ASSESSMENT OF THE IMPACT OF CONTRACT FARMING ON FARM PRODUCTIVITY AND RETURNS: A CASE STUDY OF TOBACCO IN UYUI DISTRICT

BY

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ABSTRACT

This study assesses the impact of contract farming on farm productivity and returns in tobacco farming. The study was conducted in Uyui district, Tabora region Tanzania. Specifically, the study investigates the profitability of tobacco production under contract farming arrangement vis-à-vis tobacco production before the arrangement, analyzes problems affecting tobacco productivity among smallholder farmers and determines farmers' perception about contract farming. A cross sectional survey was conducted on randomly selected 180 tobacco farmers from 18 villages. A pre-tested questionnaire was used to capture both qualitative and quantitative data on smallholder tobacco production and marketing under contract farming arrangement. The data obtained were used to describe structural and socio-economic factors that influence tobacco production. Gross margin analysis results reveal that tobacco production under contract farming is more profitable than before the arrangement. Regression analysis results showed a significant positive relationship between the independent variables considered to influence productivity. Variables included in the equation were farmer's education level; farmer's experience in tobacco farming, number of visits by the extension agents, amount of fertilizer per hectare and hired labour per hectare. The hired labour variable showed a positive relationship with yield but not significant. The study also reveals that the majority (78%) of the respondents do not favour contract terms and conditions, therefore, perceive contract farming as disadvantageous. To improve tobacco productivity and farmers' income, the study suggests that, growers should initiate arrangement that would ensure self-reliance on production inputs particularly fertilizer. The study also recommends for the provision of quality and appropriate extension services, growers to look into the possibility of acquiring some shares in tobacco processing factories, the need

for the government to consider increasing the subsidy on transportation and fertilizer costs; and the need for stakehoders to increase efforts on raising farmers' awareness on the free market economy.

DECLARATION

I, FLORENCE MATHIAS RUGIMBANA do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work and has not been submitted for a degree award in any other University.

_____ _____

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The above declaration is confirmed

_____ _____

Dr. E. R. Mbiha Date
(Supervisor)

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DEDICATION

This work is dedicated to my beloved mother Verdiana Kokupima and my brother Antidius Tibanyendera for their immense contribution to my education.

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LIST OF ABBREVIATIONS AND ACRONYMS

AOTTL	-	Alliance One Tanzania Tobacco Limited
ASDP	-	Agricultural Sector Development Programme
ASDS	-	Agricultural Sector Development Strategy
ATTT	-	Association of Tanzania Tobacco Traders
BoT	-	Bank of Tanzania
CDC	-	Commonwealth Development Corporation
CF	-	Contract Farming
CIF	-	Cost, Insurance and Freight.
DFC	-	Dark Fire Cured
DMTPL	-	Dimon Morogoro Tobacco Processors Limited
FAO	-	Food and Agriculture Organization
HVF	-	High Value Foods
ITGA	-	International Tobacco Growers Association
MAFS	-	Ministry of Agriculture and Food Security
NABARD	-	National Bank of Agriculture and Rural Development
NEMC	-	National Environmental Management Council
NSGRP	-	National Strategy for Growth and Reduction of Poverty
PCS	-	Primary Co-operative Society
SHTGA	-	Southern Highland Tobacco Growers Association
SNAL	-	Sokoine National Agricultural Library
TLTC	-	Tanzania Leaf Tobacco Company
TORITA	-	Tobacco Research Institute of Tanzania
TTB	-	Tanzania Tobacco Board

TTCA	-	Tanzania Tobacco Co-operative Apex
TTPMB	-	Tanzania Tobacco Processing and Marketing Board
Tshs	-	Tanzania Shillings
USA	-	United states of America
USD	-	American Dollar
VFC	-	Virginia Flue Cured
URT	-	United Republic of Tanzania
WB	-	World Bank
WETCU	-	Western Tobacco Growers Co-operative Union.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background information

Agriculture is an important sector in the economies of most of the countries in sub-Saharan Africa. In Tanzania, over 75% of the population is directly or indirectly dependant on agriculture and about 80% of people live in rural areas where agriculture is virtually the only occupation and source of livelihood. Over the years agriculture sector has been the single largest contributor to the nation's Gross Domestic Product (GDP) and foreign exchange earnings (URT, 2001; URT 2003). Currently, agricultural sector contributes more than 45% of the nation's Gross Domestic Product (GDP) and 65% foreign exchange earnings (URT, 2003; WB, 2004). Furthermore, the sector's growth linkages in Tanzania have been higher than those of other sectors and are felt in both rural and urban areas. Due to these factors, agriculture remains the engine of economic growth in the country.

Despite its importance to the nation's economy, the sector is constrained by many problems such as high transaction costs due to the poor state or lack of infrastructure -particularly rural roads; and the overall ill-policy and regulatory environment governing market transactions; low investment in productivity enhancing technologies; limited access to technology and delivery channels; un-managed risks with a significance exposure to variability in weather patterns with periodic droughts; and limited access to credit. Other problems include weak co-ordination and capacity in policy, and the

formation and implementation of public intervention among the various actors in the sector (URT, 2003).

