



RESEARCH PAPER

Relationship between profile characteristics and extent of precision in utilization of inputs by the rice farmers in Nellore district of Andhra Pradesh

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Abstract : The present investigation was done to study the relationship between profile characteristics and extent of precision in utilization of inputs by the rice farmers in Nellore district of Andhra Pradesh. *Ex-post facto* research design was followed for the study and a sample of 120 respondents was drawn. It was found that the computed 'r' values of the variables viz., education, extension contact, social participation, mass media exposure, management orientation, economic orientation and scientific orientation were more than the table value of "r" at 0.01 level of significance and net returns was greater than the table value of "r" at 0.05 level of significance and shown positively significant relationship with the extent of precision by the rice farmers. The computed 'r' values of the variables viz., age, farming experience, farm size and cost of cultivation were more than the table value of "r" at 0.05 level of significance in a negative and show negatively significant relationship with the extent of precision by the rice farmers, relationship with the extent of precision by the rice farmers. On the other side, the computed 'r' values of the variables viz., annual income, risk orientation, innovativeness, 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 extent of precision by the rice farmers.

Key Words : Relationship, Extent of precision, Variables

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INTRODUCTION

Rice is most important and extensively grown food crop in the world. Almost one-fifth of the world's population, depend on rice cultivation for their livelihoods. It is a primary food source for more than one-third of world's population and grown in 11 per cent of the world's cultivated area. In this context, the concept of input

efficiency played a major role for the increase in productivity of rice. The crucial role of efficiency in increasing agricultural output has been widely recognized by researchers and policymakers alike. Therefore, it is not a surprise if considerable efforts have been put forth to the analysis of farm level efficiency in developing countries. Green revolution paved the way for the use

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of chemicals in agriculture in general and rice in particular to increase the production. Since last two decades, the consumption of fertilizers, pesticides and other inputs in rice became very high to achieve high production and productivity. But due to intensive use of inputs the cost of cultivation rose up and reduced the net returns in rice cultivation. It is known fact that the extent of precision relationship in input utilization is usually depends on profile characteristics like education, farmsize, annual income, net returns, cost of cultivation, management orientation, mass media exposure and social participation. Hence, it is important to know, how the profile characteristics are correlated with extent of precision .

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. Three mandals of Nellore district and four villages from each mandal *viz.*, Mypadu, Pallipadu, Somarajupalle and Indukurpet from Indukurpeta mandal, Naidupalem, Kodavalur, Gandavaram and Talamanchi from Kodavalurmandal, Allur, Isakapalle, Beeramgunta and Velicherla from Allurmandal were selected by using simple random method from which 120 rice farmers were

selected as sample. Relationship between profile characteristics of rice farmers and extent of precision in input utilization was measured by statistical tools like co-efficient of correlation and multiple linear regression analysis.

RESULTS AND DISCUSSION

From the Table 1 it is revealed that, the computed 'r' values of the variables *viz.*, education, extension contact, social participation, mass media exposure, management orientation, economic orientation and scientific orientation were more than the table value of "r" at 0.01 level of significance and net returns was greater than the table value of "r" at 0.05 level of significance in a positive trend. Hence, it could be inferred that there was a positive and significant relationship with the extent of precision by the rice farmers.

Efficiency in utilization of resources is the precursor for precision. How best the inputs as well as other sources in rice cultivation have been utilised by the farmers might be depending on the way they perceive the impact of each resource. The time, dosage and method of using inputs are the three important attributes to assess the efficiency. To have this competency, the farmers should have higher educational qualification, bright exposure to information sources and better access to all

Table 1: Relationship between the selected profile characteristics and their extent of precision in input utilization (n=120)			
Sr. No.	Variable No.	Independent variables	Correlation co-efficient 'r' value
1.	X ₁	Age	-0.681**
2.	X ₂	Education	0.571**
3.	X ₃	Annual income	0.082 ^{NS}
4.	X ₄	Farm size	-0.506**
5.	X ₅	Farming experience	-0.455**
6.	X ₆	Cost of cultivation	-0.314*
7.	X ₇	Net returns	0.212*
8.	X ₈	Extension contact	0.418**
9.	X ₉	Social participation	0.353**
10.	X ₁₀	Mass media exposure	0.478**
11.	X ₁₁	Economic orientation	0.490**
12.	X ₁₂	Risk orientation	0.173 ^{NS}
13.	X ₁₃	Management orientation	0.463**
14.	X ₁₄	Innovativeness	0.136 ^{NS}
15.	X ₁₅	Decision making ability	0.044 ^{NS}
16.	X ₁₆	Scientific orientation	0.440**
17.	X ₁₇	Deferred gratification	0.167 ^{NS}

