

**THE CONTRIBUTION OF RICE GROWING TO HOUSEHOLD INCOME
AND FOOD SECURITY IN DOHO SUB-COUNTY
BUTALLEJA DISTRICT**

**BY
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DECLARATION

I, **NTUDHU GRACE**, do declare that the work herein is presented in its original form and has not been presented to any other university or institution for any academic award whatsoever.

Signature.....

Date.....

APPROVAL

This is to certify that this work has been done under my supervision and submitted for examination with my approval.

Signature..........Date.....3rd Sept 2018.....

MADAM TALIGoola DEBORAH

DEDICATION

I dedicate this work to my mother Ms. Mukoda Dinah and Mr. Kigenyi Samuel for having been there for me, all the courage I have at University is because I want to make a better life for her. I also dedicate this work to my friend Nahabwe Rodah.

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My gratitude goes to the College of Education at Kampala International University for imparting the priceless knowledge onto me. I am also grateful to my supervisor Madam Taligoola Deborah for her patience, love and guidance during this learning phase of my studies. I am very grateful to all individuals who contributed to my studies and research most especially My friends Tenywa Allan, my sister Tabala Peace your help is dearly valued and appreciated.

May God bless you in all your endeavors.

LIST OF ABBREVIATION

FAO	Food and Agriculture Organization of the United Nations
GIAR	Consultative Group for International Agricultural Rice
IFPRI	International Food Policy Research Institute
IRRI	International Rice Research Institute
JICA	Japan International Cooperation Agency
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
MFPEd	Ministry of Finance, Planning and Economic Development
NAADS	The National Agricultural Advisory Services
NGO	Non-Governmental Organization
SACCOs	Savings and Credit Co-operative Societies
UBOS	Uganda National Bureau of Statistics

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ABSTRACT

The purpose of the study was to assess the contribution of rice farming to the house hold income and food security in Doho sub county Butalejja District. Cross sectional method was used in the study. The survey sample consisted of 50 respondents all whom hailed from rice g rowers. These were selected using random sampling method. The primary data for the study was collected using questionnaires administered to therespondents that were selected for the s tudy, tables, graphs and percentage contribution aided in data presentation using micro soft ex cel.

The study established different ways in which rice growing affects people's welfare in Doho these include high wages on rice plantations increase people's income and welfare, low wages reduce people's earning, The use of modern rice growing methods increase crop like output, its quality and earnings land tenure from Rice production, poor farming methods reduce output harvested and earnings from rice production, high, high quantities of rice increase farmers output and earnings while small quantities of rice harvested reduce output and earnings

The study confirmed the existence of the challenges faced by ricegrowers. These includedun favorable climate as the major challenge, poor storage facilities, poor land tenure system, and poor farming methods, low wages, low rice prices and others pointed out agricultural price fluctuations

It was also discovered that rice growing can be increased through government fixing prices for agricultural commodities particularly rice to avoid variation in their earnings, introduction of minimum wage, others emphasized government to make reforms in the land act, construction of irrigation scheme and construction of storage facilities for the rice growers

The study recommended that the financial institutions be lured to finance large scale agriculture like rice growing in abide to boost production and farmers welfare. The institution can enhance agriculture by extending credit and other services to enable farmers increase productivity.

CHAPTER ONE

INTRODUCTION

1.0 Introduction.

This chapter was mainly based on the background of the study, statement of the problem, objective of the purpose of the study, scope of the study, hypothesis/ research questions and significance of the study and definition of key terms.

1.1 BACKGROUND OF THE STUDY.

Rice (*Oryzaspp.*) is the world's most important cereal considering the area under cultivation and the number of people who depend on it FAO, 1995; Africa rice Centre, WARDA, (2009). Rice is increasingly becoming important in the diet and farming systems in Africa. Madagascar is the leading producer of rice in east and South Africa region ADC, 2001; Luzi - Kihupi, (1998)

It is estimated that by 2001, East African countries were producing 5003,137 metric tons annually, which was below the estimated demand of 625,795 metric tons primarily due to low crop yields. Tanzania which is the largest producer of rice in East Africa is estimated to produce slightly over 500,000 tons annually.

Africa has become a big player in international rice markets, accounting for 32% of global imports in 2006 at a record level of 9 million tons that year. Africa's emergence as a big rice importer is explained by the fact that during the last decade rice has become the most rapidly growing food source in sub-Saharan Africa (Sohl, 2005)

Indeed, due to population growth (14% per annum), rising incomes and a shift in consumer preferences in favor of rice, especially in urban areas (Balasubramanian et al, 2007), the relative growth in demand for rice is faster in this region than anywhere in this world (WARDA, 2005). This is occurring through the sub-regions of sub-Saharan Africa (SSA).

Currently, rice is growing in over 75% of African countries, with a total population close to 800 million people. Rice is the main staple food of the populations in Cape Verde, Comoros, Gambia, Guinea-Bissau, Liberia, Madagascar, Egypt, Reunion, Senegal, and Sierra Leone. It is also an important food of the populations in Cote d'Ivoire, Mali, Mauritania, Niger, Nigeria and Tanzania. In addition, rice has become an important food security factor in Angola, Benin, Burkina Faso, Chad, Ghana and Uganda.

In recent years (2001-2005), rice production has been expanding at the rate of 6% per annum, with 70% of the production increase due mainly land expansion and only 30% being attributed to an increase in productivity (Fagade, 2000; Falusi,1997; Africa rice center,).Much of the expansion has been in the rainfed systems, particularly the two major systems that make 78% of rice land in west and central Africa(WCA): The upland rainfed low land systems (Dingkuhn et al,1997). None the less, demand for rice in WCA has far outstripped the local production Africa Rice center, 2007).

According to OISRIZ (ICIRAD's observatory of international rice statistics), Africa cultivated about 9 millions hectares of rice on 2006 and production, which surpassed 20 million tons for the first time is expected to increase by 7% per year in future. In West Africa, where the rice sector is by far the most important in SSA, the situation is particularly critical. Despite the upward trends in international and domestic rice price domestic rice consumption is increasing at a rate of 8% per annum, surpassing rice production rates of 6% per annum. The production consumption gap in this region is being filled by imports, valued at over 1.4 billion dollars per year. The share of imports in consumption rose from an average of 43% from 1991-2000 to an average of 57% by 2004 (WARDA, rice trends in sub-Saharan Africa, 3rd edition, Cotonou, 2005, P.31 and FAOStat; IRRI, rice Almanac, 3rd edition, Los Banos, 2002, P.79).

Rice has been gathered, consumed and cultivated by women and men worldwide for more than 10000 years (Kenmore, 2003), longer than any other crop. Except off course Antarctica, every continent of the planet produces rice, with over 122 countries currently growing the crop. Rice grows from the equator to latitudes of 53 degrees North (in China) and 35 - 40 degrees and to elevations (tropical regions) as high as 2400 meters above sea level (Kenmore, 2003).

