

ASSESSING THE IMPORTANCE OF RICE AS FOOD AND INCOME SECURITY CROP IN PUTI-PUTI SUB-COUNTY, PALLISA DISTRICT, UGANDA

ABSTRACT

Aims: This study was conducted to assess the importance of rice to household food and income security.

Study design: This was a cross sectional survey

Place and Duration of Study: The study was conducted in Puti-Puti sub-county, Pallisa district, eastern Uganda during the period June-July 2011.

Methodology: Multi-stage random sampling technique was used to identify the target location and the respondents. Semi-structured questionnaires and interview guides were used to collect information from 50 respondents comprising (40 farmers, 4 political and 6 technical staff) on the importance of rice to household food and income security.

Results: The findings showed that rice is an important food staple and source of cash income in the sub-county contributing 34 % and 36 % of the food and income source, respectively. Nearly 50% of the respondents earned at least UGX 400,000/ per annum from sale of rice of which 32% is spend on household needs. The other reasons for growing rice included easy storage, pests and disease tolerance among others. The findings also showed that the major types of rice grown were mainly paddy as opposed to the upland. However, the majority (76%) of the rice growers owned between 0-5-1 acres only. Similarly, lack of capital, pests and diseases infestation and use of poor varieties were the other constraints in rice growing.

Conclusion: Overall, rice contributed 12% of the household returns after sweetpotato and groundnuts, respectively. Therefore, this study has concluded that rice is an important household food and income security crop in the sub-county. However, to improve the popularity of rice as an household food and income security, there is need for better varieties that are high yielding, early maturing, tasty, pest and disease resistant as well as easy to grow and market.

Keywords: Cash, food, importance, income, rice, security

1. INTRODUCTION

Rice (*Oryza sativa* L.) is an important cereal staple food for a large part of the world population in terms of the area cultivated and amount consumed. Globally, more than 90 and 60 % of the global rice is grown and consumed in Asia and south east Asia, respectively (1).

27 According to Tsuboi (2), the total area under rice cultivation globally is estimated to be
28 150,000,000 ha with annual production averaging 500 million metric tons. In fact, rice
29 represents 29 % of the total output of grain crops worldwide (3). Recent, production statistics
30 within the east African region showed that Tanzania has attained self-sufficiency in rice
31 production while in Uganda area under rice cultivation has grown tremendously as a result of
32 government efforts to diversify the economy (4).Traditionally, rice has the potential to
33 improve nutrition, boost food security, foster rural development and support sustainable land
34 use in Africa. Accordingly, rice has grown to become an important food staple and source of
35 cash income for the majority of the farming communities in Uganda. Rice is also becoming
36 increasingly popular in Africa, the Americas, and elsewhere. In fact, the growing importance
37 of rice as a food staple and cash crop is due to the extensive urbanisation and decline in
38 production of finger millet, cassava and banana the major sources of carbohydrate staples in
39 Uganda (5). According to Bigirwa *et al.*(6), rice is now considered among the food security
40 crops in Uganda for alleviating poverty among the rural poor. Currently, Uganda produces
41 350,000MT against the demand of 450,000MT per annum (7). Yet, FAO projections indicate
42 that, the number of people depending on rice worldwide is expected to reach 3.5 billion in
43 2025 (1). Consequently, the importance of rice in food security and socioeconomic stability is
44 self-evident.

45
46 Although, in Uganda rice growing dates as far back as 1904, serious rice production gained
47 prominence among the farming communities in the early 1990s. At that time, efforts to build
48 up a strong food reserve was not so much successful as most crops grown were for
49 subsistence rather than commercial purposes. According to UBOS (8), one of the most
50 preferred and considered crops that are likely to boost household food and income security
51 is rice. Consequently, the importance of rice as a food security crop relates to the measures
52 in place to ensure continuous supply to meets the demands as at the required time, scope,
53 quantity and quality as desired by the population (9). This is because, all activities involved
54 in the rice value chain have a potential to create wealth for all including farmers,
55 transporters, millers, traders and the economy. Although, until 1950, rice growing was not
56 popular in Pallisa district, the growing population in the district and the need for more food to
57 supplement other staple crops especially finger millet, sorghum, sweet potatoes and maize
58 has boosted rice growing as a common economic activity in the district (10). However,
59 information on the importance of rice as a food security and household income in Puti-Puti
60 sub-county is not documented. Therefore, the objective of this study was to assess the
61 importance of rice as a food and cash crop in the Puti-Puti sub-county, Pallisa district
62 eastern Uganda.

