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Input Utilization Pattern in Relation to Extent of Knwledge and Profile of Rice Farmers

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ABSTRACT

The present investigation was carried out to study the relationship between profile characteristics and extent of knowledge on input usage in rice cultivation in Nellore district of Andhra Pradesh. *Ex-post facto* research design was followed with a sample size of 120 respondents. Correlation analysis revealed that, the variables education, extension contact, social participation, mass media exposure, economic orientation, scientific orientation, risk orientation, management orientation, innovativeness and net returns were positively and significantly related with the knowledge level, whereas, the variables like age, farming experience and cost of cultivation were negative and significantly related with the knowledge level of rice farmers. As per the study, the variables annual income, farm size, decision making ability and deferred gratification were non-significantly related with the knowledge level of rice farmers. Regression analysis revealed that all the seventeen selected independent variables put together explained 55.20 per cent variation in the knowledge level of rice farmers. It also revealed that farming experience though negatively significant have contributed to higher level of the variation in knowledge level of rice farmers.

Keywords: *Correlation, input usage, knowledge, profile characteristics and regression*

Rice is the staple food crop in the world. Almost one-fifth of the world's population depends on rice cultivation for their livelihoods. In the world's cultivated area, rice occupies 11 per cent and is a primary food source for more than one-third of world's population. In this context, the concept of input efficiency played a major role for the increase in productivity of rice. Green revolution paved the way for the use of chemicals in agriculture in general and rice in particular to increase the production. Tremendous impact has been created on the productivity of rice with the use of agro- chemicals for the control of pests and diseases. Simultaneously, the efforts also been made by the scientists to develop new varieties which are highly productive with fine grain quality. But majority of such varieties were high input responsive and more susceptible to pests and diseases. This condition led to the intensive use of fertilizers, pesticides etc. in rice cultivation. Some of the minor pests and diseases also became major ones resulting in huge damage to rice crop. Accordingly, new molecules of agro-chemicals which are highly effective with low volume and high cost have been launched by the input agencies to manage pests and diseases. On the other side, variety of herbicides also have been launched by the input agencies to minimize human labor requirement. But, all these agro-chemicals one way or other tremendously increased the cost of cultivation.

Indiscriminate use of fertilizers and pesticides was observed in rice cultivation since last two decades to fulfill the objective of achieving higher yields. But due to excessive use of inputs the cost of cultivation rose up and reduced the net returns in rice cultivation.

MATERIAL AND METHODS

The study was conducted in Nellore district of Andhra Pradesh during the year 2018-19. *Ex- Post Facto* research design was followed for the study with simple random sampling procedure. The study was conducted in Nellore district by selecting three mandals. From each mandal four villages were selected i.e., total of 12 villages with a sample size of 120 farmers. Statistical tests such as correlation and multiple linear regression were used.

RESULTS AND DISCUSSION

The nature of relationship between the selected independent variables and knowledge of farmers computed based on the correlation coefficient (r) values. The results were presented in Table 1 after tested for their statistical significance.

Profile characteristics Vs. Knowledge

It is revealed from the Table 1. that, the computed 'r' values of the variables viz., education, extension contact, social participation, mass media exposure, economic orientation, scientific orientation, risk orientation, management orientation, innovativeness and net returns were greater than the table value of "r" at 0.01 level of significance following a positive trend. Hence, it could be inferred that there was a positive and significant relationship with the knowledge level of rice farmers. These results are inline with Taru *et al*., (2008).

With higher educational qualification, the rice farmers might be so comprehensive and analytical in performing their farm operations while applying scientific rationality. Higher education made them to aspire for high net returns through maintaining extension contacts and getting latest information from mass media Social participation also might have enriched their knowledge through interaction with their fellow progressive farmers. All these acts might have enhanced their scientific orientation, risk orientation and innovativeness to deal the issues with more technicality, taking optimal risk, managing the farm with judicious use of resources and development of innovations in their farm.

On the other hand, the farmers with low education, extension contact, social participation, mass media exposure, economic orientation, scientific orientation, risk orientation, management orientation, innovativeness and net returns might be poor in knowledge on input utilization in rice cultivation. Lack of technical competency, lack of exposure to information sources and poor behavioural inputs led to poor net returns.