The total area under rice cultivation is globally estimated to be 150, 000, 000 ha with annual production averaging 500 million metric tons (Tsuboi 2004). This presents 29% of the total output of the grain crops worldwide, (Xu et al., 2003). By 2004, more than half of the world's population depended on rice as its major daily source of calories and protein each consuming from 100-200 kilogram of rice per year. On the hand, the green revolution of the 1960/1970s, saved the world from a catastrophe of eminent food shortage, it was the drastic increase in

rice production that answered the then desperate food demands of the world's growing populations. Today, more than 2 billion people in Asia alone derive 80% of their calories intake from rice according to projected population growth (Jian song, 2003), a number of people living on rice worldwide is expected to reach 3.5 billion in 2025. The importance of the crop in food security and social economic stability is therefore self-evident.

Agricultural production is also predominantly rain-fed, and market-oriented, and based on rudimentary technologies and environmentally insound practices. Resultantly, the countries agricultural products are often of low volumes, poor quality and are costly to assemble for sustainable market supply. In addition the farmers are not organized in accessing inputs and marketing their produce efficiently, thereby incurring high production and marketing costs that affect the profitability of their enterprise.

Since Agricultural sector embraces such a large population of the country's population, the transformation of the predominantly subsistence agriculture into a market-oriented sector of the national economy MAAIF and MFPED, (2000). The ministry of agriculture, animal industry and fisheries also de marketed the country into agriculture forms, each with specific production futures that differ from each other. The intention, through this arrangement is for each zone to undertake a set of agricultural enterprises where it has the best cooperative advantage, and thus cause rapid economic growth and reduce household poverty.

Analysis of the ranking of enterprises as conducted by NAADS, (2004), shows that rice growing as an enterprise now ranks many the zones.

Rice production in Uganda started in 1942 mainly to feed the 2nd the world war soldiers however due to number of constraints, production remained minimal until 1974 when farmers appealed to the then government for assistance. In response, the government identified the Doho swamps in Butalejja constructed the Doho river stream.

Today rice is grown mainly by small scale farmers almost throughout the country, but also with large scale Farmers in few places. Total production is estimated at 165,000 metric tons .total rice consumption is estimated at 225, 000 metric tons. Population growth rate is 3.2% thus the demand for rice is expected to rise. Uganda adopted NERICA 1, 4 and 10 varieties in addition to the old lowland varieties. Since the introduction of upland rice in 2002, rice farming has grown from 4,000 farmers to over 35,000. Mostly rice in Uganda is grown in

eastern Uganda followed by western Uganda due to presence of lowlands with high moisture content throughout the growing season. Government of Uganda intends to increase rice production to cater for the ever increasing demand.

The Doho wetlands are part of an extensive network of wetlands in Butalejja district, which regulate the flow of water into Lake Kyoga. The area is 20km from Mbale town between 33 Degrees

, 55 to 34 degrees 05 east and 0, 50 to 1, 00 degrees and on an altitude of 1,050 to 10,100m above mean sea level. The area experiences a tropical climate with average temperature of 18 to 32 degrees Celsius (Lansdale-brown, 1960; Lansdale-brown et al., 1964). The rainfall amount varies between 1500 to 1750 mm per annum and is received within 120 days government of Uganda, (1997). However, the higher rainfall amounts have been recorded in some years such as 1975 (Government of Uganda, 1967; Unpublished reports of Chinese experts, 1976). The rainfall pattern is bimodal with peaks in March to May and August to October.

The soils in the area have largely been described as sandy and are characterized by low organic content, Government of Uganda, (1967). However areas along rivers along have fertile clay soils largely derived from the volcanic soils of neighboring Mbale district, Langdale- Brown et al., (1964). Kachonga sub- County which surrounds the Doho wetland has the population of 40,000 giving a density of 346 persons per km², Government of Uganda, (2006). The high population density is exerting immense pressure on the existing land resources. The majority (more than 70%) of the farmers have an average farm size of less than two hectares per family. Household incomes are low (less than US\$ 300 a year per family), and are mainly derived from the sale of rice MAAIF, 2001; Government of Uganda, (2006).

1.2 Statement of the problem.

Rice production has witnessed a steady rise from 27,000 tons in 1980 to the current estimate of over 180,000 tons, placing it amongst the most widely grown food crops in the country (MAAIF, 2008, Bureau of statistics Report, 2008). Doho rice scheme is one of the leading producers of rice in Uganda and in Butalejja district (JICA, 2006). Rice growing is the major source of income, employment and it greatly contributes to individual and households income

of the people in the region (UBOS, 2012).

However, rice growing has not improved the social economic conditions of the people, this is shown by the inadequate health facilities, poor roads, poor housing facilities where some of the individuals are still living grass thatched houses, poor transport network among others. The study therefore sought to establish the contradiction by analyzing the role of rice growing towards improving household's income in the region.

1.3 Purpose of the study.

To assess the contribution of rice farming to household income in Doho sub- county in Butalejja District.

1.4 Objectives.

- To establish the challenges affecting rice farmers in Doho sub-county Butalejja District.
- To examine the impact of rice growing on the household income in Doho sub-county Butalejja District.
- To ascertain strategies of increasing the household income in Butalejja.
- To assess the impact of agricultural research on poverty reduction and foodsecurity.

1.5 Research questions.

- I. What are the challenges affecting rice farmers in Doho sub-county Butalejja District.
- II. What is the impact of rice growing on household income in Doho sub-country, Butalejja district?
- III. What are strategies of increasing household income in Butalejja?
- Iv what is the impact of aagricultural research on poverty reduction and food security

1.6 Significance of the study.

To the management of Waibuga sub-county and other rice schemes across the country, the study may expose their potential in raising people's welfare so that they streamline more people, directly and indirectly, in their activities to raise their welfare.

The study finding should the Government and other policy makers on the potential of rice growing in raising people's welfare, as well as other alternative source of income so that steps can be taken to enhance rice growing

The study should add to the existing source of literature that may act as a source of reference for future researchers who may take interest in the areas of study. To the researcher, the study

will build on the research skills that may be of great importance towards the pursuit of future related studies.

To the farmers, the study should help the farmers to recognize the challenges that are being faced by other farmers in rice farming; this may help them to make consultations in order to overcome such challenges hence improving rice farming and improve on the household income.

1.7 Scope of the study.

The study assessed the role of rice growing towards improving people's income, case study of Doho sub-county Butalejja District. It also established the challenges faced by rice growers and the possible solutions to these challenges. The study was conducted at Waibuga Sub-county in Butalejja district 10km from Mbale due to the predominance of rice growing as the major economic activity. The study also used literature for the past 10 years so as to capture up to date and reliable data for the study, which was from 2005-2015.

