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## RESEARCH ARTICLE

## Factors Influencing Utilization of Market Led Extension Practices by the Farmers

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## ABSTRACT

*Indian agriculture has marked a greater progress since independence in the areas of technology, infrastructure, economics, education and communication. The extension system's objective of focusing on mere agricultural production should be extended beyond marketing, in order to promote all-round empowerment of the farmers. With a major thrust of extension agencies focused on production techniques till now, market led extension holds the key to the future. The present study was carried out to analyze the factors influencing utilization of market led extension practices by the farmers in grape, arecanut and maize crops. Ex-post-facto research design was used for conducting the study. The study was taken up in Uttara Kannada district for arecanut, Bagalkot and Vijayapura districts for grapes and Belagavi and Haveri districts for maize. The sample for the study was 240. Karl Pearson correlation and multiple regression analysis were used to identify the factors influencing utilization of market led extension practices by the farmers. The variables namely innovative proneness, scientific orientation, access to e-tools and membership in farmers' organization in grapes, mass media participation, access to e-tools and farm resource base in arecanut and education, mass media participation and economic motivation in maize had significant relationship with utilization of market led extension practices. These variables are the predictors of utilization of market led extension practices.*

**Key words:** Correlation; Market led extension; Predictors; Regression.

The need for market-led extension implies a new paradigm in the current agricultural environment, which calls for a conversion of the sector into more profit oriented. This can be achieved when farmers can address questions like what to produce, when to produce, how much to produce, when and where to sell, at what price and form to sell his produce. Processing and value addition has the capability to enhance the quality of output through scientific conservation, eliminating avoidable losses and making available high-value products by processing. Extension system now needs to be oriented with knowledge and skills related to the market. An efficient marketing system is essential for the development of the agricultural sector as it provides outlets and incentives for increased production; the marketing system contributes greatly to the commercialization of subsistence farmers.

With the existence of all facilities, the utilization of market led extension practices by the farmers is influenced by various factors. Keeping this in view, this study was formulated to analyze the factors influencing utilization of the market led extension by the farmers. The present study consists of three crops, namely grapes, arecanut and maize; the major fruit, plantation and cereal crop, respectively.

### METHODOLOGY

The present study was conducted in Bagalkot, Belagavi, Haveri, Uttara Kannada and Vijayapura districts of Karnataka. Keeping in view, the highest area under the crop in UAS, Dharwad jurisdiction, Uttara Kannada district was selected for arecanut, Belagavi and Haveri for maize and Bagalkot and Vijayapura for grapes. Further, four taluks from Uttara Kannada (i.e., Sirsi, Siddapura, Yellapura and Honnavara),

two taluks each from Belagavi (Gokak and Raibag), Haveri (Hirekeruru and Haveri), Bagalkot (Jamkhandi and Bagalkot) and Vijayapura (Indi and Vijayapura) were selected based on the area under cultivation of the respective crop. From each taluk, four villages (i.e. total 48 villages) were selected randomly. From each village, five farmers were selected using simple random sampling method to form a sample of 240.

Ex-post-facto research design was followed for carrying out the study. The scales were developed to study the knowledge of the farmers on market led extension practices of grapes, areca nut and maize using item analysis procedure. Final selection of the items for scale was made on the basis of item difficulty and item discrimination indices. Pre-testing of the schedule was carried out in the non-sample area for its practicability and relevancy. The data was collected through personal interview method. The data collected was analyzed using various statistical tools and tests like mean, standard deviation, Karl Pearson's correlation analysis and multiple regression analysis and interpretation were made.

## RESULTS AND DISCUSSION

*Personal characteristics of farmers* : The data in Table 1 outlined personal characteristics of farmers. It was evident from the table that more than half the number of farmers growing grapes (66.25 %), arecanut (55.00 %) and maize (65.00 %) belonged to medium age category of 31 to 50 years. While a majority of the grape growers were educated, 48.75 per cent of them had completed PUC/ diploma. In case of arecanut, 26.25 per cent and 22.50 per cent of them had studied up to middle school and PUC/ diploma respectively. With regard to maize, 32.50 per cent of the farmers had done their schooling up to middle school. It was found that 47.50 per cent of the grape growers belonged to medium landholding category and 47.50 per cent of arecanut farmers were semi-medium farmers. Further, 40.00 per cent of the maize farmers belonged to medium landholding category.

The table highlighted that 40.00 per cent of the grape growers had low mass media participation and more than half the number (53.75 %) of maize farmers exhibited medium mass media participation. High mass media participation was observed among more than 42.50 per cent of arecanut growers.

