FARMERS OPINION ON RICE GROWING IN PAPUA NEW GUINEA

Abdul Halim and William Kerua

ABSTRACT

A survey was conducted in Situm, Markham, and Finschhafen areas of Morobe Province and Kerowagi area of Chimbu Province to assess farmer's opinion on rice growing. Ninety five (95) farmers consisting of both rice and non-rice growers of mixed gender were randomly selected. Using interview schedules data were collected on personal, situational and socio-economical aspects that are likely to influence the farmers' attitude on rice growing.

The study indicated that experienced farmers were able to grow rice as well as other major cash crops successfully. There was a positive relationship between farmers who are members of farmer groups and growing of rice. It was also found that being a member of a farmers association and/or a group have benefited them in some ways. The main reasons for not growing rice by most farmers were, lack of knowledge and skills in rice cultivation, information and access to credit which discouraged farmers from growing rice.

This indicates that adequate rice training is required for farmers to provide them with basic knowledge, skills and techniques in growing rice. Some form of supervised micro financing for growing rice is also essential to enhance rice production in PNG. Intensive extension services with field demonstration of rice cultivation will likely boost rice production. Supply of inputs and milling facilities must also be made available to the community. Interestingly the opinion of the farmers did not differ significantly with locations.

Keywords: *Rice, farmers, opinion, micro-credit, training*

INTRODUCTION

Rice (*Oryza sativa*) was introduced into PNG more that 100 years ago and grown mainly as a subsistence crop in localized area in several parts of the country. Although commercial rice production was promoted in the past, but it was unsuccessful. However, in recent years small scale subsistence rice cultivation has increased substantially. It is now grown throughout PNG, including the highlands.

To date no study has been undertaken to determine the factors that influence subsistence rice production in PNG. Therefore the aim of this study is to determine: (i) the reasons for cultivating rice by subsistence farmers, and (ii) the factors that are influencing subsistence rice cultivation.

METHODOLOGY

Study Design

The design used in this research was 'cross-sectional study design' which is best suited to studies aimed at finding out the prevalence of a phenomenon, situation, problem, attitude or issue, by taking a cross-section of the population in the context of PNG. The research paradigm approach was more 'constructivist' as there is no single explanation that can provide the definitive understanding of a social situation as in a research problem due to multiple reasons why rice can not be cultivated or included in the farming system in PNG. As a constructivist research, more qualitative methods have been used with limited support of quantitative insight.

Population and Sample

A total of 95 farmers 24 each in the Finschhafen, Situm, and Markham area of Morobe Province and 23 in Kerowagi areas of Chimbu Province were randomly selected. The farmers selected were both rice and non-rice growers. Seventy (70) male and 25 female were interviewed. The reason for interviewing non- rice growers was to establish the reasons why they chose not to grow rice. However, data were not analysed according to male or female and that of rice growers and non-rice growers due to small size of the sample.

Department of Agriculture, Unitech

Data Collection and Analysis

The survey was conducted for 2 weeks in November 2005. It was a face-to face personal interview using an interview schedule where most farmers being interviewed in the evenings after their return from garden. Data were analysed using Statistics Packages for the Social Sciences (SPSS) program software. The statistical tests used include percentage distribution, and correlation between independent and dependent variables. These responses were then recorded to obtain correlation coefficient Matrix table to determine the significant relationships. Data were interpreted based on the outcome of the statistical tests.

RESULTS AND DISCUSSIONS

The description of the variables in figures is presented in table 1.

Relationship between Variables

The hypothesis was that an individual's choice of growing rice is a function of personal, situational, and /or socio-economical factors influencing that individual. Correlation analysis was used to test for the existence of a relationship between the growing of rice and the above three factors. The results of bi-variate correlation analysis for selected variables at the four study location are given in Table 2.