In 2001, the government approved the Agricultural Sector Development Strategy (ASDS) with a view of among other things, promoting contract farming. This was one of the possible interventions of developing agricultural sector (URT, 2003; MAFS, 2004) and which in turn would address some of the above identified constraints. This measure was expected to contribute to agricultural growth, attainment of poverty reduction objectives of the National Strategy for Growth and Reduction of Poverty (NSGRP) and to the Tanzania Development Vision 2025.

According to FAO (2001), contract farming is an agreement between farmers and processing and/marketing firms for the production and supply of agricultural products under forward agreement, normally at pre-determined prices. The arrangement also calls the purchaser to provide a degree of production support through the supply of inputs and the provision of technical advice. The basis of such an arrangement is a commitment on the part of the farmer to provide a specific commodity in quantities and quality standards determined by the purchaser and a commitment by the same to support farmer's production and to purchase the crop.

In the tobacco industry, contract farming arrangement came about after liberalization of the industry in 1993, which resulted into private tobacco buying companies to venture into contract farming with tobacco farmers starting in 1994/95 growing season. The liberalization policy was aimed at promoting competition and efficiency in tobacco

production and marketing activities, which were state controlled through the Tanzania Tobacco Processing and Marketing Board (TTPMB) that had the monopoly as the sole buyer, processor and exporter of all tobacco in Tanzania (Simon, 1998).

Due to subsistence nature of agricultural activities in Tanzania, individual growers rarely enter into contract with buyers for their agricultural produce. In tobacco farming, contracts are negotiated and executed between tobacco growers (co-operative primary societies/associations) and the buyers.

According to Kalamata (2005), contract farming agreement basically contains the following main obligations on both the part of the growers and the part of the buyers as follows. On the part of the growers these have; (a) to produce a specific volume of tobacco, (b) to adhere to technical advice given by the company, (c) to use inputs delivered by the company, and (e) to repay debts during marketing season. On the buyers' side, the obligations include (a) to supply production inputs to growers, (b) to provide technical advice including introduction of new innovations or improved practices, (c) to purchase all the produced tobacco at a pre-determined price agreed between the growers and the buyers, (d) to recover inputs debts and (e) to pay outstanding balance to growers.

From 1995/96 to 1998/99 farming seasons the following private tobacco buying companies engaged themselves in contract farming in Tanzania; Tanzania Leaf Tobacco Company, Top Serve, Dimon, Intabex, Standard Commercial Tobacco Services and Ruvuma Export Company. Each of the companies acted individually in supplying inputs, provision of extension services and buying of the crop from contracted growers.

In 1999, tobacco companies notably Dimon, Tanzania Leaf Tobacco Company-Top Serve and Standard Commercial Tobacco Services formed a joint service company known as Association of Tanzania Tobacco Traders (ATTT). The service company among other things was charged with the function of input distribution, provision of extension service and facilitation of tobacco buying from farmers. In recognition of the significance of supplying inputs, provision of extension services and buying of the produce through contract farming arrangement, the government has adopted the contract farming as a key approach for improving productivity of traditional export crops including tobacco (MAFS, 2004). It is against this background that the study assessing the impact of contract farming on farm productivity and returns from tobacco production is important.

1.2 Problem statement

Tobacco is one of the major traditional export crops in Tanzania ranking fourth in foreign exchange earnings between 1993 to 2002 (BoT ,2003). Tobacco industry caters for the livelihood of about 1.2 percent of the population and its contribution to the government revenues is substantial (TTB, 2006).

Tabora region produces over 60% of the country's total flue-cured tobacco output with Uyui and Urambo districts accounting over 80% of the region's total output. About 40% of Uyui's population depends directly or indirectly on tobacco (URT, 2005). The above data suggest that tobacco production is an important economic undertaking for the rural people in Tabora. Thus, increasing agricultural productivity of tobacco among other economic activities is central in reducing income poverty and enhancing food security status in rural areas (URT, 2003).

The improvement of farm incomes is an incentive for increasing crop production by smallholders, whereas the increase in price of the crop produce is an incentive for optimal smallholder resource allocation. The end result is profitable farming in the smallholder sub-sector and hence improving in the standard of living of smallholder farmers (Fones, 1987).

Contract farming by private sector is advocated by the Agricultural Sector Development Strategy (2001) as one of the intervention to improving productivity of agricultural crops tobacco inclusive in Tanzania. Despite the adoption of contract farming in tobacco, the production per unit area in Tanzania has remained low compared to other major tobacco growing countries (Appendix 5).

Due to low productivity in tobacco farming, a large proportion of the population has remained poor and getting poorer year after year. This is not in line with the National Strategy for Growth and Reduction of Poverty (NSGRP). Tabora region's ranking, in terms of per capita GDP dropped from number 10 in 1995 to number 18 in the year 2002 (URT, 2005). This is partly attributed to low productivity in tobacco farming which is a major economic activity in the region.

Although there has been an upward trend in tobacco production in the region after liberalization of the tobacco industry and the subsequent adoption of contract farming arrangement in 1995/96 farming season, the upward trend might be due to the expansion of cultivated areas (opening new farms) and the entering of new farmers in the industry rather than increasing productivity. This pattern of growth can no longer continue because

of the declining land frontier and intolerance to any further environmental degradation. Therefore, a new strategy for developing this industry should put emphasis on increasing tobacco productivity.

