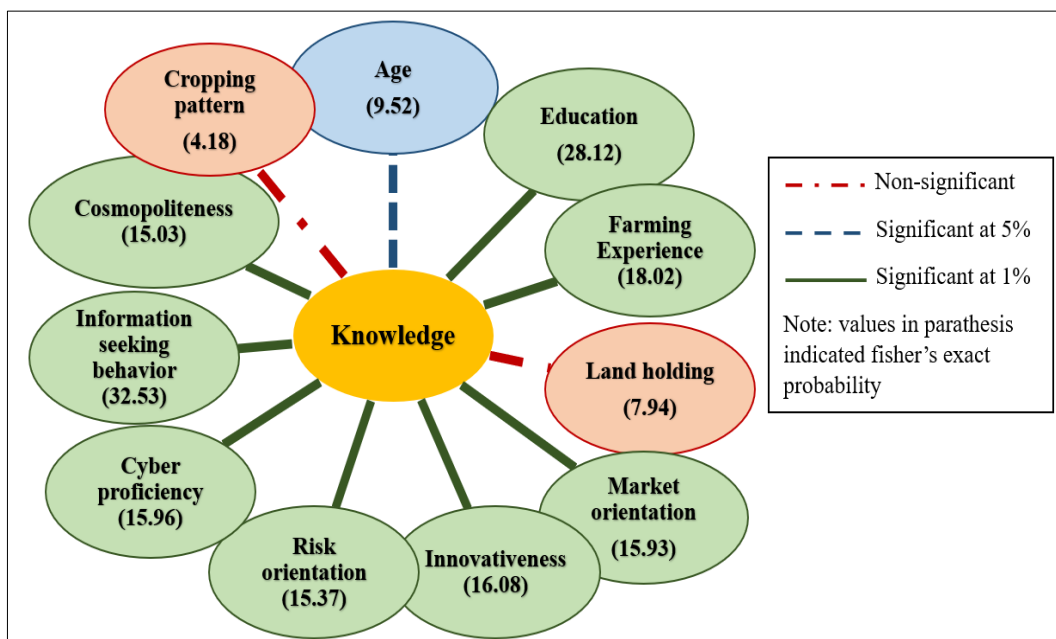


Fig 2: Association between knowledge and characteristics of the farmers in Pineapple (n=40)

Conclusion

The present study analysed the personal, psychological and communication characteristics of farmers following market-led extension in fruits. Market led extension is of necessity, by the paradigm shift of present agriculture scenario, which calls for the conversion of the sector into more profit-oriented. From the study it has been come to know that majority of the farmers was middle age having education up to high school. They have more access to the informal sources of information rather than formal source of information. They have medium level of innovativeness, scientific orientation, risk orientation. There is a need to create awareness about different formal sources of information to get scientific information by organizing capacity building programme to get higher returns.

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