Table1. Description of Variables

Variables	Components	Percent (%)
1. Age	< 30 years	22
	30-40 years	34
	> 40 years	44
2. Marital Status	Single	20
	Married	67
	Widowed	8
3. Family size	4 or less	33
	5 - 10	60
	> 10	7
4. Education level	No formal education	7
	Grade 1 – 6	62
	Grade 9 - 12	23
	College level	8
5. Farming experience	Growing rice < 1 year	2
	Growing rice 1-5 years	39
	Growing rice > years	3
	Never grown rice	56
6. Group membership	Farmers group	68
	Non farmers group	32
	Usefulness of group	81
	Group not useful	19
7. Farm size	< 4 hectares	38
	4 – 7 hectares	19
	< 7 hectares	43
8.Cosmopoliteness	Visited other provinces	82
	Never travelled out	18
9. Reasons for growing rice	Self consumption	34
	To sell	1
	Just for trial	10
	For other reasons	3
	Not applicable (non-rice growers)	52
10. Reasons for not growing rice	Lack of knowledge and skills	29
	Lack of rice seeds	7
	Lack of funds	12
	No milling facilities	3
	Lack of extension activities	1
	Not applicable (rice growers)	48

Table 2. Association between rice growing and range of personal, situational, and socio-economical variables

Variables		
Independent Variables	**Dependent Variables**	**r value**
Chimbu		
Age	Reasons for growing rice	ns
Gender	Reasons for growing rice	ns
Marital Status	Reasons for growing rice	ns
Family size	Reasons for growing rice	ns
Education	Maj. cash crops grown	-0.517**
Farm size	Reasons for growing rice	ns
Rice farming experience	Reasons for growing rice	0.594**
Other farming experiences	Maj. cash crops grown	0.447*
Group membership	Group usefulness	0.974**
Cosmopoliteness	Source of extension	-0.503*
Extension visits	Reasons for growing rice	ns
Access to credit	Constraint to grow rice	ns
Markham		
Age	Reasons for growing rice	0.480*
Gender	Reasons for growing rice	ns
Marital Status	Reasons for growing rice	ns
Family size	Reasons for growing new crop	0.490*
Education	Maj. cash crops grown	ns
Farm size	Reasons for growing rice	ns
Rice farming experience	Reasons for growing new crop	ns
Other farming experiences	Maj. cash crops grown	ns
Group membership	Reasons for growing rice	-0.577**
Cosmopoliteness	Access to agric. Information	ns
Extension visits	Reasons for growing rice	ns
Access to credit	Constraint to grow rice	ns
Situm		
Age	Reasons for growing rice	ns
Gender (male)	New crops grown	0.405*
Marital Status	Reasons for growing rice	ns
Family size	Reasons for growing rice	ns
Education	Maj. cash crops grown	ns
Farm size	Reasons for growing rice	ns
Rice farming experience	Reasons for growing rice	0.730**
Other farming experiences	New crops grown	0.437*
Group membership	Reasons for growing rice	ns
Cosmopoliteness	Access to agric. Information	ns
Extension visits	New crops grown	-0.505*
Access to credit	Constraint to grow rice	0.436*
Finschaffen		
Age	Reasons for growing rice	ns
Gender	Reasons for growing rice	ns
Marital Status	Reasons for growing rice	ns
Family size	Reasons for growing rice	ns
Education	Reasons for growing rice	ns
Farm size	Reasons for growing rice	ns
Rice farming experience	Growing rice	0.941**
Other farming experiences	Maj. cash crops grown	ns
Group membership	Reasons for growing rice	ns
Group usefulness	Reasons for growing rice	0.490*
Cosmopoliteness	Access to agric. Information	ns
Extension visits	New crops grown	ns
Access to credit	Constraint to grow rice	ns

* - Correlation is significant at the 0.05 level
** - Correlation is significant at the 0.01 level
ns - Not significant

Interpretation of Relationship between Independent (Selected Factors) and Dependent (Opinion of Farmers) Variables in Rice Farming according to Locations

Chimbu

Selected personal factors were tested to determine whether or not they were significantly related to the choice of cultivating rice. The test indicates that age, gender, marital status, family size and level of education were not significant while farming experience was significant for both choice of rice cultivation and growing of other introduced crops. However, level of farmers' education was negatively significant in relation to major cash crops grown. This might be due to the fact that educated farmers are involved in other income generating activities.