It is hypothesized that low productivity and low returns from tobacco farming might be due to contract farming arrangement in which a farmer has to sell his/her produce only to the contracted company. Presently only two tobacco buying companies are engaged in contract farming in the country, underscoring the oligopsonistic market structure in which few tobacco buyers and suppliers of production inputs might have undermined competition in the tobacco industry. Therefore, there is a need for a study to investigate whether or not contract farming in tobacco industry has any significant contribution to productivity and returns.

1.3 Justification of the study

In the light of increased cost of production, mainly contributed by the rapid increase in input (fertilizer) prices compared to that of tobacco, it is not clear whether the price which are offered to farmers cover their production costs and or allow them a reasonable profit margin (incentive for more tobacco production). Also, what impact contract farming practice may have on the tobacco industry, on the aspects of production and farmer's returns are issues worth investigating.

This study is justified by the fact that there is a need to analyze empirical reasons for the cause of low productivity in tobacco farming in order for appropriate interventions towards improving tobacco productivity. Information from the study will help in planning

and designing appropriate strategies so as to contribute to the achievement of the Agricultural Sector Development Strategy objectives within the tobacco sub-sector.

1.4 General objective

Generally the study intended to assess the impact of contract farming on farm productivity and returns from tobacco farming in Uyui district.

1.5 Specific objectives

Specific objectives of the study were:

(i) To estimate the profitability of tobacco farming.

(ii) To analyze problems affecting tobacco productivity among small-scale growers under contract farming.

(iii) To determine farmer's perception on contract farming arrangement.

1.6 Hypotheses

The study was guided by following hypotheses:

(i) Under contract farming arrangement tobacco production in Uyui district is not profitable.

(ii) Productivity in tobacco framing is not influenced by farmer's education level.

(iii) Contract farming arrangement is not differently perceived among tobacco farmers.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Overview

This review provides the picture of the tobacco industry in Tanzania following the inception of liberalization policy which resulted in the participation of private companies to venture into contract farming arrangement with tobacco farmers. The review also looks at the types of contract farming and their pre-requisite conditions for success and benefits accrued by both farmers and sponsors under the arrangement. It also looks at factors which influence farm productivity in tobacco farming.

2.2 Policy context

Tobacco industry as one of the key sub sectors in agriculture has been recognized as significant in employment creation, income generation, and poverty alleviation as well as a base on which farmers can improve their living standards. The sub sector employs a considerable portion of the Tanzanian labour force and has a greater potential for further employment generation and contribution to the government coffers. Based on the importance of the sub sector and its potential, there are policies that have been designed to promote the industry so as to enable it to contribute to the National Development Vision 2025, Poverty Reduction Strategy and to achieve the Millennium Development Goals.

2.2.1 Agricultural Policy 1997

The policy provides guidance for development of the agricultural sector that embraces crop and livestock production activities. It also lays down the foundation for privatization

of agricultural activities and supportive srvices. Furthermore, the policy paved a way for the market forces to determine the prices of produce and inputs.

2.2.2 Tanzania Development Vision 2025

This policy seeks to transform low productivity economy into semi-industrialized one lead by modernized highly productive agricultural activities which are buttressed by supportive industrial service activities through active mobilization of people and other resource towards the achievement of shared goals**.**

2.2.3 Agricultural Sector Development Strategy (ASDS) 2001

The Agricultural Sector Development Strategy provides a long term action plan for the implementation of the agricultural policy of 1997. ASDS, as one of the approach in attracting investment from the private sector, advocates contract farming between the agri-business and crop producers. According to TTB (2006), tobacco sub sector has in place a well developed contract farming arrangement between tobacco buyers and tobacco growers than any other traditional cash crop industry in the country. By employing contract farming, the industry has managed to adopt new production technologies from outside the country that intends to improve tobacco quality and productivity.

2.2.4 Other related policies

Related polices include the National Strategy for Growth and Reduction of poverty (NSGRP) of 2005, the Cooperative Act of 2005, the Agricultural Development Programme (ASDP) of 2006, the Financial policies and Rural development policies (where crop producers live); all these polices emphasize on the increased productivity of

both food and cash crops so as to reduce poverty and contribute to the National Development Vision 2025.

2.3 Socio-economic importance of the tobacco industry in Tanzania

Tobacco production is an important agricultural occupation in Tanzania. The crop has a wide geographical coverage in the country. It is produced in nine regions out of twenty one regions of Tanzania mainland. The regions include Tabora, Shinyanga, Ruvuma, Rukwa, Kigoma, Kagera, Iringa, Mbeya and Singida, involving about 20 districts.

At the industry level, the contribution of the tobacco sector to Tanzania's socio- economic development is significant. Currently, the tobacco industry employs about 102 019 people distributed as follows; farming families (92 178); inputs distribution, extension services and marketing activities by ATTT (550 people); tobacco processing (7 291); and cigarette manufacturing and distribution (2 000 people). Overall the industry supports the livelihood of about 510 095 equivalent to about 1.14% of the country's population (TTB, 2006).