* and ** indicate significance of values at P=0.05 and 0.01, respectively

NS= Non-significant

the inputs. In this juncture, development of theoretical base on various inputs, scale of economies of each operation and accessibility of right inputs at right time can be attributed to their management orientation, scientific orientation and economic orientation. The net returns might have significant impact on precision due to judicious use of inputs as well as high productivity.

The computed 'r' values of the variables *viz.*, age, farming experience, farm size and cost of cultivation were more than the table value of "r" at 0.05 level of significance in a negative trend. Hence, it could be inferred that there was a negative and significant relationship with the extent of precision by the rice farmers.

From the above trend, it could be interpreted that, old age farmers might be utilising the inputs at higher doses to achieve high productivity. They may also be adopting improper methods and time of application, which led to low precision. Illiteracy and low level of education might be the two important factors for poor precision among old age farmers. On the other side, farmers with high farm size might be purely depending on labour and contractual workers in utilization of different inputs, which led to poor precision. But small and marginal farmers with their focussed approach on input utilization might be so keen in approaching inputs with more precision.

Reduced cost of cultivation might be due to efficient utilization of inputs, which led to high precision.

On the other side, the computed 'r' values of the variables *viz.*, annual income, risk orientation, innovativeness, 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 extent of precision by the rice farmers.

Targeting towards effective utilization of inputs might not always be seeking for innovation, taking right decision as well as taking risk in their farm operations. Precision in input utilization might be independent of taking optimistic decisions in bringing innovations in cultivation and also taking subsequent risks because, the farmers might be moving ahead with their adoptive style of farming. Annual income also might not have direct impact on precision as it is purely on quality of input utilization.

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.

Table 2: Multiple linear regression analysis of independent variables with the extent of precision of rice farmers

Sr. No.	Variable	Standard error	Regression co- efficient	t-value
X ₁	Age	0.422	-0.020	-0.233 ^{NS}
X ₂	Education	2.375	0.068	2.602 ^{**}
X ₃	Annual income	0.875	0.059	0.739 ^{NS}
X ₄	Farm size	0.434	-0.021	-0.272 ^{NS}
X ₅	Farming experience	0.605	0.067	1.018 ^{NS}
X ₆	Cost of cultivation	0.234	-0.121	-0.372 ^{NS}
X ₇	Net returns	2.375	0.068	2.602 ^{**}
X ₈	Extension contact	6.096	0.160	1.972 [*]
X ₉	Social participation	1.677	0.144	-1.686 ^{NS}
X ₁₀	Mass media exposure	3.412	0.141	3.575 ^{**}
X ₁₁	Economic orientation	2.461	0.276	3.002 ^{**}
X ₁₂	Risk orientation	3.160	0.028	-0.219 ^{NS}
X ₁₃	Management orientation	1.239	0.222	1.954 [*]
X ₁₄	Innovativeness	2.814	0.079	2.845 [*]
X ₁₅	Decision making ability	2.333	-0.031	-0.303 ^{NS}
X ₁₆	Scientific orientation	1.603	0.209	2.376 ^{**}
X ₁₇	Deferred gratification	0.142	0.102	1.526 ^{NS}

$R^2=0.665$

n=120

d.f. = 17

* and ** indicate significance of values at P=0.05 and 0.01, respectively

NS = Non-significant

The “R²” value of 0.665 depicted that all the selected fifteen independent variables put together explained about 66.5 per cent variation in extent of precision. The other variables which were not studied under this investigation might have contributed to the remaining 33.5 per cent. Similar work related to the present investigation was also carried out by Asodiya *et al.* (2014); Ebong *et al.* (2011); Ramesh *et al.* (2011); Udaykumar *et al.* (2010) and Verma (2005).

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