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Research Paper

Relationship of the Socio-economic Characters of ATMA Beneficiaries with their Knowledge Level on Ragi Cultivation Practices

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A B S T R A C T

Ragi is indigenous to Africa widely cultivated as cereal in hot-humid areas and people depend on ragi as their stable food. The investigation was taken-up in Krishnagiri district of Tamil Nadu to study the relationship of the socio-economic characters of ATMA beneficiaries with their knowledge level on recommended ragi cultivation practices. Out of the ten blocks Hosur, Krishnagiri and Shoolagiri were selected based on a greater number of respondents participated in the ATMA training. A sample size of 120 respondents were selected by using proportionate random sampling technique. The collected data were tabulated and analyzed using appropriate statistical tools. The results of the study revealed that half the proportion (50.83 per cent) of the respondents had medium level of knowledge followed by high (33.33 per cent) level of knowledge on ragi cultivation practices recommended by ATMA. The correlation analysis revealed that six socio economic characteristics namely educational status, farming experience in ragi cultivation, extension agency contact, innovativeness, risk orientation, and scientific orientation exhibited significant relationship with knowledge level of ATMA beneficiaries.

***Key words*:** ATMA beneficiaries, Knowledge level, Ragi cultivation practices

Agriculture is an important sector that is vital for the growth of Indian economy. It accounts about 18% of India's GDP and provides employment opportunities to fifty percent of Indian population (Census 2011). Since independence extension works focused on community development later it has shifted towards transfer of technology with policy frame works for food security. Modern technology and education systems with extension support collaborated to meet out the demands of food sufficiency of future population. ATMA has support the state extension system by making it more broad-based and participatory for planning, implementing and monitoring entire agricultural extension activities of a district.

Agricultural Technology Management Agency (ATMA) is a registered society of key stakeholders. The ATMA at district level would be increasingly responsible for all the technology dissemination activities at the district level. It would have linkage with all the line departments, research organizations, non-governmental organizations and agencies associated with agricultural development in the district involved in agricultural activities for sustainable agricultural development. The technology broadcasting is made by ATMA is through training all the farmers industry, SC, ST and women farmers, member of SHG, Farmers interest group (FIG), commodity Interest group (CIG), Tamil Nadu women in Agri Business and extension scheme (TANWABE) and farmers association the district. ATMA has a funding pattern of 90:10 by the central and state government. ATMA scheme was implemented in 2005 throughout India to directly engage farming communities in planning and implementation and also enable them to achieve better technology transfer outcomes.

In Tamil Nadu Krishnagiri district ranks 1st in area, production, productivity under ragi cultivation currently produced 160446 tonnes covers an area of approximately 41272 ha and productivity of 3.89 tones/ha^{-1} (2017-18). [agricoop.nic.in]. Ragi is a coarse grain grown in arid regions with less sustainable inputs to produce maximum yield on rainfed conditions providing food security in a dry economy and competent of tolerating heat and water-logged conditions. As the demand increases the area under ragi is increasing gradually with a lower production. This will be a bigger challenge for scientists to develop a new variety that can be tolerated in all circumstances in order to produce maximum yield [1]. Production can be increased if farmers follow the correct package of practices recommended by the extension personnel. ATMA has a greater importance for sustainable development and poverty alleviation of the farmers in Tamil Nadu state, through the observance. Knowledge of an innovation is an important factor which may affect the adoption behaviour of farmers [2]. Acquisition of knowledge is greatly influenced by the socio-economic characteristics of the individuals. Keeping this in view, the present study was conducted to study the relationship of profile of ATMA beneficiaries with their knowledge level on recommended ragi cultivation practices.

MATERIALS AND METHODS

The study was conducted in Krishnagar district of Tamil Nadu. Out of ten blocks, three blocks namely Hosur,

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Krishnagiri and Shoolagiri were selected based on more number of ragi growers participated in the ATMA training. From the three blocks six villages were selected. The selected villages were Nagondapalli, Thattiganapalli, Maharajakadi, Naralapalli, Kudisadhanapalli and Pannapalli. From the six villages a sample size of 120 ATMA beneficiaries who cultivated ragi were selected using proportionate random sampling procedure. The data were collected by a structured and pre-tested interview schedule. The collected data were statistically analyzed using cumulative frequency, percentage analysis, correlation and multiple regression analysis.

RESULTS AND DISCUSSION

Knowledge level of ATMA beneficiaries on ragi cultivation practices

The findings on overall knowledge level of ATMA beneficiaries on ragi cultivation practices were presented in (Table 1).