CHAPTER TWO

LITERATURE REVIEW

2.0. Introduction

This chapter covered the existing literature on the role of rice growing towards improving people's welfare as a theoretical frame work up on which this study was built. Secondly it determined the challenges faced by rice growers and the possible solutions to the challenges

2.1. Challenges faced by rice Growers

According to national RiceDevelopment strategy UDRDS(2009),rice growing like any other agricultural activities is constrained by human and institutional capacity challenges,poor policies on soil and water management. Farmer groups are still weak and poor implementation of policies on soil and water management. Farmergroups are still weak and often collapse after accessing agricultural finance facility.

The low prices and fluctuating prices in local and international markets is also a major constraint to rice growers in Uganda. The production of rice greatlydependson the price of rice in the local and foreign market. A decline in world prices would lead to a decline in the quantity of rice produced at the local, ROZA (2007).

According to Ojsmbo, (2013), unfavorable weather is the main factor affecting rice production. When Uganda was hard- hut by severe and prolonged drought, the country experienced the worst drought, the in 60 years over the past five years, leading to food shortage. This led to the decline in rice production. This worsened by the adequate meteorological service that is inadequacies in providing early warning information related to changes in rain patterns to farmers.

Most rice growing areas are prone to natural disasters that adversely affect their activities. These calamities include widespread flooding, pests and diseases, landslides among others. Such disasters destroy crops, livestock, shelter and infrastructure and severely impact on rice growing household in many contiguous area, such disasters may lead to defaults and loss of output Arayama et al (2009)

Low funding to rice research, there is general lack of motivation and limited facilitation for district extension staff. Many district extension staff lack specialized knowledge in rice

production. Limited staff in development of rice subsector. MAAIF has only about 5 staff members' directly working in rice and about 7 other staff members and 10 district extension staff who occasionally deal with rice across the country. These few staffs are scattered in the various agencies of MAAIF. In addition to these staff are other MAAIF staffs within the MAAIF structure, MWE structure and MTI structure, office of the vice president and other organizations whose duties overlap into production of rice production during implementation of certain strategies MAAIF (2009)

Poor land tenure system, High cost land rent for rice farming, lack of collateral for agricultural finance due lack of land title, inadequate knowledge on rice farming, labor intensity in rice farming, lack of capital for rice farming, high crop losses due to pests and diseases, lack of appropriate implements and equipment for rice farming affect rice growers. Most sub countries do not even have tractors for hire, drought and unreliable rain patterns, poor quality and expensive seeds. The late delivery of seed and other inputs has led to reduced production and multiplication of the seed. There is difficulty in mobilizing the farmers for training/farmer field schools, MAAIF, (2009). Rice varieties such as NERICA 4 are very difficult to thresh and require a lot of energy if someone is doing it manually.

According to the ministry of agriculture, animal industry and fisheries (2009), poor/lack of storage facilities, poor book keeping and financial management by farmers, lack of drying facilities like tarpaulin or drying yard affect the quality of output, some farmers dry the rice on the ground and this reduces the quality rice. Poor road and infrastructure especially in areas of paddy rice growing thus affecting marketing

Rice processors challenges high cost of rice mills with high technical performance high cost of electricity and diesel increase the costs of operation, limited access to repair facilities and services, low quality at rice mills affect the duration of rice mill operation in a year, low quality of rice received at rice mills, lack of electricity in some rural places thus affect adoption of electric rice processing machine Kenmore p, (2003)

According to UBOS, (2007), Rice growers face challenges in input acquisition, Inadequate capital for doing meaningful business, low quality seed affect performance of inputs distribution and marketing, low market for inputs due to lack of capital by rice farmers, farmers inadequate knowledge on value of improved seed and, use and management of inputs

opportunities also pose a great challenge to rice growers. Government policy also indicates that there is need to combat soil degradation in most areas of Uganda.

Rice pests and diseases including weeds.

Destruction of rice crops by birds and rodents was cited as a severe problem hindering rice production in district surveyed. Bird damage is viewed as particularly severe during the first seasons at times resulting in farmers reducing rice acreage during this period. Mitigation should start with qualifications of actual rice damage/ loss attributed to birds. This would be a good reflection of the magnitude of the problem. Farmers should be encouraged to employ environmentally friendly methods for bird control including use of scare crow, specialized bird-scaring tapes, explosives, etc. As a long term strategy, research should embark on development of rice varieties that resist birds and diseases damage and with good cooking and milling qualities (Kenmore P, 2003).

Intermediate technology for rice production, processing and value addition: The survey clearly identified the following rice activities has been the most strenuous and time consuming : Land preparation, planting, weeding, harvesting, threshing and transportation of rice from rice Fields up to markets. Experiences from the rice producing countries in South Asia show that deployment of appropriate farm implements and equipment for rice operations above could significantly enhance labor productivity and quality, and improve the productivity of rice farming. Initiatives in this area should include selection and where applicable introduction of technology, building of capacity for local manufacture and repair of technologies with emphasis on research and private sector partnerships. There should be also massive on farm demonstration on application and actual benefits of such technologies. The role of animal traction was particularly sited by the Farmers in most of the district surveyed, has been pivotal to reduction in farm energy/ power and is a realistic solution to the current problem of rural transportation (JianSongo, 2003).

2.2 Impact of rice growing on household income.

Schwarze (2006) refers to welfare to have a number of components that is income, defined as output of the activities. It Measures both and in-kind contributions. Household income is measured as income from crop farming. The commercialization of rice growing has enhanced its contribution to people's welfare. UBOS (2009) notes that rice is one of the most essential cash and food crop not just to people's welfare but also to the national income basket.

The national development plan (NDP) notes that there has been a major shift from non-monitory to monitory agriculture since the 1990s, indicating that farming in Uganda has increasingly becoming more commercialized and market based due to liberal policy reforms that were adopted in 1990s. Nakaweesi (2012), observes that if rice production in Uganda grew at 6% per annum, poverty levels would fall from 31.1% in 2005 to 17.9% by 2015 in areas where commercial rice production is a major economic activity.

According to Karma et al (2007), rice production contributes to people's welfare particularly income by providing both direct and indirect employment. It provides agricultural and nonagricultural self-employment activities and this establishes a source of cash for the people that engage in trading.

Rice production especially on medium or large scale leads people to access finance in terms of loans or micro credit is provided through savings and credit cooperative societies (SAACO) and micro finance institutions (MFIS) for expanding production and increasing savings as part of government of Uganda's agricultural financial services to provide credit lines to the people and cooperatives to enable them increase agricultural production and improve access to markets. Thus access to credit can help rice growers increase productivity and farm incomes.