According to BoT (2005), in the period of 1996 to 2005 leaf tobacco contributed about 16.72% of traditional exports and 5.67% of the country's total exports respectively. In 2005, tobacco export stood at USD 80 million which placed the crop in the second place after cotton.

In terms of government revenues, the industry has great contribution in the form of various taxes and levy paid to the central government and local government authorities**.** For example, in 2005, Tanzania Cigarette Company paid 66bnTsh (about 68 million USD) in various forms of government taxes and levies. In addition, tobacco production is an

important source of revenues for local government authorities in the government districts under tobacco production. During the last five seasons up to 2005, levy earnings by district council stood at an average of Tshs 1.52 billion per annum (TTB, 2006; URT, 2006). The industry's contribution to the central and local government's income is important since it strengthens their capacities to render services for socio- economic development.

2.4 A review of the current state of tobacco industry in Tanzania

The tobacco industry is comprised of the following key players; the producers, traders (leaf dealers and processors), and the cigarette manufacturers. Before 1993, tobacco production and marketing activities were state controlled, with a parastatal organization, the Tanzania Tobacco Processing and Marketing Board (TTPMB) having the monopoly as the sole buyer, processor and seller of all tobacco in the country. Following the inception of the trade liberalization policy, the tobacco industry's activities subsequently became open for the participation of the private sector. The government retained its regulatory role, which was entrusted upon the Tanzania Tobacco Board (TTB) which was established after the amendment of the Tanzania Tobacco Processing and Marketing Board Act No. 20 of 1984 so as to accommodate government's change of policy from state monopoly to market economy.

2.4.1 Tobacco production

Tobacco production in Tanzania is mainly by smallholder farmers who account about 96% of the tobacco produced in the country annually. The remaining proportion is from large scale producers, especially in Iringa and, to smaller extent, Tabora (TORITA, 2006).

Smallholder tobacco farmers are organized into primary cooperative societies which in turn, are affiliated to co-operative unions and an apex body (Tanzania Tobacco Co-operative Apex). The large-scale growers in Iringa are affiliated into an association called Southern Highlands Tobacco Growers Association (SHITGA).

At present, three types of tobacco are grown in Tanzania. First, the Flue- cured Virginia (VFC) grown mostly in Tabora, Shinyanga, Singida, Rukwa, Iringa, Mbeya and to a smaller extent in Ruvuma region, where it has been recently introduced. VFC tobacco contributes an average of 90% of the country's total output (URT 2006; TTB, 2006).

The second type is the Dark Fire-Cured (DFC) grown in Ruvuma, Kasulu in Kigoma, and Biharamlo district in Kagera region. DFC contributes an average of 9% of the total production in the country. Lastly, is Burley tobacco which is grown in Kigoma (Kasulu and Kibondo districts) and Ruvuma region where it has been introduced. This type contributes about 1% of the country's total production which stands at 50 266 tones (TTB, 2006).

Tobacco companies currently involved in contract farming arrangement with smallholder tobacco growers are Tanzania Leaf Tobacco Company (TLTC) - a subsidiary of the multinational tobacco company i.e. Universal Leaf Tobacco Company and Alliance One Tanzania Tobacco Limited (AOTTL), formerly known as Dimon Morogoro Tobacco Processors (DMTPL), a multinational Dimon International. These companies supply inputs to tobacco farmers and collect the produce from farmers through the Association of

Tanzania Tobacco Traders (ATTT). ATTT is also charged with the management of extension services to growers in the field.

Since the inception of trade liberalization policy, total tobacco production by volume (VFC and DFC) has been increasing. At the beginning of private companies participation in the supply of production inputs and buying of the produce, an upward trend was observed up to 1997, then for the succeeding two years there was a downward trend. From 2001 the trend has been positive in both production and yield. The total production increased from 27.7 million kilograms in 2001 to 50.3 million kilograms in 2006 (Appendix 6). VFC yields per hectare increased by 34% from 848 kg produced in 2001 to an average of 1136 kg produced in 2006 whereas an increase for DFC has been also sizeable, which amount to an increase of 35% from 367 kg per hectare produced in 2001 to 494 kg per hectare produced in 2006.

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The rapid surge in both the area planted and quantity of tobacco produced in the year 1997 coincided with the period when tobacco leaf dealers became actively involved in the marketing system including the provision of pre-harvest services following the inception of market liberalization. Tobacco growers therefore responded accordingly. However, following increasing conflicts among stakeholders in the industry, huge outstanding debts, poor sales and low profit realized, demoralized the growers and this could have contributed to the downward trend observed during 1999 to 2002. After settling some of the differences, which resulted into the cancellation of bad debts, farmers have now realized that in the free market, quality tobacco and credibility are the major ingredients to

realize profit in tobacco farming. This could have contributed to the observed existing upward production and yield trends (Appendix 6).

2.4.2 Tobacco marketing and pricing

Tobacco grades and input prices are negotiated and agreed upon by growers (Unions and Apex) and tobacco buyers in the Tanzania Tobacco Council prior to the farming season. Presently, there are 65 tobacco grades as shown in Appendix 3.

Marketing functions of supplying inputs to tobacco farmers, the purchase of cured tobacco and cash payment are done by the leaf dealers through the Association of Tanzania Tobacco Traders (ATTT) in collaboration with the Primary Co-operative Societies (PCSs). PCSs are the focal points of tobacco marketing at village level; they are responsible for delivering the cured tobacco leaves at the godowns/market center of the purchasing company.