Also, 47.50 per cent of grape growers, 45.00 per cent of arecanut growers and 41.25 per cent of maize

growers had low extension contact. The findings are in line with the results of *Baruah and Mohan (2018)* and *Krishnamurthy et al. (2018)*.

*Psychological characters of the farmers* : The outcomes of Table 2 indicated that, 37.50 per cent of the grape growers belonged to high innovative proneness category. Among arecanut growers, 41.25 per cent of them fell under medium innovative proneness category. On the contrary, low innovative proneness was seen among 41.25 per cent of the maize growers. About forty-eight per cent of grape growers, 37.50 per cent of arecanut growers and 42.50 per cent of the maize growers belonged to medium economic motivation category.

**Table 1. Personal characters of farmers (N=240)**

Variable	Grapes (n <sub>1</sub> =80)		Arecanut (n <sub>2</sub> =80)		Maize (n <sub>3</sub> =80)	
	No.	%	No.	%	No.	%
<i>Age</i>						
Young (<30 years)	25	31.25	8	10.00	6	7.50
Middle (31-50 years)	53	66.25	44	55.00	52	65.00
Old (>50 years)	2	2.50	28	35.00	22	27.50
<i>Education</i>						
Illiterate	0	0.00	10	12.50	10	12.50
Primary school	3	3.75	6	7.50	22	27.50
Middle school	3	3.75	21	26.25	26	32.50
High school	11	13.75	12	15.00	13	16.25
PUC/ Diploma	39	48.75	18	22.50	7	8.75
Graduation and above	24	30.00	13	16.25	2	2.50
<i>Land holding</i>						
Marginal farmer (up to 2.50 acres)	0	0.00	5	6.25	4	5.00
Small farmer (2.51-5.00 acres)	6	7.50	36	45.00	23	28.75
Semi-medium farmer (5.01-10.00 acres)	13	16.25	38	47.50	20	25.00
Medium farmer (10.01-25.00 acres)	38	47.50	1	1.25	32	40.00
Big farmer (> 25.00 acres)	23	28.75	0	0.00	1	1.25
<i>Mass media participation</i>						
Low	32	40.00	23	28.75	19	23.75
Medium	24	30.00	23	28.75	43	53.75
High	24	30.00	34	42.50	18	22.50
	Mean:17.18		Mean:17.25		Mean: 15.05	
	SD: 4.64		SD: 4.40		SD: 3.75	
<i>Extension contacts</i>						
Low	38	47.50	36	45.00	33	41.25
Medium	17	21.25	20	25.00	20	25.00
High	25	31.25	24	30.00	27	33.75
	Mean: 10.23		Mean: 6.16		Mean: 6.36	
	SD: 2.66		SD: 2.44		SD: 2.58	

The results showed that nearly half the number of farmers growing grapes (52.50 %), arecanut (58.75 %) and maize (40.00 %) belonged to medium scientific orientation category. Whereas, nearly fifty per cent of the farmers growing grapes (40.00 %), arecanut (55.00 %) and maize (38.75 %) had medium risk orientation. The results are in line with the findings of *Ahuja et al. (2017)*, *Biradar (2019)* and *Rana et al. (2019)*.

**Socio-economic characters of the farmers :** The results in Table 2 described that more than one third (36.25 %) of the farmers growing grapes had higher access to e-tools, 35.00 per cent of the arecanut farmers had medium access to e-tools. But, low access to e-tools was observed in 43.75 per cent of the farmers growing maize. Further, more than one-third of the farmers growing grapes (38.75 %) and arecanut (41.25 %) had membership in varied organizations. In contrast, 40.00 per cent of maize farmers had membership in few organizations.

Nearly half the number of farmers growing grapes (46.25 %) and maize (51.25 %) belonged to medium cosmopolite category and low cosmopoliteness was observed among forty per cent of the farmers growing arecanut. Whereas, 47.50 per cent of grape growers, 41.25 per cent of arecanut growers and 37.50 per cent of maize growers possessed medium farm resource base.

**Factors influencing utilization of market led extension practices :** The data furnished in Table 3 dealt about the correlation between independent variables and utilization of market led extension practices by the farmers. Age and utilization of market led extension practices was found to be negatively significant at one per cent level of significance in arecanut and maize. This implied that young farmers were more likely to utilize market led extension practices compared to older farmers. The association between education and utilization of market led extension practices was positively significant at one per cent level of significance in all the three crops. Land holding have exhibited significant association with utilization of market led extension practices in maize crop. It is difficult for small and marginal farmers to adopt market led extension practices like market intelligence, export and branding as they possess lesser marketable surplus. The greater economies of scale had made it possible for the farmers with larger holdings to utilize market led extension practices better.