According to Arundel & Kabla, (2013); In Africa, currently rice is grown in over 75% of the African countries, with total population close to 800 million people. Rice is the main staple food of the populations in Cape Verde, Comoros, Gambia, Guinea, Guinea-Bissau, Liberia, Madagascar, Egypt, Reunion, Senegal and Sierra Leone. It is also an important food of the populations in Cote d'Ivoire, Mali, Niger, Nigeria, and Tanzania. In addition, rice has become an important food security factor in Angola, Benin, Burkina Faso, Chad, Ghana and Uganda.

Rice has been gathered, consumed and cultivated by women and men worldwide for more than 10,000 years longer than any other crop, Kenmore, (2006). Expect of course for Antarctica, every continent of the planet produces rice, with over 122 countries currently growing the crop.

Rice grows from the equator to latitude of 53 degrees north (in china) and 35 to 40 degrees and to elevations (in tropical regions) as high as 2400 metres above sea level. The total area under rice cultivation is globally estimated to be 150,000,000 ha with annual production averaging 500,000,000 metric tons (Tsuboi 2004). This represents 29% of the total output of grain crops worldwide.(Xu et al, 2003].

By 2006, more than half of the World's population depended on rice as its major daily source of calories and protein, each consuming from 100 to 200 kg of rice per year .on the other hand, the green revolution of the 1960/ 70s, saved the world from a catastrophe eminent food shortage, it was the drastic increase in rice production that answered the desperate food demands of the world's growing populations. Today, more than two billions people in Asia alone derive 80% of their calorie intake from rice. According to projected population growth (Jian song 2008), the number of people living on rice worldwide is expected to reach 3.5 billion in 2005 .The importance of the crop in food security and social economic stability is therefore self-evidence .In high income countries in the near East Europe and North America, rice is considered to be a healthy and tasty food and its consumption is growing

According to Dat Van (2005) Rice is also becoming increasingly popular in Africa, theAmericas, and elsewhere .Its importance is also progressively being recognized for its nutritional value and because it is an integral part of religious and social ceremonies .Rice production activities provide employment for several hundred million people who work either directly in rice production or in related support services

Indeed, agriculture, including rice based agriculture, still provides much of the raw material needed by today's manufacturing industry. Thus, poor rice harvests can have adverse effects on many nation's economies. With the harvest of true rice crop, activities shift to post production operations threshing, drying, cleaning, and milling more people, Kenmore P, (2003)

Since 1990, however, rice production has increased at a lower rate than the population (Dat van, 2000).This deceleration in the growth of rice production is a cause for concern in terms of world food security. It has been the topic of numerous reviews and several rice scientists have alerted those concerned of the risk of pending food crisis. Yields gap can still be observed in several countries, while evidence of Productivity decline in intensive rice production has been increasingly noticed both on research stations and in farmers' fields. Yield differences

can be explained by social economic and technical constraints. Poor harvests are largely associated with adverse soil and weather conditions, pests and diseases, Labor shortages especially with the current scourge of HIV/ AID and other chronic ailments.

Although majority of rice varieties cultivated on the continent today belong to O.Sativa, with China as its origin, over 10,000 years ago. The African continent is the home of Oryza .Glaberrima where it has been domesticated for about 3,500 years. This variety has mainly been confined to West African where it had been the most commonly grown. The white Asian types, OSativa, was introduced on the continent towards the end of the first millennium through Madagascar (WARDA, 2004) [http// www. warda .org](http://www.warda.org). "The Rice Challenge in Africa ". Its rapid spread in most African countries has however been due to the righteous efforts of the international Rice of NGOs breeding centers, namely international Research institute (IRRI) in the Philippines and later from the west African Rice Development Authority (WARDA) in Ivory coast.

2.3 Strategies on how to improve on people's income.

Loan finance. NGOs have sought to provide credit for investment in employment generation and micro- enterprises. In 1990, Oxfam published a book drawing together their experience of income generation schemes for the urban poor (Hurley 1990) and, since then, experience has widened considerably, supported by increasing recognition of the importance of microfinance. Papers for a recent INTRAC workshop reviewing the work of NGOs in four cities in Africa and Asia found that a high proportion of NGOs were supporting savings and loan activities for income generation in the settlements in which they were working.

NGOs may offer training to extend existing skills and to improve production efficiency and product choice. For example, APPACAN, an NGO based in Nairobi (Kenya), is working with women recently released from prison for minor offences such as hawking. They help these women recently released from prison for minor offences such as hawking. They help these women to acquire new skills in income generation trades that they can legally pursue. In addition to other trades, they make soft toys for the fair trade market. APPACAN teaches the women how to make these toys and is now advising them on how to improve the range of toys produced (Wandulu 1997)

Training may also be offered in production strategies, business planning and market. For example, part of the carvajal Foundation in California (Colombia) is to establish productive development centers within low income settlements. These provides local entrepreneurs with technological, administrative and commercial assistance to help in their development (Cruz 1994)

New production technologies. Assistance may also be offered to entrepreneurs to improve the quality of their products. For example, the Orangi pilot project (concerned about the quality of housing construction) developed a brick-making machine which produces bricks that are four times stronger than those previously available. As a result of the introduction of this technology, production is much greater than before and the brick making entrepreneurs in the settlement now export bricks throughout Karachi (WARDA, 2004)

Policy context, links may be developed with the local authority and other state agencies to ensure that the policies and practices are more favorable to micro- enterprise. For example, in Manila, scavengers are being organized collectively through one church based NGO in order to work more closely with the local authority and ensure that their needs are being effectively addressed. Mitullah (1991) emphasizes the importance of regulations and byelaws in a study of the constraints facing hawkers in Nairobi, and taking up such issues is another area of work for NGOs.

Loans, loans programmed to assist both upgrading and incremental housing development may be provided to enable people to obtain capital and therefore optimize their assets management strategies (ESCAP 1991, H IC/ACHR 1997). Without credit, building costs are high. Only small quantities of materials can be afforded and therefore unit's costs are frequently high. Poor quality bricks and tiles that's need frequent replacement aroused because the alternative are too expensive. Many NGOs have started to provide housing loans to enable people to afford better quality materials

Housing, programmers that seek to assist low- income housing development typically include one or more of the following components

Technical assistance in building May be offered to local residents either with or without housing loans to ensure that any money spent on housing improvements and developments is spent effectively Technologies may also be improved for example, NGOs in Riodejaneiro(Ben to Rubiao), Pakistan(Orangi pilot Project)and the Philippines(patambaya young foundation) have been developing ways of improving the quality and reducing the price of building materials for low-income housing. The new technology introduced in the building manufacturing yards in Orangi has been described in the section above. In this programme, the two main advantages for the local residents are that the walls Kneset less frequent repairs and that they are strong for a second floor to be added (Orangi pilot project 1995).