2. METHODOLOGY

The study was a cross sectional survey conducted in Puti-Puti sub-county, Pallisa district, eastern Uganda. Pallisa district has an undulating landscape with bimodal rainfall. The minimum and maximum temperatures ranged from 18-20°C– 28-32°C, respectively. The soils are relatively fertile despite the monoculture types of cultivation being practiced (11). Both quantitative and qualitative approaches were used to solicit information from the respondents comprising the farmers, key informants/opinion leaders and agricultural extension workers. Multi-stage random sampling technique was used to identify and select the location and the respondents. Four parishes were selected based on the size and the intensity of rice production. From each parish, 5 villages were surveyed from which eight farmers were randomly selected from the local council registers of each village. Semi-structured questionnaires and interview guides were used to collect information on the importance of rice as a food and cash crop, types of varieties grown, uses of rice, reasons for and against growing rice as well as the contribution of rice to household expenditure from the respondents. In total, 50 respondents consisting of 40 farmers, 4 key informants/local leaders and 6 agricultural extension workers were interviewed. All data collected were coded, edited and entered on excel spreadsheet and analysed using descriptive statistics of SPSS computer package.

3. RESULTS AND DISCUSSION

3.1 RESULTS

The importance of rice growing to household food and income security is presented in Tables 1 and 2. A number of crops were grown for both food and sale. Yet, only groundnuts and sweetpotatoes were ranked the most dominant food crops in the sub-county contributing 29% and 25% of the household income, respectively. Similarly, a number of crops were grown for sale in the sub-county. For instance, coffee and rice contributed 42% and 26% of the household income, respectively. Interestingly, the major traditional cash crops such as cotton and tobacco were of less significance in the sub-county but rice featured more prominently as both food and cash crop contributing 12 and 26% of the household income, respectively. In both cases, rice production was higher than those of the other crops in the sub-county (Tables 1 and 2). However, rice was grown mainly as a subsistent rather than commercial crop (Figure 1). In fact, 76% of the respondents grew rice on very small acreage ranging between 0.5-1 acre compared to 3 acres and above (Table 3). Overall, the average production of rice was between 100-200 metric tonnes per season although higher harvest was obtained from the first season than the second season (Figure 1). In fact, the low rice

101 harvest during the second season was attributed to shorter rainfall, reduced cultivated
 102 acreage due to uncertainty in rainfall and bird damage among others. Rice growing in Puti-
 103 Puti sub-county was categorized into two namely, paddy and upland (Figure 2). The most
 104 common lowland and upland varieties grown was Super and NERICAs, respectively (data
 105 not shown).

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109 Table 1: Household cash income from sales of food crops grown in Puti-Puti sub-county,
 110 Pallisa district, 2010/2011

Crop	Estimated production (metric tonnes)	Average annual household income (UGX)*	Percentage of output sold
Sweetpotatoes	4.3	500,000	25%
Finger millet	2.5	100,000	5%
Groundnuts	4.7	700,000	29%
Simsim	0.5	125,000	10%
Rice	40	300,000	12%
Matooke	1.8	200,000	7%

111 *1 US \$= 2650 Uganda shillings

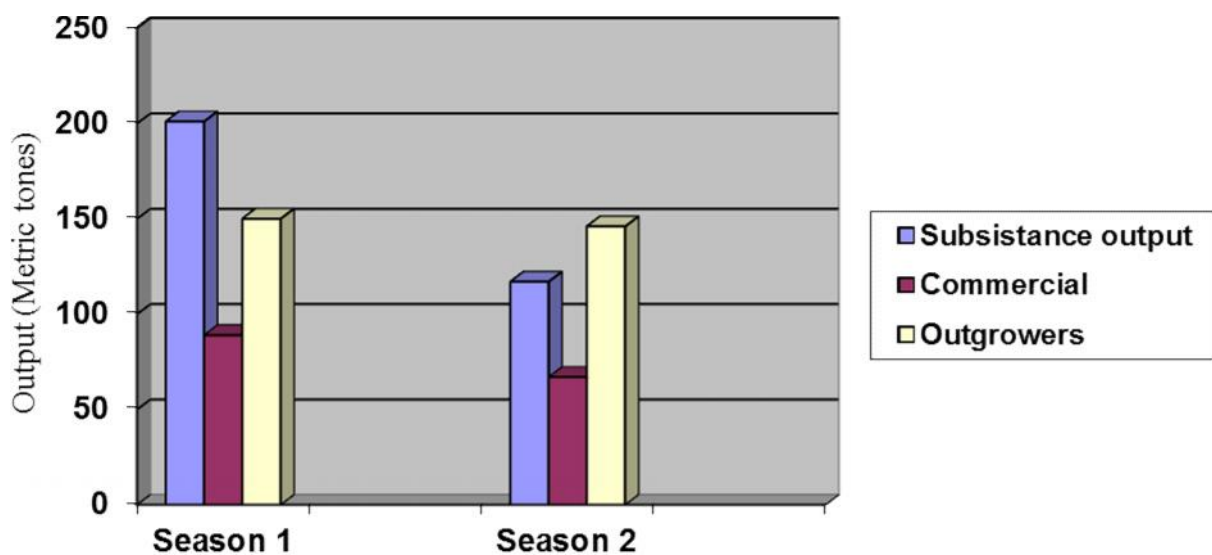
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113