**Mass media participation and utilization:** Mass media participation was found to be positively associated

**Table 2. Distribution of farmers according to their psychological and socio-economic characters (N=240)**

Category	Grapes (n <sub>1</sub> =80)		Arecanut (n <sub>2</sub> =80)		Maize(n <sub>3</sub> =80)	
	No.	%	No.	%	No.	%
Innovative proneness						
Low	24	30.00	26	32.50	33	41.25
Medium	26	32.50	33	41.25	25	31.25
High	30	37.50	21	26.25	22	27.50
	Mean: 26.56, SD: 4.16		Mean: 29.36, SD: 2.48		Mean: 26.78, SD: 3.65	
Economic motivation						
Low	17	21.25	24	30.00	30	37.50
Medium	38	47.50	30	37.50	34	42.50
High	25	31.25	26	32.50	16	20.00
	Mean:16.78, SD: 4.75		Mean: 17.40, SD: 3.42		Mean: 17.51, SD: 3.54	
Scientific orientation						
Low	17	21.25	25	31.25	28	35.00
Medium	42	52.50	47	58.75	32	40.00
High	21	26.25	8	10.00	20	25.00
	Mean: 21.54SD: 1.79		Mean: 21.59SD: 1.06		Mean: 17.69 SD: 3.23	
Risk orientation						
Low	19	23.75	20	25.00	28	35.00
Medium	32	40.00	44	55.00	31	38.75
High	29	36.25	16	20.00	21	26.25
	Mean: 20.15, SD: 1.45		Mean: 21.48, SD: 1.80		Mean: 18.71, SD: 3.12	
Access to e-tools						
Low	26	32.50	25	31.25	35	43.75
Medium	25	31.25	28	35.00	18	22.50
High	29	36.25	27	33.75	27	33.75
	Mean: 12.63 SD: 4.37		Mean: 14.90 SD: 1.50		Mean: 11.06 SD: 4.45	
Participation						
Few	27	33.75	24	30.00	32	40.00
Several	31	38.75	33	41.25	22	27.50
Most	22	27.50	23	28.75	26	32.50
	Mean: 3.85, SD: 1.06		Mean: 4.81, SD: 1.31		Mean: 2.39, SD: 1.55	
Cosmopoliteness						
Low	18	22.50	33	41.25	20	25.00
Medium	37	46.25	21	26.25	41	51.25
High	25	31.25	26	32.50	19	23.75
	Mean: 6.49, SD: 1.75		Mean: 6.70, SD: 1.50		Mean: 6.41, SD: 1.52	
Farm resource base						
Low	22	27.50	25	31.25	27	33.75
Medium	38	47.50	33	41.25	30	37.50
High	20	25.00	22	27.50	23	28.75
	Mean: 15.00, SD:5.77		Mean: 14.20, SD: 6.08		Mean: 12.95, SD: 5.39	

with utilization of market led extension practices in arecanut and maize at one per cent level of significance. Mass media like television, newspaper and internet play a very crucial role as it brings in the information from worldwide to the doorsteps of the farmers. This help in better understanding and utilizing technologies relevant to the farmer. It brings the farmers, a step closer to the experts.

*Extension contacts and utilization:* A significantly positive association was observed between extension contact and utilization of market led extension practices by farmers in grapes and arecanut. The farmers who are in contact with extension workers will get more information and assistance from them. Further, when there is a new scheme, the benefits are quickly disseminated to those farmers who are having good extension contact and also, they monitor the entire process. This has led to the above results.

*Innovative proneness and Utilization:* There were a positive and significant association between innovative proneness and utilization of market led extension practices in grapes at one per cent level of significance. This was because the innovative farmers are those who try to adopted new practices relatively early compared to others in their social system. They are risk-takers. Such farmers explore new opportunities and utilize them to reap the profits.

*Economic motivation and Utilization:* Economic motivation was found to be positively significant with utilization of market led extension practices in all the three crops at one per cent level of significance. Economic motivation refers to the urge of the farmers to reap maximum returns which motivates them to take up advanced technologies. This has enabled the farmers to consider farming as an enterprise and utilize and adopt the market led extension practices.

*Scientific orientation and Utilization:* There were a positive and significant association between scientific orientation and utilization of market led extension practices in grapes at one per cent level of significance. This was due to the reason that most of the farmers growing grapes were diploma holders or graduates. They were logical; reasonable and had a positive outlook towards utilizing advancement in science and technology. This had encouraged them in utilization of market led extension practices.