Healthy and education services may be provided free or at low cost by development assistance agencies to local residents in order to increase local access throughout the city. In addition to these direct services, development agencies may support the improvement agencies may support the improvement of local commercial services, training traditional birth attendants to improve the quality of service offered or providing new teaching material for the schools. This support may extend beyond training to credit for improving Health centers and school buildings or for purchasing necessary equipment (Hasan 1994)

In other cases, development agencies may train community leaders to use existing municipal services more effectively and to work with those services to ensure improved access for low income residents. For example, SPARC in India have sought to ensure that municipal hospitals offered basic medical care to street children. The specific projects and programmed development agencies may seek to work specifically with groups that are not effectively provided for through state services, such as literacy programmed aimed at women. The HEALTHY programmed in Lahore (Pakistan) worked with groups of women combining literacy training with Health education (Hasan1994).

Infrastructure, In the case of infrastructure such as sanitation, roads and drainage, other strategies may also be used. Development agencies may develop new low-cost technologies that residents can install themselves (,Orangi pilot project 1995). Frequently, they offer to subsidize the cost through the provision of materials and/or technical assistance with the community groups offering free labor(for example,the DFID slum improvement programmed

in Faisalabad offered a 50 % subsidy to resident's investments in improved sanitation). NGOs may be concerned with ensuring that municipal investigations are made in the lowest-income settlements. They may also be anxious to ensure that the communities themselves can participate in the construction, planning and management of the programme (Mitlin and Thompson 1995).

2.4 Impact of agricultural research on poverty reduction and food security

Several studies conducted to evaluate the impact of agricultural research in Africa and elsewhere widely demonstrate the positive impact of agricultural growth on poverty reduction and food security with a major component of this growth being driven by investment in agricultural research [27]. High rates of return are commonly achieved from agricultural research and development as evidenced in an analysis by International Food Policy Research Institute (IFPRI). The analysis indicates an average return of about 60% per year for research in developing countries [Alston et al, 2000]. A study by Thirtle et al [30] on the impact of research led agricultural productivity growth on poverty reduction in Africa, Asia and Latin America, revealed that research led technological change in agriculture generates sufficient productivity growth. It indicates high rates of return in Africa and Asia and has a substantial impact on poverty reducing the number by 27 million per year. The per capita 'cost' of poverty reduction by means of agricultural research expenditures in Africa is \$144 and \$180 in Asia [27, World Environment 2014, 4(4): 172-179 177 30]. The relationship between agricultural research and rural poverty in India and China was studied by Fan et al. The results indicated that rice varietal improvement research has contributed tremendously to increase rice produce, accounting for 14-23% of total production value over a two decade period. The research also revealed that agricultural research has helped reduce large numbers of rural poor. In 1999, for every \$1million invested at International Rice Research Institute (IRRI), more than 800 and 15000 rural poor were lifted above the poverty line in China and India respectively. These poverty-reduction effects were even larger in earlier years [12]. The Green Revolution in Asia in the 1960s resulted into high yielding rice varieties released by national and international agricultural research centers, which had powerful poverty reducing effects. The rural poor benefitted directly from income increases as a result of production growth [27]. The IR8 rice variety released in 1966 changed the face of Asian agriculture with yields ranging from 6-8 tons/ha in experimental fields [12]. In another investigation by Consultative Group for International Agricultural Rice (CGIAR) in SSA, it was revealed that

without varietal improvement regional balance of payment deficits for rice imports would have been 40% higher. Moreover, an additional 658000ha of land would have been required to maintain current levels of consumption [7]. Despite all these evidences, however, investment in agricultural research has declined since the mid-1980s in Africa [3, 27].

CHAPTER THREE

RESEARCH METHODOLOGY.

3.0 Introduction.

This chapter explains the various methods that were used to collect organize and analyze the data. It presents the research design, study population, sample size, sampling, and data analysis and study limitations.

3.1 Research design

The research used as a descriptive survey design because the study intends at studying views, perceptions and attitudes of the respondent's about the study by exploring the contribution of rice farming to house hold income in Doho sub- county Butalejja District

3.2 Area of study

The study was conducted at Doho sub-county Butalejja District 10 km from Mbale due to the predominance of rice- growing as the major economic activity. The study also used literature for the past 12 years so as to capture up to date and reliable data for the study, which was from 2005-2017

3.3 Study population

The study population consisted of rice farmers, local leaders and other community members within Butalejja; a sample of 50 respondents was selected to participate in the study.

3.4 Sampling size and strategy

The total number of respondents for the study was 50, out of the 50 respondents 30 were rice farmers, 5 local leaders and 15 extension workers and agricultural officers in Doho Sub-county for the case of local leaders purposive sampling was used to select them because they are thought to be knowledgeable about the topic under study. For rice farmers and community members, simple random sampling was used because it gives respondents equal chances of being selected

3.5. Data collection methods and tools.

3.5.1 Questionnaires, semi- structured questionnaire comprising of open and closed ended questions were used as one of data collection tools. These questionnaires were designed for

local leaders because they are more convenient to use and they give respondents enough time to give detailed responses.

3.5.2 Interview guide, this was carried out with employees of organizations. The involved face to face interaction between the researcher and respondents. Interview scheduled for an in - depth investigation into the research problem were used to capture data from the respondents and this helped to check on accuracy of data from the respondents. This method was suitable because it allows deep explanation into the topic under study.

3.6 Data quality control.

After the collection of raw data with relevant research instruments, data was edited, coded, tabulated and arranged. Variables were coded in form of numbers, Ideas, opinions and suggestions that could not be coded were listed down and processed separately. This helped the researcher to avoid mistakes and compromising data.

3.7 Data collection procedure.

The researcher produced a letter of introduction from KIU. This was intended to introduce the researcher to the concerned authorities at the area of study basically to seek for permission to conduct the research and reduce. On non - response to save time.

3.8 Data processing Presentation and Analysis.

Data was processed using percentage and tables; qualitative data was analyzed manually and compiled ready to be included in the report.

3.9. Validity and reliability.

In order to ensure validity and reliability of Data, the researcher self-administered all the questionnaires and observed the process and procedures which she noted down that was compared with the data collected from the respondents that helped reduce data collection entry errors

3.10 Limitation for the study.

In the process of carrying out the research, the researcher expects to encounter the following hindrance:

The financial resources was inadequate due to many expenses that were facilitated by self- sponsorship like transport costs and secretarial services

Some people were very sensitive in giving out information concerning their organization security reasons

Language barrier hindered the researcher due to heterogeneous composition of the people.

Delimitations.

In order to overcome the challenges of limited financial resources, the researcher tried to mobilize funds and also avoid being extravagant on meeting the requirements for a clearly detailed research report.

For the researcher to overcome the challenge of limited response, the researcher exhibited trust before the participant that data obtained was kept as confidential as possible and purely for academic purposes.