Marketing arrangements are similar all over the country whereby tobacco farmers sell their crop through ‘’Private Treaty’’ system, in which tobacco is sold in field standard grades set by TTB. TTB classifiers are the ones entrusted with the mandate of conducting classification, whereas buyer and seller’s representatives verify the offered grade. Tobacco classification is done in the TTB-registered market centers to ensure that tobacco is marketed in an organized manner and up to the required standards.

Upon selling the tobacco, the farmer is paid after deducting credits advanced for crop production; this requires to be done within fourteen days.

After purchasing the crop from the farmers, each leaf dealer processes his tobacco based on the requirement specifications from the cigarette manufacturers to whom the tobacco is to be sold in the domestic and/or export markets.

2.4.3 Overall current industry performance

Tobacco industry in Tanzania is now in a situation whereby production is rising in both volume and quality. Unlike in the early years of market liberalization, farmers are now repaying their input debts by almost 100%; a situation which has reversed the trend of input debt accumulation. Plans for input sourcing and supply to growers for future seasons are underway to be undertaken by farmers themselves through their national co-operative body (TTCA, 2006). The move is likely to increase earnings to farmers through better prices that seem to be an incentive for increased tobacco production (Fig. 1&2). According to (TTB, 2006), the potential processing capacity is 78 million kilograms for three processing factories. This needs to be effectively utilized and thus, offsetting an idle processing capacity of 28 million kilograms compared with the current production of 50 million kilograms.