*Access to e-tools and Utilization:* Utilization of market led extension practices was seen to have a positive and significant association with access to e- tools by grapes

and arecanut farmers. As majority of the farmers were literates, they had skill and accessibility to operate e-tools. The usage of e-tools has eliminated the barrier of geographical distance and has made the gathering of information easy. The farmers will understand the needs and demands of the consumer from different area and adopt themselves accordingly. There was no significant association between access to e-tools and utilization of market led extension practices in maize.

*Membership in farmers' organization and Utilization:* A positively significant association was observed between membership in farmers' organization and utilization of market led extension practices in grapes and arecanut because when the farmers are members of the organization, preference was given to those farmers while choosing beneficiaries for any schemes. This has provided an exposure to the farmers directly or indirectly promoted utilization of market led extension practices.

*Farm resource base and Utilization:* There was a positive and significant association between farm resource base and utilization of market led extension practices among the farmers growing arecanut and maize. It implied that higher farm resource contributed to more utilization of market led extension practices. The farmers with more farm resource have taken up diversified farming and are those who are willing to take risk. With more resource at their disposal, it is easier to them to take up market led extension practices. There was no significant association between farm resource base and utilization of market led extension practices in grapes.

*Multiple regression analysis of the utilization of market led extension practices :* It was evident from the Table 3 that the independent variables have significantly influenced the utilization of market led extension practices in grapes ( $F = 5.37$ ), arecanut ( $F = 5.93$ ) and maize ( $F = 4.72$ ). The findings suggested that the coefficient of determination ( $R^2$ ) was 0.614, 0.639 and 0.447 for grapes, arecanut and maize, respectively. Thus, it could be implied that the selected 13 independent variables together contributed 61.40 per cent, 63.90 per cent and 44.70 per cent variation in utilization of market led extension practices in grapes, arecanut and maize, respectively.

The factors like innovative proneness, scientific orientation, access to e-tools and membership in farmers' organization in grapes, mass media participation, access to e-tools and farm resource base in arecanut and education, mass media participation and economic motivation in maize had significant



**Table 3. Correlation and regression analysis of independent variables with the utilization of market led extension practices**

Independent variable	Grapes (n <sub>1</sub> =80)			Areca nut (n <sub>2</sub> =80)			Maize (n <sub>3</sub> =80)		
	'r'	'b'	t - value	'r'	'b'	t - value	'r'	'b'	t - value
Age	0.023	-0.032	0.50	-0.485**	0.024	0.223	-0.479**	-0.103	-1.38
Education	0.232*	0.360	-0.52	0.470**	0.363	0.492	0.528**	0.562	2.92*
Landholding	0.210	0.009	0.77	-0.049	-0.206	-0.715	0.399**	0.054	0.49
Mass media participation	0.110	0.021	0.16	0.495**	0.896	2.369*	0.338**	-0.021	2.04*
Extension contact	0.234*	0.245	1.04	0.524**	0.569	1.726	0.006	-0.071	-0.35
Innovative proneness	0.494**	1.318	2.33*	-0.082	0.013	0.050	0.020	-0.028	-0.21
Economic motivation	0.561**	0.170	0.98	0.422**	0.102	0.431	0.519**	0.386	2.01*
Scientific orientation	0.641**	1.226	2.31*	0.058	0.863	1.978	-0.080	-0.048	-0.29
Risk orientation	-0.055	0.032	0.38	-0.036	-0.358	-0.975	0.099	0.022	0.13
Access to e-tools	0.510**	1.182	2.08*	0.625**	0.673	3.542*	-0.209	-0.026	-0.21
Membership in organizations	0.540**	1.150	1.67*	0.539**	0.116	0.270	0.018	0.519	1.58
Cosmopolitaness	0.047	0.127	0.37	-0.014	-0.139	-1.318	0.041	0.152	1.01
Farm resource base	0.004	0.034	0.34	0.266*	0.989	2.346*	0.569**	0.246	0.72
R <sup>2</sup> value		0.614			0.639			0.447	
F value		5.37**			5.93**			4.12**	

\*Significant at 5% level; \*\*Significant at 1% level

relationship with utilization of market led extension practices in both correlation and regression. Thus, it is conclusive to say that these variables are the predictors of utilization and are the important factors influencing market led extension practices. Similar results were reported by Ahuja *et al.* (2017), Biradar (2019) and Krishnamurthy *et al.* (2018).

## CONCLUSION

Identifying and analyzing the factors influencing market led extension practices by the farmers would pave a way for policy makers and various actors of value chain to understand and address the needs of the farmer and to encourage them to involve in market led extension activities. The present study revealed that access to e-tools and mass media participation were influencing utilization of market led extension practices. The line departments in association with commodity boards and marketing boards should bring in a single-window platform like web portals or mobile apps in which farmers can access information regarding any activity related to the crop.

## CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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