114 Table 2: Household cash income from cash crops grown in Puti-Puti sub- county, Pallisa
 115 district, 2010/2011

Crop	Estimated production (metric tonnes)	Average annual household income (UGX)*	Percentage of output sold
Tobacco	0.3	190,000	9%
Coffee	9.5	500,000	42%
Cotton	0.2	120,000	7%
Tea	0.4	125,000	10%
Rice	110	400,000	26%

116 *1 US \$= 2650 Uganda shillings

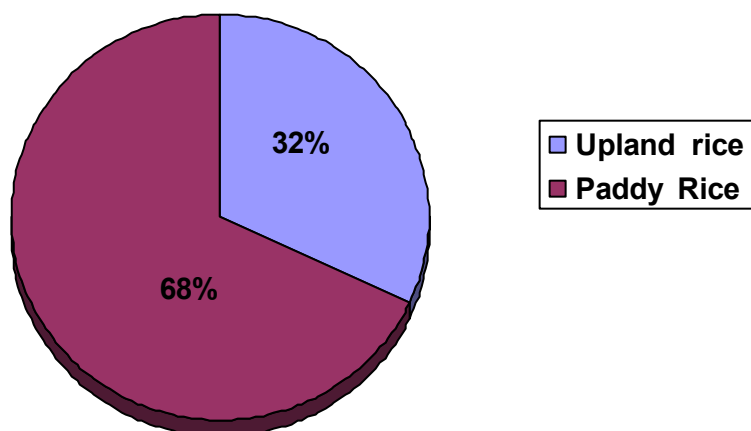


117
118 Figure 1: Total household rice **production** per season in Puti-Puti Sub-county, Pallisa district,
119 2010/2011
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121
122 Table 3: Acreage of rice farmlands in Puti-Puti sub-county, Pallisa district 2010/2011

Area (Acres)	Frequency (%)
<0.5	08
0.5 -1	76
1- 3	12
>3	04
Total	100

123



124
125 Figure 2: Category of rice grown in Puti-Puti sub-county, Pallisa district, 2010/2011

126
127
128 The income from the sale of rice ranged from UGX 400,000/= to UGX 1,200,000/=.
129 However, the proportion of respondents earning between UGX 800,000/= to 1,200,000/=
130 and above was less than 20% (Table 4). The money obtained from the sale of rice was used
131 for a variety purposes including catering for household needs and starting up other
132 businesses among other things (Table 5). Various reasons were given for growing rice
133 including food and source of cash income. The other contributions of growing rice were
134 occupation of availability of land and treatment as traditional crop. In general, 36% and 34%
135 of the respondents grew rice for both cash and food, respectively (Table 6). The major
136 attributes for growing rice in Puti-Puti sub-county were storability, pests and diseases
137 resistance, both a cash and food crops as well as faster maturity (Table 7). Unfortunately,
138 rice growing in Puti-Puti sub-county was constrained by a number of factors including limited
139 capital, pests and diseases as well as poor varieties among others (Table 8).

140

141 Table 4: Annual estimated income from rice growing in Puti-Puti sub-county, Pallisa district,
142 and 2010/2011

Annual income estimate (UGX)	Frequency (%)
<400,000	48
400,000- 800,000	36
800,000 – 1,200,000	10
>1,200,000	06
Total	100

143 *1 US=2650 Uganda shillings

144

145 Table 5: Household expenditure from rice income in Puti-Puti sub-county, Pallisa district,
146 2010/2011

Expenditure (uses) / items	Frequency (%)
Buying household basic needs	32
Startup of commercial ventures	30
Acquisition of more land	20
Seeking other employment opportunities	10
Acquisition of other crop varieties	08
Total	100

147

148

149 Table 6: Importance of rice growing in Puti-Puti sub –county, Pallisa district, 2010/2011.

150

Contribution	Frequency (%)
Increased income	36
Increased food for household	34
Occupation of available land	20
Considered a traditional crop	10
Total	100

151

152 Table 7: Major attributes for rice growing in Puti-Puti sub-county, Pallisa district, 2010/2011
153

Attributes	Frequency (%)
Storability	32
Pests and disease resistance	20
Both a cash and food crop	26
Widely grown and accessible	08
Matures faster	14
Total	100