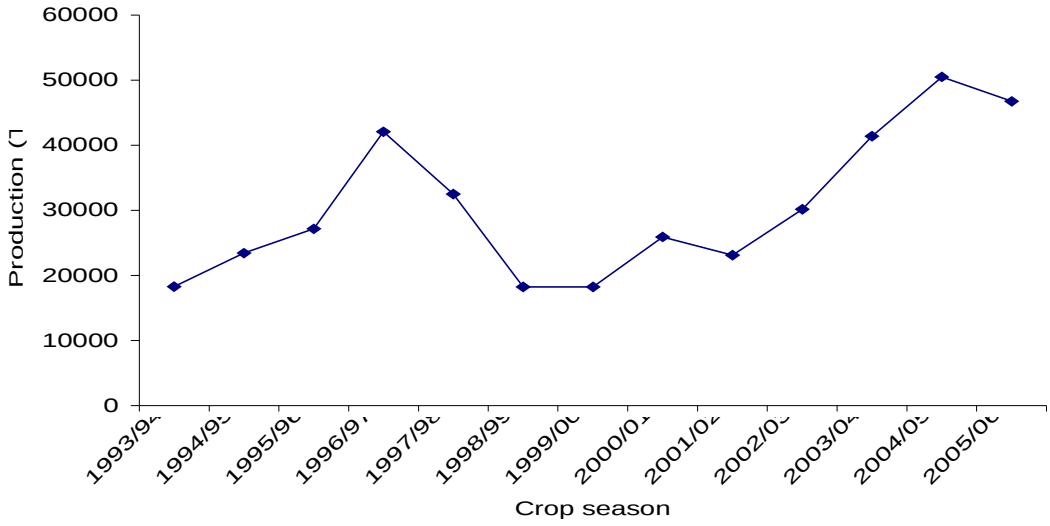

Figure 1: VFC tobacco production trend 1994 - 2006

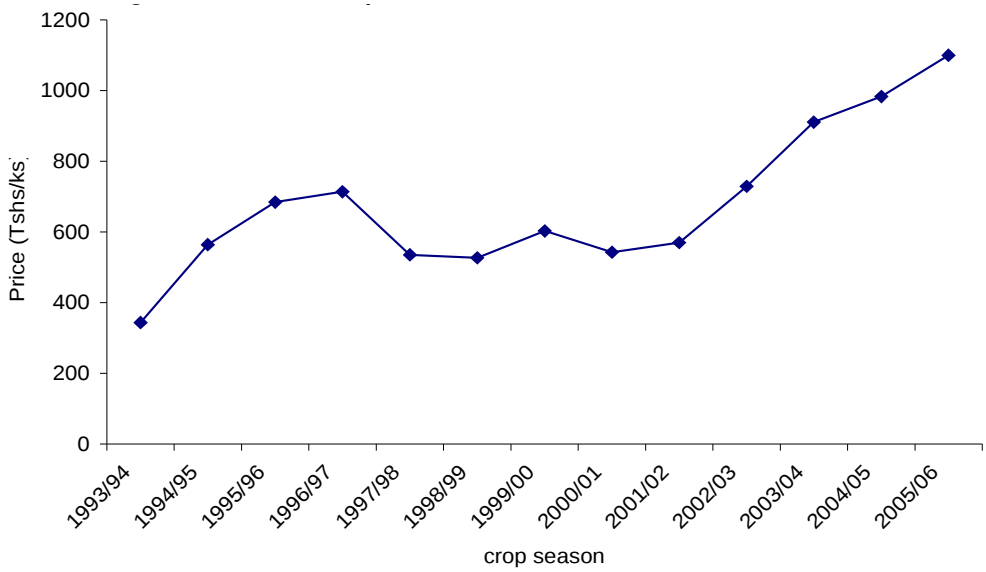

Figure 2: VFC farmers' price trend 1994 – 2006

2.4.4 Tobacco production in Uyui district

Flue cured tobacco is the only type of tobacco grown in Uyui district. Key players in the industry are individual farmers, primary co-operative societies, the co-operative union (WETCU) and private tobacco leaf dealers. Tobacco production is through contract farming arrangement in which tobacco buying companies enter into contract with farmers to provide input credit and extension services in return of guaranteed delivery of produce of specified quality and quantity of tobacco at pre-determined prices. Tobacco companies that are engaged in contract farming arrangement with growers in the study area are only two i.e. TLTC and AOTTL.

Regarding production and yield, there have been a general upward trend in both total production and yield from 4376 tons produced in 2000/01 season to 8133 tons produced in 2004/2005 season. A negative trend was observed in 2005/2006 farming season whereby the production dropped from 8133 to 6810 tons. This drop could have been

contributed by drought which affected the country. There has also been an upward trend regarding production per unit area (Table 1) from 839 kg per hectare recorded in 2000/01 up to 1125 kg per hectare in 2005/06 farming season. There has also been an improvement in quality from 21.5% top grades in 2000/2001 to 49% top grades in 2005/2006 farming season and a drop in low grades from 41.3% to 23% in the referred farming seasons (Appendix 4).

Table 1:Tobacco production trend in Uyui district, 2000/01- 2005/2006

Crop season	Area planted (ha)	Production (10^6 kg)	Yield (kg/ha)	Average. Price (Tshs/kg)
2000/01	5211	4.376	839	547.08
2001/02	4140	3.817	922	558.53
2002/03	6478	5.834	905	663.56
2003/04	5976	5.810	972	882.06
2004/05	8217	8.133	990	1005.91
2005/06	6053	6.810	1125	1074.63

Source: DALDO Uyui, 2006

The overall industry performance in Uyui district in terms of production and input debt recovery is satisfactory. For instance, in the 2005/06 farming season primary co-operative societies in Uyui district had a debt of Tshs 1.4 billion for inputs from tobacco companies. Despite the drought that affected the country Uyui district inclusive, the primary co-operative societies (PCS) managed to repay their debts and remained with Tshs 5.9 billion equivalent to an average of 728 477 Tshs per household.

2.5 Contract farming

Different people understand ‘contract farming’ differently. According to FAO (2001), contract farming is defined as an arrangement between farmers and processing agents/firm, for the farmer to produce a specified quantity and quality of the produce

normally at pre-determined prices. FAO adds that the arrangement involves the purchaser in provision of a certain degree of supporting by the purchaser the through supply of inputs and the provision of technical advice to the producers. Little and Watts (1994) defined contract farming as a form of vertical co-ordination between the grower and the buyer or processor, that directly shape production decisions through contractual arrangements specifying markets obligation (by volume, value, quality, and some times at an advanced price determination); providing specific inputs; and exercising some control at a point of production. Thus, contract farming or vertical co-ordination stands between open market and the vertically integrated agribusiness firms (Asokan and Singh, 2003).

2.5.1 Reasons for contract farming

New types of agricultural production and marketing can occur under many different types of institutional arrangements. According to Simmons (2002), these can include plantations or state farms, nuclear-plasma combinations of plantation and small-holdings, various land and labour sharing arrangements as well as traditional smallholder family farm operations. The most common arrangement in both developed and developing countries is where land-owning farmers sell to local or city spot markets receiving prices that reflect purchasers' valuation of produce on the day based on quality and quantity. There are no overlapping contracts such as the purchaser providing credit and no forward pricing arrangements. However, there are alternatives to spot markets and these arrangements can be complex. Forward integration can occur where a group of farmers own or control a marketplace or

backward integration occurs where large processing and marketing firms either own farms or become directly involved in supporting and controlling production through contracts. The latter type of arrangement is called ‘contract farming’ and usually involves a large agribusiness firm integrating backwards by forming alliances with groups of smallholders and, through written or verbal contracts, providing farm inputs such as credit and extension in return for guaranteed delivery of produce of specified quality often at a pre-determined price.

Such contracting arrangements may also involve horizontal integration where firms not only provide direct inputs into farm-level decision making but also encourage integration of various activities across a population of smallholders through farm groups. These groups may coordinate planting and harvest as well as facilitate or manage storage and transport arrangements. There are as many types of contracts as there are contracted smallholders. However, there are common elements that distinguish ‘‘contract farming’’ from alternatives such as plantation farming, share farming, and selling through local markets. Contract farming impacts on marketing of produce and usually impacts on at least one of the other three stages that comprise an agricultural micro-system: input supply, production and processing. The simplest contracts are usually restricted to some type of forward selling. For example, Mangosteen producers in Bali receive an early season

payment in return for assurances they will deliver the harvest to particular exporters who pay them the balance of the prevailing market price at delivery time. Other contracts are more complex; for example, East Javanese seed corn producers contract with a multi-national seed firm using contracts that include quality and quantity clauses. The provision of credit requires meeting of the farmers' group with firm extension officers to learn about seed crop management (Dorward, 2001).