Age, gender and marital status were not significantly correlated to the reasons for growing rice, suggesting that these are not critical factors that influences farmers' decision to grow rice.

Family size, measured as number of persons in a household, was also not significantly correlated to the cultivation of rice, but acts as a contingent in providing family labour available for labour intensive operations. This is in conflict with the study of Igodan et al. (1988), which showed positive correction.

It is often believed that education allow the farmer to apply innovations more effectively but studies by Rogers and Shoemaker (1971) showing relationship between education and adoption failed to confirm the existence of such relationship which is in line with the findings of this study, where education was negatively significant.

Farming experience, measured as the number of years of farming, was significantly correlated to identifying the problems in growing rice and option of growing other major cash crops. Farmers with many years of experience were able to identify and determine problems in cultivating rice and therefore able to continue with rice growing. Similar situation was also found in growing other cash crops.

Cosmopoliteness had negative correlation with source of extension. Cosmopoliteness increases an individual's exposure to more new ideas and information, and helps to increase knowledge and aspirations (Kashem et al. 1992). Farmers who were member of farmers association or groups found to experience some usefulness or benefited in one way or the other.

Extension visits and farmers' access to credit facilities had no significant correlation with the reasons for growing rice. Farmers grew rice for self-consumption, to save money from buying imported rice from stores and to sell. A few farmers grew rice just for trial or for other reasons.

Markham

The membership of farmers' association has a significant negative impact on reasons of growing rice. However, there was some evidence of significant relationship in family size and reasons for growing rice. Fifty eight (58%) of the respondents had a family size of 5-10, which indicates that family size acts as a contingent of number of family labour available for the use of labour intensive inputs in the event of cultivating rice. There was a substantial relationship between the age of farmers and the reasons for growing rice, as 30 % of rice farmers are between the age of 20 to 40 years, while 70% farmers who are above 40 years do not grow rice. This indicates that few younger farmers are innovative and tend to grow rice than the older farmers.

Gender, marital status, farm size, farmers experience in growing rice, extension visits and farmers access to credit have no significant effect to the reasons for growing rice. Also, education and other farming experience have no significant correlation to major cash crop grown. It is also evident that cosmopoliteness has no significant correlation to access to agricultural information.

Although ninety six percent of the farmers were member of farmers association or group of some sort but have negative correlation to the reasons for growing of rice.

Most farmers had land that was above 7 hectares but farm size did not significantly influences the farmers' adoption behaviour in rice, as they preferred to grow other crops.

Situm

The results indicated that age, marital status, family size, farm size and group membership was not significant to reasons for growing rice while, education had no significant relationship with farmers' choice of growing major cash crops, and also cosmopoliteness had no significant correlation to access of agricultural information.

However there were some evidences of significant relationship in farmers experience in rice farming and the reasons for the farmers' choice of growing rice. Farmers with other farming experiences had a significant relationship with the choice of growing new crops. However, extension visits had negative correlations with the farmers' choice of growing a new crop. This may be due to the fact that all extension efforts are thrusted towards other cash crops rather than rice and other new crops.

It was observed that, farmers who have access to credit tend to grow rice and are able to determine the problems in growing rice.

Finschaffen

It was found that, all personal, situational and socio-economical factors were non significant, except farmers' rice farming experience and farmers' group usefulness which had some significant relationship with the farmer's choice of growing rice.

Being a member in a farmer association or group by itself does not have any direct influence over the farmers' decision to grow rice or not, although other members in the group and/or support from the group have some significant influence in the farmers choice of growing rice.

In Fischaffaffen, most farmers (74%) have no access to credit facilities and never borrowed money from any bank or other sources. Therefore access to credit facility was not significantly correlated to the reasons of growing rice.

Other Factors Associated with Growing of Rice

Of the total of 95 farmers interviewed, with different level of farming experiences, less than half had grown rice and some of the reasons for growing rice were;

- for self consumption
- to save money from buying imported rice from store, and
- to sell the surplus rice as an alternative source of income.