154
155 Table 8: Constraints of rice growing to households in Puti-Puti sub-county, Pallisa district,
156 2010/2011
157

Constraints	Frequency (%)
Limited capital	26
Pest and diseases	22
Poor rice varieties	20
Inadequate agriculture tools and equipment	14
Shortage of land	08
Shortage of labour	06
Limited market	04
Total	100

158 159 3.2 Discussion

160 This study was conducted to assess the importance of rice as food and income security crop
161 in Puti-Puti sub-county. Rice was ranked very highly both as a food and cash by the
162 respondents where it contributed 34 and 36% of the household food and cash income,
163 respectively. Previously, Hyuha *et al.* (12) reported that rice has some favourable impact on
164 the welfare of the farm families involved in its production because it ensures food security
165 and can be sold for money to cater other household needs. Therefore, higher production
166 means higher quantity to save for food and sell for money, respectively. In fact, our findings
167 has shown that rice does not only serve as food for home consumption but also serve as a
168 source of cash income to many households an indication that a significant proportion of the
169 respondents derived livelihoods from it. Besides, rice was considered as a way of utilizing
170 idle land as well as traditional crop. This therefore, means any anybody can grow it as long
171 as some land can be secured. Accordingly, UBOS (8) had forecasted the importance of rice
172 as a preferred food and income security crop for Uganda. However, the proceeds from rice
173 sale did not equal or match the one for crops such as sweetpotatoes, groundnuts and coffee.
174 This probably implies that the majority of the farmers were either not used to rice growing or
175 the prices offered is unfavourable or they lacked where to grow. In fact, our findings have
176 shown that rice is grown predominantly as a subsistence crop where the majority of the
177 farmers owned between 0.5-1 acres of rice plots compared to 5 acres above. Indeed, they

178 may lack the bargaining power to attract better prices or access better markets (10).
179 Elsewhere, it has been shown that rice growing is predominantly undertaken by resource-
180 poor farmers who lacked adequate resources to engage in large production (13; 14; 15).
181 Besides, the intensive nature of cultivation and high labour requirements has also been
182 reported to account for the smaller acreages (5).

183

184 The most predominantly grown types of rice in Puti-Puti sub-county like elsewhere in the
185 region were mainly lowland varieties as opposed to the upland. This scenario could be
186 attributed to a number of reasons including unavailability of seeds, lack of awareness and
187 sensitisation, taste and preference as well as marketability. According to Bigirwa *et al* (6),
188 rice growing in Uganda is a new culture characterized by a number of challenges including
189 limited knowledge on crop husbandry, manual farm operations, limited farm inputs,
190 unpredictable weather and bird damage among others. The major attributes to rice growing
191 were good storability, pest and disease resistance among others. Accordingly, Kisamba (10)
192 noted that as cultural and general agricultural practice, rice builds a strong contribution to
193 food security and income since it lasts long in store. In fact, it can be stored as grain or with
194 cereals in their sheath which keeps them pest free for long period of storage. Furthermore,
195 Elamin *et al.* (15) demonstrated that families in areas where rice growing is dominant tend to
196 have a stock of rice crop at almost every time of the year. This acts as a “buffer stock” for
197 food which keeps food available both in dry and wet spells of the year.

198

199 **4. CONCLUSION**

200

201 This study has shown that rice is a source of livelihoods to the majority of respondents in
202 Puti-Puti sub-county because it serves as both food for home consumption and source of
203 cash income. However, the lack of high yielding varieties coupled with poor production
204 technologies including pests and disease infestations as well as bird damage makes rice
205 growing a less profitable venture. Therefore, there is need for rice enhancing technologies to
206 facilitate widespread adoption and diffusion of rice as a food and income security crop.
207 There is also need to sensitise the different stakeholders in the rice value chain about the
208 importance of rice and its by-products to avoid the negative effects of rice as a climate
209 change promoter.

210

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212

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217

218 **COMPETING INTERESTS**

219 NO COMPETING INTEREST

220

221 **AUTHORS' CONTRIBUTIONS**

222

223 Both authors contributed equally. The second author collected and analysed the data while
224 the first author wrote the paper. Both authors read and approved the final manuscript.

225

226 **CONSENT (WHERE EVER APPLICABLE)**

227 **NA**

228 **ETHICAL APPROVAL (WHERE EVER APPLICABLE)**

229 **NA**

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282 **DEFINITIONS, ACRONYMS, ABBREVIATIONS**

283 Here is the Definitions section. This is an optional section.

284 **Term:** Definition for the term

285 **APPENDIX**