The computed 'r' values of the variables viz., age, farming experience and cost of cultivation were more than the table value of "r" at 0.01 level of significance in a negative trend. Hence, it could be inferred that there was a negative and significant relationship with the knowledge level of rice farmers. The results are in accordance with Borkar *et al.*, (2000)

Acquisition of knowledge might not be the consequence of informal education acquired through experience in farming by the rice farmers. The reason might be that, by virtue of age, the farmers simply taking their farm operations by imitation without comprehension. They might be prone to more of instantaneous decisions based on the current access and availability of technical, personal and financial resources. This condition might have led to high cost of cultivation due to low level of knowledge. On the other side, the farmers with young age haing farming

Table 1. Relationship between profile characteristics and knowledge on inputs used in rice cultivation

(n=120)

S. No	Variable No.	Independent variables	Correlation coefficient 'r' value
1.	X_1	Age	-0.656**
2.	X_2	Education	0.635**
3.	X_3	Annual income	0.072
4.	X_4	Farm size	0.022
5.	X_5	Farming experience	-0.293**
6.	X_6	Cost of cultivation	-0.655**
7.	X_7	Net returns	0.466**
8.	X_8	Extension contact	0.483**
9.	X_9	Social participation	0.649**
10.	X_{10}	Mass media exposure	0.720**
11.	X_{11}	Economic orientation	0.758**
12.	X_{12}	Risk orientation	0.488**
13.	X_{13}	Management orientation	0.465**
14.	X_{14}	Innovativeness	0.675**
15	X_{15}	Decision making ability	0.166
16	X_{16}	Scientific orientation	0.277**
17	X_{17}	Deferred gratification	0.022

* : Significant at 0.05 level of probability

**: Significant at 0.01 level of probability

NS: Non-significant

experience might be more educated and trying to use their knowledge in their farm activities with due care and consciousness. This might have led to low cost of cultivation.

Further, the computed 'r' values of the variables viz., annual income, farm size, decision making ability and deferred gratification were less than the table value of "r" at 0.01 level of significance. Hence, it could be inferred that there was a non-significant relationship with the knowledge level of rice farmers. These results are inline with Ramesh *et al.*, (2011).

Farm size and annual income might be the indicators for income generation rather than enrichment of knowledge. The farmers might be taking these two entities for feeding their family as well as for realizing profits. Irrespective of the size of farm and annual income, the interested farmers might be acquiring knowledge through their day to day experiences as well as the exposure with the information sources. Further, it may also be interpreted that the role of decision making in their farm operations duly incorporating their knowledge might be negligible due to uncertainty of resources. Hence, they might be simply thinking towards temporary accomplishments and enjoying satisfaction without telescopic faculty.

Table 2. Multiple Linear Regression analysis of independent variables with the knowledge on inputs used in rice cultivation

S. No.	Variable	Std. error	'b' values	't' values
X_1	Age	0.023	0.001	0.052^{NS}
X_2	Education	0.262	-0.426	2.625^{*}
X_3	Annual income	0.001	0.001	2.706^{*}
X_4	Farm size	0.09	0.112	1.239^{NS}
X_5	Farming experience	0.02	-0.042	-2.033^{*}
X_6	Cost of cultivation	0.021	-0.094	-1.760^{NS}
X_7	Net returns	0.034	0.037	2.752^{*}
X_8	Extension contact	0.04	-0.083	-2.081^{*}
X_9	Social participation	0.104	0.149	-2.422^{*}
X_{10}	Mass media exposure	0.039	0.047	3.216^{**}
X_{11}	Economic orientation	0.038	-0.002	-0.061^{NS}
X_{12}	Risk orientation	0.051	-0.094	-1.860^{NS}
X_{13}	Management orientation	0.012	0.02	1.665^{NS}
X_{14}	Innovativeness	0.054	0.037	2.692^{*}
X_{15}	Decision making ability	0.041	-0.03	-3.736^{**}
X_{16}	Scientific orientation	0.034	0.053	2.546^{*}
X_{17}	Deferred gratification	0.031	0.014	0.438^{NS}

R=0.709
R^2=0.552
n=120

d.f. = 17
* Significant at 5% level of probability.
** Significant at 1% level of probability.

Combined Effect of all Independent Variables on Knowledge of the rice farmers

To determine the combined effect of all the selected independent variables in explaining variation in knowledge of rice farmers, Multiple Linear Regression analysis was carried out. The computed co-efficient of determination (R^2) value and partial regression co-efficient (b) values were presented in Table 2. The "R^2" and "b" values were tested statistically for their significance. The results are in accordance with findings of Sarathi and Govind (2002).

The "R^2" value of 0.552 depicted that all the selected seventeen independent variables put together explained about 55.20 per cent variation in the knowledge. The other variables which were not studied under this investigation might have contributed to the remaining 44.80 per cent.

CONCLUSION

The "R^2" value reveals that the variables selected for the study are apt but some hidden variables area also contributing towards input utilization pattern. Awareness programs to use inputs in accordance with climate, regular training programs

to update the latest developments in research, timely extension support played an important role in increasing knowledge towards input utilization.

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