It could be observed from (Table 1) that more than half of the beneficiaries (50.83 percent) had medium level of knowledge about recommended ragi practices followed by high (33.33 per cent) and low (15.83 per cent) level of knowledge respectively. Hence it may be concluded that majority of the beneficiaries had medium level of knowledge on recommended practices. Majority of the ATMA beneficiaries had medium level of knowledge level on wheat cultivation practices reported by [3].

Table 1 Distribution of ATMA beneficiaries according to their knowledge level about ragi cultivation practices (n=120)

Category	Number of beneficiaries	Percent
Low	19	15.83
Medium	61	50.83
High	40	33.33
Total	120	100.00

Practice-wise knowledge level of ATMA beneficiaries about the ragi practices

The practice wise knowledge level of ATMA beneficiaries on ragi cultivation practices was studied and the results are presented in (Table 2).

Table 2 Distribution of ATMA beneficiaries according to their practice-wise knowledge level about the ragi cultivation practices (n=120)

Recommended practices	No. of beneficiaries	Percent
Field preparation		
Recommended quantity of FYM (t/ha)	104	86.66
Varieties		
Recommended variety	98	81.66
Seed rate		
Quantity of seed rate	82	68.33
Bio –fertilizer application		
Recommended bio-fertilizer	103	85.83
Recommended quantity of bio-fertilizer	94	78.33
Mean percentage		82.08
Spacing and Sowing		
Recommended spacing for the ragi	104	86.66
Recommended depth of sowing	115	95.83
Mean Percentage		91.24
Nutrient Management		
Recommended NPK fertilizer application kg/ha	84	70.00
Recommended quantity of split doses	70	58.33
Mean percentage		64.16
Integrated Weed Management		
Name of the major weed in Ragi	96	80.00
Recommended pre-emergence Herbicide	53	44.16
Recommended dosage of pre- emergence herbicide	47	39.16
Number of times hand weeding recommended	108	90.00
Recommended time interval of weeding	104	86.66
Recommended post-emergence herbicide	49	40.83
Mean percentage		63.46
Pest Management		
Name the major pest in ragi	93	77.50
Recommended pesticide	68	56.66
Recommended quantity of pesticide	61	50.83
Mean percentage		61.66
Name the major diseases	105	87.50
Recommended fungicides to control the diseases	73	60.83
Harvesting		
Correct time of harvesting	108	90.00

Field preparation

Majority of the beneficiaries (86.66 per cent) had knowledge on recommended quantity of farm yard manure (FYM t/ha) for field preparation. The recommended quantity of FYM for ragi is 12.5 ton / ha. Most of the beneficiaries had a high degree of knowledge on field preparation and the

importance of FYM which enriches the soil in order to obtain higher yields. This may be reason for the reported level of knowledge on field preparation.

Selection of variety

Majority of the respondents (81.66 percent) had knowledge about recommended ragi varieties. It may be due to the availability of abundance of recommended ragi seed variety, such as KMR-306, ML365 in localized government seed farms [4].

Seed rate

Around three-fifth of the respondents (68.33 per cent) had knowledge on the recommended seed rate. The reason might be due to the fact that the beneficiaries easily understood the importance of seed rate in maintaining optimum plant population which governs the yield.

Bio-fertilizer application

The mean knowledge percentage of bio-fertilizer application was 82.08 per cent. Among the sub-items under bio-fertilizer application seed treatment with bio-fertilizer were known to 85.83 per cent of the beneficiaries. Recommended quantities of bio- fertilizer for seed treatment were known to 78.33 percent of the beneficiaries. Hence it may be inferred that the farmers are well aware on the advantages of the bio fertilizer application.

Spacing and sowing

Majority of the respondents (95.83 per cent) had acquired more knowledge on the recommended depth of sowing for ragi followed by 86.66 per cent of the beneficiaries had knowledge on recommended spacing. This may be attributed to their farming experience had made them knowledgeable on spacing and sowing methods which would minimize weed competition between main crops by providing better aeration and sunlight exposure for better plant growth [5].

Nutrient management

The mean knowledge percentage under nutrient management is 64.16 per cent. Among the sub-items under nutrient management, application of recommended quantity of N, P, K fertilizer and recommended split doses of fertilizer were known to 70.00 per cent and 58.33per cent of the beneficiaries respectively. Farmers 'satisfied with the results of the application of N, P, K fertilizers may allow them to seek complete information on these practices which in turn would lead to the acquisition of knowledge on the application of N, P, K. fertilizers [6].

