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Correlation analysis between profile characteristics and production constraints of rice farmers in Kurnool district of Andhra Pradesh

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Abstract
This paper describes the relationship of profile characteristics of rice farmers with production constraints faced by them in Kurnool district of Andhra Pradesh. The data was collected from a sample of 120 rice farmers by following *ex-post-facto* research design. The study concluded that the variables such as age, education, annual income, farm size, farming experience, extension contact, mass media exposure, management orientation and deferred gratification had negative and significant relationship with production constraints of rice farmers. While risk orientation had positive and significant and economic orientation had non-significant relationship with the dependent variable i.e. production constraints faced by the rice farmers.

Keywords: profile characteristics, production constraints, rice farmers

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. Rice 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 2016-17, total rice production in world amounted to 473 million tonnes. Global rice production and trade in 2016-17 has increased by 2.11 per cent and 5.56 per cent respectively over previous year. The world consumption is also anticipated to increase about 1.47 per cent. The study area, Kurnool district is famous for its rice fields and is the highest rice producing district in Rayalaseema. About 70 per cent of the working population of the district is either directly or indirectly engaged in agricultural and allied activities. Population growth, increasing migration of the rural people to urban centres, growing biophysical and socio economic constraints of rice production, global climatic changes, increasing environmental concerns and inadequate empowerment of the farmers seriously affect rice farming in Kurnool district as elsewhere.

Material and Methods
Ex-post facto research design was selected for the present study. The study was conducted in Kurnool district of Andhra Pradesh which is one of the important rice cultivating district. Out of 54 mandals in Kurnool district, three mandals and four villages from each mandal were purposively selected from each mandal based on highest area under rice cultivation thus making total of 12 villages for the study. Among the rice farmers 10 farmers from each village were selected thereby making a total of 120 farmers for the study. The data was collected using standardized interview schedule by personal interview method. The data were organized, tabulated and subjected to statistical tests. The statistical tools that were used for analysing data include mean, standard deviation, correlation and multiple regression.

Results and Discussion

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Table 1: Relationship between profile characteristics and the production constraints faced by rice farmers

S. No	Variable No.	Independent variables	Correlation coefficient 'r' value
1.	X_1	Age	-0.600**
2.	X_2	Education	-0.771**
3.	X_3	Annual income	-0.376**
4.	X_4	Farm size	-0.570*
5.	X_5	Farming experience	-0.531**
6.	X_6	Extension contact	-0.242**
7.	X_7	Mass media exposure	-0.585**
8.	X_8	Economic orientation	0.104 NS
9.	X_9	Risk orientation	0.295**
10.	X_{10}	Management orientation	-0.777**
11.	X_{11}	Deferred gratification	-0.772**

* : Significant at 0.05 level of probability
**: Significant at 0.01 level of probability
NS: Non-significant

Age Vs Production constraints
From the table 1 it is evident that coefficient of correlation (r = -0.600**) between age and production constraints was found negative and significant. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. It was found that age is an important factor to decide the knowledge in any practice. The negatively significant relationship between age and production constraints faced by rice farmers supports the general view that old and middle aged farmers will have more farming experience in rice cultivation which would help them to take decisions correctly and overcome the obstacles. This finding is in agreement with results of Saidhar (2016) [7] and Sriharinarayana (2013) [9].

Education Vs Production constraints
From the table 1 it is evident that coefficient of correlation (r = -0.771**) between education and production constraints faced by rice farmers was negatively significant. Hence the null hypothesis was rejected and the empirical hypothesis was accepted. This might be due to the reason that as the education enhances the knowledge level of the farmers and helps to acquire latest technical know how about rice farming. Education helps them to find out the cause and effect of the specific production constraints and enable them to address the production constraints efficiently. This finding is in agreement with results of Vinodprakash (2010) and Arathy (2011) [1].

Annual income Vs Production constraints
From the table 1 it is clear that coefficient of correlation (r = -0.376**) between annual income and production constraints faced by rice farmers had negative and significant relationship. Hence the null hypothesis was rejected and the empirical hypothesis was accepted. The negatively significant relationship between annual income and production constraints faced by rice farmers supports the view that as production increases, income increases then constraints like yield gap decreases. This finding is in agreement with results of Chinnamnaidu (2012) [2].

Farm size Vs Production constraints
From the table 1 it is inferred that coefficient of correlation (r = - 0.570*) between farm size and production constraints faced by rice farmers was found negatively significant. Hence the null hypothesis was rejected and the empirical hypothesis was accepted. The possible reason might be that farmers with relatively large farms may have come in contact with friends, neighbours, relatives, extension personnel or others to seek solutions to their farming problems. They had access to many

cosmopolite channels rather than localite channels. Through these contacts, farmers obtain greater chances to discuss their problems and gain knowledge on solutions which are already tried and tested by other farmers. Another reason is that Kurnool district has severe labour crisis and high cost of the labour. The farmers with large farms and high annual income can overcome this problem which does not hold good in case of small and marginal farmers. This finding is in agreement with results of Vijaykumar (2008) [10].