For the problem of language barrier, the researcher used a translator

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATION AND ANALYSIS

.0 Introduction

This study assessed the contribution of rice farming to household income in Doho sub-county in Butalejja District. The following objectives guided the study ;

- To establish the challenges affecting rice farmers in Doho sub-county Butalejja District.
- To examine the impact of rice growing on the household income in Doho sub-county Butalejja District.
- To ascertain strategies of increasing the household income in Butalejja.
- To assess the impact of agricultural research on poverty reduction and foodsecurity.

This chapter presents the research findings in reference to the objectives. It presents and analyses the research findings under each study objective. The findings are summarized from primary and secondary data sources, Presented on graphs, frequency tables and percentage contributions. It first presents respondents background features and other sub sections present the finding per study objectives.

4.1 Background characteristics of the respondents.

Table 1: Showing Gender of Respondents

Gender	Frequency	Percentage (%)
Male	32	64
Female	18	36

Source; Primary Data.

The gender distribution of respondents is presented on table 4.1 above. Here, 32 (64%) were male and 18(36%) were female. Both sexes are involved in rice growing. Therefore, the study was gender sensitive. As search, the rice growers constitute both men and women, and both their welfare greatly depends on rice growing. Since men are physically more energetic, and face few house obligations at home like doing house work and taking care of the children, they can have more time dedicated to rice production and thus benefit more from rice production in form of increased income and production compared to the women.

TABLE 2: Showing age Distribution of Respondents.

Age(years)	Frequency	Percentage(%)
18	3	6
24	10	20
28	15	30
30	22	44

Source' Primary Data.

The ages of all respondents are presented in table 2. Above; were 3 (6%) were aged 18 years, 10(20%) were aged 24 years, 15(30%) were aged 28 years, and 22 (44 %) were aged 30 years. The age distribution shows that, the study targeted the right respondents among rice growers. Age also affects peoples were fares benefits from rice growing due to its effect of rice production.

Due to the physically demanding nature of rice growing, the older the rice grower, the lower will be their earnings and welfare effect from rice production due to the decline in their physical abilities. The young population will be more productive and ear more income thus better welfare effects.

Table 3: Showing Level of Education of Respondents.

Education level	Frequency	Percentage (%)
Un educated	12	24
Primary	20	40
Secondary	10	20
Diploma	5	10
Degree holder	9	15

Source: Primary Data.

The table above shows respondents education levels; 12(24%) were totally u educated and therefore literate, 20 (40%) were primary school dropouts,10(20%) attained a maximum of secondary education

Secondary education, 5(10%) had attained diplomas and 9(15%) were degree holders as noted, most rice growers had relatively low levels of education that rendered them less competitive in the formal labor, So they resorted to farming as a key source of income, employment and livelihood. It's important to note that, the level of education affects attitude to rice growing practices and farming methods and ability to use modern technologies like

tractors and irrigations that can increase output. All in all, the highly educated will be able to adopt and use modern methods and technologies of rice growing and many opt for other employment, save more and buy more income generating assets thus improving their welfare.

Table 4: Showing marital status of respondents.

Status	Frequency	Percentage (%)
Single	14	28
Married	29	58
Widowed	7	14
Total	50	100

Source: Primary Data.

Table above presents the marital status of respondents were 14(28%) were single, 29(58%) were married and 7 (14%) were widowed. thus the study engaged people of diverse marital status. Clearly, most of them were married and so this group has family responsibilities to be full filled and consumption levels are most likely to be higher or needs like food, shelter or education. This reduces savings and asset accumulation and so reduces incomes earned by such rice growers thus reducing welfare benefits from rice production. For the unmarried consumption levels, a low with fewer family related responsibilities to meet, this may enhance savings and asset acquisition to enable them raise their welfare.

Table 4.2 Role of rice growing towards improving people's welfare.

Table 5: showing variety of rice growing by the people.

Types	Frequency	Percentage (%)
Local	38	76
Improved	12	24

Source: Primary Data.

Varieties of rice grown by rice growers are presented on table 5 above. Here, The majority of rice growers 38(76%) grew local varieties of rice while 12(24%) grew modern or improved rice varieties. The variety of rice grown by rice growers is significantly in determining people's welfare as it affects the level of output, quality, pricing and earning / incomes. Thus people growing the superior improved variety benefit more than those growing the inferior local variety.

Table 6: showing period spent in rice growing.

Period(years)	Frequency	Percentage (%)
1	4	8
2	13	26
3	10	20
Over 4	23	46

Source: Primary Data.

The period spent in rice growing by rice growers is presented as below, 4(8%) had spent 1 year in rice growing, 13(26%) had spent 2 years, 10(20%) had spent 3 years and 23(46%) had spent over 4 years in rice production. The majority of the rice respondents were relatively not new in the activity of rice growing. Therefore, the period spent in rice growing affects people's welfare because it directly affects output level, quality, Pricing and earnings basing on the experience of the rice grower and adoption of new farming methods thus influencing the welfare the benefits from rice activity.

Table 7: Showing acreage of rice growing.

Acers of rice	Frequency	Percentage (%)
1	9	18
2	15	30
3	7	14
Over 4	19	38

Source: Primary Data.

From table 7, 9(18%) add one acre of rice, 15(30%) add 2 acres, 7(14%) add 3 acres and 19 (38%) add over 4 acres of rice. The acreage of rice grown is a direct indicator of the quantity of rice harvested by the rice growers; this intern affects their earnings from the output realized. Therefore, given the price of rice, the larger the acreage of rice grown, the higher the output house incomes and welfare effect from rice production.

Table 8:showing quantity of rice harvested.

Quantity of harvest(kg)	Frequency	Percentage (%)
20	4	8
40	23	46
50	16	32
Above 60	7	14

Source; Primary Data.

From table 8, above, the quantity of rice harvested a day is presented as shown, 4(8%) did harvest 20Kgs, 23(46%) harvested 40 kg, 16(32%) harvested 50Kgs and 7(14%) harvested over 60Kgs. The quantity of harvest also depends on the acreage and affects the output released and earnings of the rice growers thus affecting their welfare so farmer's benefits differently from rice production depending on their harvest, the higher the quantity of rice harvested, the higher the output and earnings and so are the benefits.

Table 9: Showing kilogram of rice sold.

Price of rice (shs)	Frequency	Percentage (%)
Between 1000-2000	29	58
Between 2000-3000	12	24
Above 4000	9	18

Source: Primary Data.

From table 9 above, 29(58%) of rice growers sold their rice at a price between 1000- 2000Shs, 12(24%) sold between 2000-3000Shs, while 9(18%) sold above 4000 Shs. The above findings indicates that the majority of the residents sold their rice at a low price. Between 1000 to 2000Shs.

Table 10: Showing how rice growing has improved household income.