Main purpose of growing rice was for self-consumption and sell only when there was surplus and this finding confirms the study by Kerua (2005), indicating that cultivation of rice by farmers was for food security and additional income.

The majority of the interviewees never grew rice and expressed their discouragement for the following reasons;

- lack of experience, knowledge and skills in rice cultivation
- lack of extension activities and visits, and
- other factors such as lack of seeds, funds and milling facilities.

This was also established in Faheys' (2006), Keruas' (2005) findings as some of the main reasons why farmers did not grow rice. However, there was no sufficient relationship between the number of extension visits and the choice of farmers growing rice.

CONCLUSIONS

Although results varied slightly at different sites, the following factors emerged across all sites:

1. Most personal characteristics of the farmers were not an important aspect in the farmers' choice of growing rice except for their experience in farming, although, age and gender had some evidence of positive correlation with the reasons for farmers to grow rice or other new crops. It implies that those farmers who have been farming for many years have the ability to include not only rice but also other major cash crops into their farming systems.

2. The reasons for not growing rice by most farmers were, lack of knowledge and skills in rice cultivation, although other factors also discouraged farmers from growing rice. Most farmers have no access to information on rice due to limited extension support or for other reasons. However, the correlation tests from Situm location indicated that extension visits had a negative correlation effect on the farmers' choice of growing new crops. This might be due to the reason that extension efforts are directed to other agricultural activities but not to rice cultivation.

3. Being a member of a farmer's association or group has benefited the farmers in some ways. One of the main benefits that stood out was that the association enabled the members to share information and establish better communication, but had no direct benefit in growing rice.

4. Cosmopoliteness had negative correlation with extension contact in Chimbu but not significant in other three locations. Although, cosmopolitiness increases an individual exposure to more new ideas and information, and helps to increase

knowledge and aspirations, this study did not substantiate these. This must be due to the fact that those who are cosmopolite concentrate more on other activities than on agriculture.

5. Lack of knowledge and information in rice cultivation and lack of access to credit sources, have been identified as constrains in rice cultivation. Therefore adequate rice training is required for farmers to produce basic knowledge, skills and techniques in growing rice and micro-credit facilities should be made available to these farmers.

ACKNOWLEDGEMENT

The authors are grateful to the Trukai Industries Ltd for providing funding support to conduct this study, Ms. Veronica Bue and Ms. Millicent Rova for assisting with data analyses and running the statistical tests, and all participated farmers for providing the necessary information.

REFERENCES

BOURKE, R.M. (2000). An Overview of Food Security in Papua New Guinea . In:Bourke, R.M., Allen,M.G. and Salisbury, J.G., (eds), *'Food Security for Papua New Guinea'– Proceedings of the Papua New Guinea Food and Nutrition 2000 Conference, PNG University of Technology, Lae.*

FAHEY, G.P, (2006), Opinion of Rice Growers, Non Rice Growers and Policy Makers Towards Rice Cultivation in Papua New Guinea (unpublished), *A thesis submitted for MPhil*, PNG University of Technology, Lae

IGODAN, C.O.; OHAJI, P.E. AND EKPERE, J.A. (1988). Factors Associated with the Adoption of Recommended Practices for Maize Production in the Kainiji Lake Basin of Nigeria, *Agricultural Administration and Extension*. 29 (2), 149 -156.

KASHEM, M.A., HALIM, A., AND RAHMAN, M. Z. (1992). Farmers' Use of Communication Media in Adopting Agricultural Technologies – a Farm Level study in Bangladesh, *Asia Pacific Journal of Rural Development*, 2 (1), 94-112.

KERUA, W. (2005), Factors associated with farmers adoption of rice growing in some areas of Morobe Province, Papua New Guinea, (Unpublished). *"Report submitted for partial fulfilment of Master of Rural Systems Management"*; University of Queensland, Australia.

ROGERS, E.M. AND SHOEMAKERS, F. F. (1971). *Communication of Innovations*, New York. The Free Press.

VOH, J.P. (1982). A Study of Factors with the Adoption of Recommended Farm Practices in a Nigerian Village, *Agricultural Administration*, 9, 17-27.