2.5.2 Types of contract farming

There are several types of contract farming from just buying at a certain quantity at a pre-determined price to a complete control of production from supply of seeds to harvesting. Broadly speaking, there are two types i.e. marketing and production contracts. Marketing contract may be verbal or written agreement between a contractor and a grower that set a price and an outlet for the commodity before harvest or before the commodity is ready to be marketed. In this type of contract, most management decisions remain with the growers since they retain ownership until the final disposal of the commodity. The producer also bears all the risks of production but shares price risks with the contractor. On the other hand, production contract specifies in detail the quality and quantity of a particular commodity to be procured and type of the compensation the producer would receive for his efforts. In resource providing, the contracting firm may provide all the inputs to growers and closely monitor the quality produced and production practices followed (Asokan and Singh, 2003).

Depending on the product, the resources of the sponsor/firm, local conditions, market regulations and the interest of the relationship between farmer and sponsor; contract farming usually follows one of the five models (FAO, 2001). The five models include centralized models, nucleus estate model, multipartite model, informal model, and intermediary model. Each of these models is discussed below as follows.

(a) Centralized model

Centralized model is vertically co-coordinated model where the sponsor purchases the crop from farmers and processes or packages and markets the product. Except in few instances, farmers' quotas are normally distributed at the beginning of each growing season and the quality is highly controlled. Sponsors' involvement in the production varies from minimal input provision to the maximum where the sponsor takes control of most production aspects. This model is widely used in tobacco, cotton, sugarcane, banana and other tree crops such as coffee, tea, cocoa and rubber. It can also be applicable in poultry, pork and dairy production.

(b) Nucleus estate model

Nuclear estate is the variation of the centralized model. Normally the sponsor of the project also owns and manages an estate plantation, which is usually close to the processing plant. This model was pioneered by the Commonwealth Development Corporation (CDC) and it is used in tea, sugar, palm oil and many other crops.

(c) Multipartite model

The multipartite model usually involves statutory bodies, and private companies which jointly work with farmers. Multipartite contract farming may have separate organization responsible for credit provision, production, and management, processing, and marketing. In Mexico, Kenya and West Africa, among other countries' governments have actively invested in contract farming through joint ventures with the private sector (Kalamata, 2005).

(d) Informal model

This model applies to individual entrepreneurs or small companies who normally make simple, informal production contracts with farmers on a seasonal basis particularly for crops such as rough vegetable, watermelons and tropical fruits. Material inputs are often restricted to the provision of seeds and basic fertilizers with technical advice limited to grading and quality control matters. In northern Thailand, the production of pyrethrum and fresh vegetable takes this model (FAO, 2001).

(e) Intermediary model

According to Haque (2000), intermediary model involves sponsor (firm) in subcontracting linkages with farmers to intermediaries. In Thailand and Indonesia, this model is widely practiced whereby large food processing companies and fresh vegetable entrepreneurs purchase crops from individual ' collectors' or farmers committees who have their own informal arrangement with farmers.

2.5.3 Factors contributing to the success of contract farming

Contract farming of crops pre-dates the ancient Greek period when specific percentage of the crops was appropriated as a means of paying a tithes, rents and debts (FAO, 2001).

With the passage of time, contract farming has undergone profound transformation to becoming an important agribusiness venture in the 21st century. Simmons (2002), caution that before embarking on contract farming considerations of the following basic pre-requisites are necessary.

(i) Strong and profitable markets

The market environment is essential for the success of a contract. The purchaser/ agribusiness firm's decision to engage in contract farming must be based on the knowledge that the business will remain profitable in the longer term.

Demands met by the agribusiness firm through contract sourcing need to be both strong and not too volatile if contracts with smallholders are to succeed. Contracts between firms and smallholders have considerable startup costs and a period of low demand, for the final product can destroy continuity of a contract as it matures over a number of seasons leading to the contract abandonment and losses. In Indonesia, an export ginger pickling plant sourced through contracts and costing several million dollars ended up 'mothballed' after two seasons with growers' contracts not being renewed. This occurred because large-scale entry by Chinese ginger producers to the Japanese pickled ginger market undermined the demand for Indonesian pickles. For the farmer, a failure to achieve consistent and attractive financial benefit would lead to their pulling out of the venture. Farmers need to know not only that they gain financially from contract enterprise, but also that they are not being cheated by company maneuvering (Easton and Shepherd, 2001).

(ii) Physical and social environments

The physical environment must be generally suitable for the product to be produced. Utilities e.g. water and electricity and communications e.g. feeder roads must be suitable for both farming and agro-processing. As for land availability and tenure, contracted farmers require un-restricted access to the land they farm. Input availability and source of inputs need to be assured. As for social considerations, cultural attitudes and practices should not conflict with farmer's obligation and the sponsor must develop a full understanding of local practices. In Indonesia, an investigation of the physical and social environment for decision making regarding contract farming restricted the project to only two of the seven sub districts (FAO, 2001).