Responses	Frequency	Percentage (%)
Having plenty of rice has enabled us to sell some hence having personal save.	50	100
Provides raw materials	50	100
Rice growing encourages food security among house holds	50	100
Rice growing helps farmers in finance in terms of loans or micro-credit	50	100
Rice growing creates employment opportunities	50	100
Rice growing creates more commercialized and market based due to liberal policy reforms	20	40

Source: Primary Data.

Table 10 above shows how rice farming has improved household incomes; 50(100%) agreed that having plenty of rice encourages people to sell and save money. 50(100%) provides employment income. 50(100) increases food security. 50(100%) helps Farmers in financial and micro financing in terms of security in banks. 20(40%) create more commercialized markets inform of legal policies.

4.3 challenges faced by rice growers

Table 11 showing challenges faced by rice growers.

Challenges	Frequency	Percentage (%)
Un favorable weather conditions	50	100
Poor/lack of storage facilities	50	100
Poor land tenure system	7	14
Poor farming methods	50	100
Low wages	11	22
Low prices	9	18
Agricultural prices fluctuations	50	100

Source: primary data

Table 11 above shows the challenges faced by rice growers, 50(100%) reported unfavorable climate as their major challenge, 50(100%) reported poor storage facilities, 7(14%) also reported poor land tenure system, 50(100%) noted poor farming methods, and 11(22%)

reported low wages and 99(18%) low prices perceptively while 50(100%) pointed out agricultural fluctuations.

4.4 strategies to improve house hold income

Table 12: showing strategies to improve house hold income

Strategies	Frequency	Percentage (%)
Offering loans to farmers	50	100
Formation of farmers SACCOs	20	40
Practicing modern farming types	15	20
Lowering the bank interest on loans	50	100
Creating markets for the products of the local people	40	90

Sources: primary Data

According to table 12 above, shows the strategies suggested by farmers on how to improve house hold incomes, 50(100%) note that government should offer loans to farmers so that they are able to create more projects from which they can earn a living, 20(40%) argued that there should be introduction of SACCOS 50(100%) emphasized government should low interest rates on bank loans to encourage people trust and save their money with bank and promote saving 15(20%) suggested that farmers should practice modern farming types s that they are able to have enough consumption and some for selling to get money out of their harvests and 40(90%) argued that government should construct markets for the locals products to encourage people to produce and market locally.

CHAPTER FIVE

SUMMARY OF FINDINGS AND DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction:

This chapter gives a summary on findings from the study as per research objective, conclusions drawn, Recommendations derived from the study findings and areas related to the study theme for necessary further research.

5.1: Summary of findings and discussions

5.1.1: Role of rice growing on house hold incomes

As presented in table 10 above, 100% of the respondents agreed that having plenty of rice has enabled them to sell some hence having personal save, this has helped improve on their households income. This finding concurs with NDP (2009) who noted that rice production, especially on medium or large scale leads people to access finance in terms of loans or microcredit to increase production and earning from rice production.

The study findings also revealed that Rice production provides raw materials which are used in other industries to manufacture other products. Rice farmers noted that they sell the waste products of rice like husks to other factories which they use to produce other materials. This is also in agreement with Kenmore (2003) who asserts that agriculture, including rice-based hold income agriculture, still provides much of the raw materials needed by today's manufacturing industry.

He added that with harvest of rice crop, activities shift to post production operations threshing, drying, cleaning, milling, storage, products processing, distribution and marketing which together provide employment for millions more people hence improving household income

It was revealed by respondents that rice growing encourages food security among households; this helps them to save the money which would be used to buy food hence increasing on their savings. Respondents also added that due to food security, rice production has also increased and this has improved households income. This finding concurs with (Jain song, 2008) as he noted that more than two billion people in Asia alone derive their food from rice. He added that according to projected population growth (Jain song, 2008), the number of people Living on rice worldwide is expected to reach 3.5 billion in 2005. Other respondents said that rice growing creates employment opportunities, rice growing helps farmers in finance in

terms of loans or microcredit and rice growing creates more commercialized and market based due to policy reforms.

5.1.2: The challenges faced by rice growers.

According to the findings in table 11, concerning the challenges faced by rice growers, 50(100%) reported unfavorable climate as their major challenge. ALL respondents reported that they face a challenge of weather changes and has affected the growing of rice. This finding is in agreement with Ojambo (2013) who noted that unfavorable weather is the main factor affecting rice production. He further noted that when Uganda was hit by several and prolonged drought the country experienced the worst drought in 60 years over the past 5 years leading to food shortage. This led to food shortage.

The study also found out that rice growers are also affected by challenge of poor /lack storage facilities. This finding is also in line with the ministry of Agriculture, Animal industry and fisheries (2009 Annual report) which shows that poor /lack of storage facilities. Poor book keeping and financial management by farmers, lack of drying facilities like tarpaulin or drying yard affect the quality of output some farmers dry the rice on ground and this reduces the quality of the rice

It was also revealed by respondents that rice farmers are also faced with a challenge of poor farming methods. This finding is also in line with UBOS, (2007), which shows that rice growers face challenges in input acquisition, inadequate capital for doing meaningful business, low quality seed affect the performance of input distribution and marketing low market for inputs due to lack of capital by rice farmers, farmers inadequate knowledge on value of improved seed and use and management of input opportunities also pose a great challenge of rice growers

All respondents also showed that there a challenge of low rice prices for rice, respondents argued that they face a challenge of ever fluctuating prices for rice.

This finding also concurs with ROZA (2007) as he noted that the low prices and fluctuating prices in local and international markets is also a major constraint to rice growers in Uganda. The production of rice greatly depends on the price of rice in the local and foreign market. A decline in world prices would lead to a decline in the quality of rice produced in the local market. In the same line, other respondents also said that there is a challenge of low wages

5.1.3 The strategies of improving people's income

Above shows the strategies suggested by farmer to improve house hold income as shown 50(100%) noted that government should offer loans to farmers so that they are to create more projects from which they can earn a living 20(40%) argued that should be introduction of SACCO 50(100%) emphasized government should lower the interest rate on bank loan to encourage people trust and save their money with banks and promote savings 15(20%) suggested that farmers should practice modern farming types such so that they are able to have enough for home consumption and some for selling to get more money out their harvest and 40(90%) argued that government should construct market for the local products to encourage people to produce and market locally

The major strategies were referring loans to farmers and this may help to offer training to employees so that they can improve on the size and quality of production. This finding also agrees with (Oxfam, 2013) asserts that loan finance Ngo have thought to provide credit for investment in employment generation and micro enterprise. 1990, Oxfam published a book drawing together their experience of income generation schemes for the urban poor (Hurley 1990) and since then experience has widened considerably supported by the increasing recognition of importance of microfinance

5.2 Impact of Agricultural research on poverty Reduction and food security from a secondary source

Some Lessons-What have others done?