Integrated weed management

The mean percentage of knowledge under integrated weed management was 63.46 per cent. Among the sub-items, identification of major weeds of ragi was known to 80.00 per cent of the beneficiaries followed by possessing knowledge about the hand weeding (90.00 percent), recommended time interval for weeding (86.66 percent), recommended pre-emergence herbicide (44.16 per cent) and recommended dose of pre-emergence herbicide (40.83 per cent) respectively. Although weed infestation can sustain crop growth, increase competition and reduce yield they take particular care to control weeds. This might be the reason for possession of knowledge on weed management practices.

Pest management

Identification of major pests in ragi had known to 77.50 per cent of the beneficiaries. Around two-third of the respondents were possessing knowledge about recommended pesticide (56.66 percent) followed by recommended quantity of pesticide (50.83 percent). It may be due to the farming experience of the beneficiaries, that may allow them to predict the occurrence of pest infestation in ragi cultivation at an early stage [7].

Disease management

The mean knowledge percentage for disease management was 74.16 per cent. Among the sub-items the identification of major diseases was known by the most of the beneficiaries (87.50 per cent) and at the recommended fungicides to control the diseases was known by 60.83 per cent of the beneficiaries [8].

Table 3 Association and contribution analysis of the characteristics of the ATMA beneficiaries with their knowledge level on ragi cultivation practices (n = 120)

Var. No.	Variables	Correlation coefficient 'r' values	Regression co- efficient	Standard error	't' values
X_1	Age	0.174NS	0.112	0.110	1.018NS
X_2	Educational Status	0.221*	0.498	0.223	2.333**
X_3	Occupational Status	0.142 NS	-0.099	0.335	-1.308NS
X_4	Annual income	0.082NS	-0.093	0.098	- 0.882NS
X_5	Farm size	0.125 NS	0.182	0.106	1.148NS
X_6	Farming experience in ragi cultivation	0.267**	2.196	0.842	2.608**
X_7	Mass media exposure	0.162 NS	0.595	0.416	1.430NS
X_8	Social participation	0.107 NS	0.250	0.201	1.243NS
X_9	Extension agency contact	0.212*	0.527	0.312	1.689**
X_{10}	Innovativeness	0.191*	1.121	0.642	1.746**
X_{11}	Risk orientation	0.271**	0.272	0.094	2.893**
X_{12}	Scientific orientation	0.223*	1.792	1.100	1.679*
X_{13}	Economic motivation	0.141 NS	0.015	0.090	0.160NS
X_{14}	Raining programmed attended	0.172 NS	0.478	0.395	1.210 NS

a = 8.212 R^2= 0.541* F = 5.712**

*Significant at 0.05 per cent level of probability

**Significant at 0.01 per cent level of probability

NS-Non significant

Harvesting

An overwhelming majority (90 per cent) of the beneficiaries had knowledge about harvesting the ragi crop at right time. This may be due to the fact that, based on experience farmers was well aware of harvesting proper time which influences the level of yield [9].

Relationship of socio-economic characters of ATMA beneficiaries with their knowledge level on ragi cultivation practices

The results on the relationship of the socio-economic characteristic of ATMA beneficiaries with their knowledge level on ragi cultivation practices are presented in (Table 3).

The results in (Table 3) exhibited that out of fourteen variables considered for the study, only six variables viz., educational status (X_2), farming experience in ragi cultivation (X_6), extension agency contact (X_9), innovativeness (X_{10}), risk orientation (X_{11}), and scientific orientation (X_{12}) exhibited significant relationship with knowledge level of beneficiaries. Remaining variables were found to be non-significant. Among the significant variables, farming experience in ragi cultivation (X_6) and risk orientation (X_{11}) were found to be significant at one per cent level of probability. The remaining four variables viz., educational status (X_2), extension agency contact (X_9), innovativeness (X_{10}) and scientific orientation (X_{12}) were found to be positive and significant association at five per cent level of probability [10].

CONCLUSIONS

Majority of the ATMA beneficiaries had adequate knowledge on recommended ragi cultivation practices. It is necessary to concluded that ATMA's training programs have a considerable effect on the various recommended ragi cultivation practices among beneficiaries. The same individual must also be given more training so that they may acquire additional knowledge in other practices. The characteristics namely educational status, farming experience, extension agency contact, innovativeness, risk orientation and scientific orientation had positively influenced the knowledge level of ATMA beneficiaries. The extension personnel may consider these characteristics while popularizing the technologies among the beneficiaries.

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