Farming experience Vs Production constraints
From the table 1 it is clear that coefficient of correlation (r = -0.531**) between farming experience and production constraints faced by rice farmers was found negatively significant. Hence the null hypothesis was rejected and the empirical hypothesis was accepted. The number of years a farmer has spent in the farming may give an indication of the practical knowledge he has acquired on how he can overcome certain inherent farm production and adoption problems. In order to have efficiency in crop management and to overcome constraints it is essential that farmers have experience in raising rice crop which is the reason for negative and significant relationship between farming experience and productions constraints. This finding is in agreement with results of Samarpitha (2016) [6] and Deepthi (2017) [3].

Extension contact Vs Production constraints
From the table 1 it is clear that coefficient of correlation value (r = -0.242**) between extension contact and production constraints faced by the respondents was negatively significant. Hence the null hypothesis was rejected and the empirical hypothesis was accepted. Majority of the respondents were middle aged and medium farmers. They are generally neglected by extension services, but some of them may come in contact with extension agencies by virtue of their own initiative. These farmers are directly or indirectly exposed to agricultural technologies and can easily overcome barriers in adopting new technologies in farming. This is the reason why high extension contact reduces the problems of medium and small farmers in addressing their specific constraints. This finding is in agreement results of Arathy (2011) [1] and Sriharinarayana (2013) [9].

Mass media exposure Vs Production constraints
From the table 1 it is evident that coefficient of correlation value (r = -0.585**) between mass media exposure and production constraints faced by rice farmers was negatively significant. Hence the null hypothesis was rejected and the empirical hypothesis was accepted. The possible reason for

this might be that generally mass media creates awareness. Number of television channels that telecast agricultural news and newspapers that publish agricultural columns increased enormously which created more awareness. Mass media exposure will enable farmers to find out solutions for constraints faced by them. Farmers who had greater exposure to mass media have less constraints. This finding is in agreement with result of Singh (2010) and Sriharinarayana (2013) [9].

Economic orientation Vs Production constraints
From the table 1 it is observed that coefficient of correlation value (r = 0.104) between economic orientation and production constraints faced by rice farmers was non-significant. Hence the null hypothesis was accepted and the empirical hypothesis was rejected. It might be due to the reason that all the farmers were cultivating rice since many years in similar conditions and hence there was not much gap between the profits obtained by different categories of farmers. This finding is in agreement with results of Khan (2007) and Sriharinarayana (2013) [9].

Risk orientation Vs Production constraints
From the table 1 it is inferred that coefficient of correlation value (r = 0.295**) between risk orientation and production constraints faced by rice farmers was found positively significant. Hence the null hypothesis was rejected and the empirical hypothesis was accepted. This may be due to the reason that risk taking is the ability to take the right decision during uncertainties; these uncertainties are nothing but the constraints. The farmer who is willing to take calculated risks during constraint situation will gain better results. At the same time it was seen that many farmers were taking risks due to peer pressure or demanding situation. This finding is in agreement with results of Singh (2010) and Sriharinarayana (2013) [9].

Management orientation Vs Production constraints
From the table 1 it is seen that coefficient of correlation value (r= -0.777**) between management orientation and the constraints faced by the respondents was negatively significant. Hence the null hypothesis was rejected and the empirical hypothesis was accepted. Management orientation is the ability of the farmer in scientific farm management in planning, production and marketing. As the farming is always disturbed and determined by the vagaries of the nature, much careful planning and management is necessary for the better yields. Those farmers who have low management orientation will suffer from more constraints than others having high levels of management orientation. This finding is in agreement with results of Arathy (2013) [1].

Deferred gratification Vs Production constraints
From the table 1 it is clear that coefficient of correlation value (r= -0.772**) between deferred gratification and the production constraints faced by the respondents was negatively significant. Hence the null hypothesis was rejected and the empirical hypothesis was accepted. Deferred gratification in general is the optimism of the farmers to wait for the anticipated produce or profits. Greater the deferred gratification greater would be the satisfaction which implies probability of constraints faced would be less as less constraints would result in greater satisfaction. The results were in tune with the results of Nagabhushana (2007).

Conclusion
Correlation analysis revealed that variables such as age, education, annual income, farm size, farming experience, extension contact, mass media exposure, management orientation and deferred gratification were negatively and significantly related with production constraints of rice farmers. While risk orientation had positive and significant relationship with the dependent variable. However, economic orientation had non-significant relationship with the dependent variable i.e. production constraints faced by the rice farmers.

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