Reducing hunger and extreme poverty is goal number one of the United Nations' (UNs') Millennium Development Goals. This was the main reason for the UN declaration of the year 2004 as the International Year of Rice. In 2002, rice was the source of more than 500 calories per person per day for over 3 billion people. Furthermore, rice cultivation is the principal activity and source of income for more than 100 million households in developing countries in Asia, Africa and Latin America [22]. The concerted and coordinated efforts to improve rice production through science, research and development in the 1970s and 1980s enabled global rice production to meet the demand of a growing population, created employment opportunities, increased the income of rice farmers, and enhanced access to rice of the poor populations living in urban centers across the world. The gains made by the Green Revolution have begun to show diminishing returns [31, 32]. For four decades there was food sufficiency in Indonesia. This was as a result of improvements in food security by pro-

poor economic growth and successful Green Revolution led by high yielding rice varieties, massive investments in rural infrastructure including ready irrigation and ready availability of fertilizers. In 2004, rice market was Manipulated by the politicians. As quoted by Timmer (2004), SiswonoYudhohusodo, one of the contenders for vice presidency in the Presidential elections in 2004 advocated for high tariffs on imports or outright ban on imports. This was meant to woo the voters-majority of whom, were farmers. The end result was high prices which were unaffordable by the poor people. It also minimized diversification by the farmers. In a bid to establish the influence of price in rice production in Sierra Leone [Sanko et al, 2012] used log linear model with the quantity of rice produced as the dependent variable and the price of domestic rice, quantity of rice imported and the price of imported rice as explanatory. The findings indicated that domestic rice is more expensive than imported rice per ton. This underscores the argument that rice importation is undermining domestic rice production as a viable income generating activity. The study also revealed that that almost all people in the major urban area prefer imported rice. Rice prices are important for poverty alleviation [Sanko et al, 2012], not only in terms of their direct effects on the poorest segments of the population but also because of the key role they play in the structural transformation, both within agricultural sector and for the economy as a whole. Within the agricultural sector, lower rice prices encourage rice farmers to diversify their cropping pattern by making rice less profitable to grow and making it cheaper for farmers who diversify into other activities to buy rice from the market. These rice ex-farmers then begin to purchase other crops such as fruits and vegetables which are more profitable but also allow consumers to diversify their diets and increase their intake of proteins, vitamins and minerals. This is a slow process under the best circumstances and must be market driven [31]. Appropriate government support for research, extension and marketing initiatives can also speed up the process. In china, rural market reforms after 1978 provide a lesson in the role of food availability in supporting decisions by local entrepreneurs to diversify out of grain production. One of the most important policies to support the development of small scale rural industries in China was the freeing of food grain markets in rural areas in the early 1980s. This impact has not been lost on the Chinese leadership, which has committed itself to keeping domestic grain prices in line with world prices as part of their entry into World Trade Organization (WTO) [31]. Their argument is that low grain prices will maintain China's competitive advantage in labor intensive manufactures and encourage Chinese farmers to seek more profitable crop and livestock activities as a way out of the trap

of low incomes from the grain production [32].

6. Conclusions There is greatly increased awareness that rice has become a

5.3 Conclusion

The study found out that having plenty of rice has enabled us to sell some hence having personal save, provides raw materials, rice growing encourages food security among households ,rice growing helps farmers in finance in terms of loans or credit , rice growing creates employment opportunities and it was also found out that rice growing creates more commercialized and market based due to liberal policy reforms.

The study also found out that rice growers are faced with challenges such as unfavorable weather conditions, poor or lack of storage facilities, poor land tenure system, poor farming method, low wages, low rice prices, agricultural price fluctuations and challenges faced by rice growers

The study also found out other strategies to improve house hold income and these were offering loans to farmers, formation of farmers SACCOs, practicing modern farming types, lowering the bank interest on loan and creating markets for the product of the local people.

5.2 Recommendations of the study

Financial institutions should finance large scale agriculture like rice growing in big o boost production and farmers welfare. The institution can enhance agriculture by extending credit and other services to enable farmers to improve productivity

Farmers should try their best to improve on the quality of rice their growing and this should be done through good storage of rice.

Traders should also try to avoid price fluctuations this will moral to the farmers to produce more quality price.

The community leaders should ensure training and awareness creation among rice growers, formed of the new farming techniques rice varieties, market opportunities and other relevant

information that can aid them in increasing and improving production levels.

The government should encourage minimum price legislation for rice so that farmers earn higher incomes from their output this policy would motivate more people to engage in rice growing and in the long term increase the commercialization of large scale agriculture in the economy

Similarly, the government is recommended to ensure rural infrastructure development to reverse the looming problem of limited access to better market for agriculture produce. Amenities like roads and electricity will enable rice growers increase output and sell in better marketing.

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APPENDICES
QUESTIONNAIRES FOR RICE FARMERS, LOCAL LEADERS AND TRADERS

Dear Sir/Madam,

I am NTUDHU a student of Kampala International University. I am currently conducting a study on the contribution of rice farming to household income and food security in Doho Sub-County Butalejja District. The study is purely for academic purposes and the information given will be treated with utmost confidentiality. I therefore, humbly request you to spare some time and answer the following questions.

SECTION A: Background information

Thank you.

✓ Please tick

1. Sex: Female ☐ Male ☐

2. Age of respondent

(a) 18-25 ☐

(b) 26-35 ☐

(c) 36-45 ☐

(d) 46 and above ☐

3. Level of education

(a) Primary ☐

(b) Secondary ☐

(c) Tertiary ☐

(d) Graduate ☐

(e) Others specify

4. Marital status

(a) Married ☐

(b) Widowed ☐

(c) Separated / Divorced ☐

(d) Single ☐

(e) Others specify

5. Religion

- (a) Christian ☐
 (b) Muslim ☐
 (c) Born again ☐
 (d) Seventhday ☐
 (e) Others specify

Section B: Role of Rice growing towards people's Welfare

1. Which type of rice do you grow?

Local variety ☐ improved variety ☐

2. Period you have been growing any of the above varieties

1 year ☐ 2 years ☐ 3 years ☐ 4 years and above ☐

3. Area in acres under plantations

1 acre ☐ 2 acre ☐ 3 acres ☐ 4 acres and above ☐

4. Bags harvested in a season?

1-15 ☐ 15-16 ☐ 16-20 ☐ over 20 ☐

5. How much do you sell a bag of rice?

Between 100000-150000shs	
Between 160000- 200000 shs	
Above 200000shs	

6. Has rice growing improved household income of farmers?

Yes ☐ No ☐

7. If yes mention how rice growing has improved household income

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Section C: Challenges faced by Rice growers

8. Mention the challenges faced by rice growers?

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9. Suggest strategies to be adopted to improve house hold incomes

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SECTION D

10. What is the impact of agricultural research and poverty reduction and food security in Doho Sub-County Butalejja District.

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“Thank you very much for participating in this study”