(iii) Macro institutional policies

The macro policies which are likely to influence contract farming are land ownership rules, taxes, exchange rates, and food security. Landownership rules, particularly those preventing foreigners holding land, may favour contract farming by preventing plantation development by multi-national corporations. Many farm contracts supply either export or import-competing markets hence volatile exchange rates can lead to difficulties since revenues are earned in one currency while costs are incurred in another. Thus stable exchange rate regimes favour contracting and unstable regimes place contracts at risk.

Food security policy is supposed to ensure that population in a country are well fed. Such policies often use two instruments to achieve the goal: self-sufficiency in production and control over food prices. Self-sufficient in the production of staples, usually entailing less dependence on food imports is usually achieved through subsidization of inputs such as fertilizer or other chemicals.

(iv) Government support

Government has to play an important role if contract farming is to be successful. The roles of the central governments and their local agencies in enabling regulatory and developmental aspects are vital for successful contract farming. In developing aspect, the promotion of contract farming is one of the activities that the government could perform. For example, in India, the government with the assistance from FAO promoted contract farming to small – scale growers. This involved organizing forums by bringing together bankers, agribusiness executives and government extension services to explore possibilities of creating marketing linkages for agricultural products (FAO, 2001).

As for enabling and regulatory role, appropriate laws and efficient legal system have to be in place. Through various laws, the contracting parties become legal entities and their process of the exchange of goods and services spans beyond batter trade to commercial transactions. The legal system makes the individual to be recognized as a legal entity with power to contract; this is very essential in the development of commercial agriculture. Thus, the government needs to know fully the implications of all laws and policy decisions on agribusiness development and their effect on contract farming, because these can have disastrous effect if mishandled. For example, in Philippines, a ban on the importation of

potato seeds for local production of potatoes promoted fast-food chain of importing frozen French-fries. A lift of the ban permitted the establishment of two contracting farming ventures which benefited the sponsor and a large number of small growers. For the sake of interest of small – scale producers, a legal protection to contract growers is a must (Wilson, 1990). The government should carry out activities which strengthen the managerial skill of farmers' organizations. Through group power, farmers have managed their contract relationship with companies in Japan (Asano – Tamanoi, 1988). Though it may not be a precondition, it is desirable that the government play an arbitration role in resolving disputes. For example, in Malawi, the Ministry of Labour undertakes this task. However, it is recommended that in doing their necessary obligations, governments should avoid over-regulating contract farming; the kind of legislation that the government could enact should be based on the industry's ability to regulate itself.

(v) Management of contracts

According to Porter and Phillips-Howard (1997), contract management failure in Africa results from the use of expatriate staff who have inappropriate cultural values in management roles. They argue that lack of knowledge of cultural values contributes to under-performance and a failure of contracts through misunderstanding of issues, inappropriate conflict resolution processes and miscommunication. They argue for the employment of local staff in contract management positions in contracting firms.

Smallholders may be vulnerable to the corrupt behaviour of agribusiness firm employees at several points in a contract. Corrupt employees may get kickbacks from purchases of farm inputs supplied to, and eventually paid for by contracted smallholders. The delivery may also present opportunities for corruption if different quality standards or delivery schedules are applied to different growers or if shortage occurs (Glover, 1990).

Other aspects of management to facilitate achievement of successful contract outcome include organization of farm groups, selection of farmers, management of contract default and conflict resolution. Farm groups can play an important role in the success of a contract by encouraging the adoption of new technology and adjustment to changed market conditions and by lobbying to deal with political change (Simmons, 2002). Glover and Kusterer (1990) point out that farm groups facilitate contract management by dealing with disagreements between growers and contractors and by assisting transfer of technology through group discussions.

Farmers may have pre-existing groups that can be linked to the contract, or a community might encourage the formation of a group in response to lobbying from an agribusiness firm. In Indonesia, a seed corn agribusiness firm built a public hall as a gesture to the community

in which its contract was being implemented; the hall was used by the contracting group of farmers for meetings (Singh, 2000).

Previous experience is important in the selection of contractees. Producers in Central and South America with previous experience in growing particular crops achieved a good contract performance while other growers who lacked such experience were not so successful (Glover and Kusterer, 1990). In Indonesia, a ginger contract was successful from an agronomic viewpoint because the type of ginger required was a juvenile form of the type contractors had grown before.

Smallholder farm size is also important in the selection of contractees. Little and Watts (1994) argue that larger growers are likely to be more attractive partners. Larger growers can undertake more production, hence the overheads associated with the contract is a smaller proportion of total costs. This means the costs incurred by the firm for the provision of extension information and visits, the purchase of equipment and other capital outlays associated with the set-up are lower per unit of contracted output. Also, large growers who are better positioned to bear crop risk may already possess expertise in crop husbandry and labour management and often have storage and transport facilities (Wilson, 1990).

Farm fertility is also an important factor in selecting contractees. More fertile farms are less risky in terms of yield and their owners are more likely to meet delivery requirements. On the negative side, more fertile farms have higher opportunity value and hence there may be greater risk of the smallholder dropping the contract for some other type of production.

Conflict resolution is another important aspect to be dealt with if contracts are to be successful. Glover and Kusterer (1990), report of many misunderstandings and disagreements arising from contracts. They add that, smallholder issues in Indonesia, over operational aspects of contracts, seemed to be the rule rather than the exception. As contracts mature past an initial ‘honeymoon’ period, issues that may arise include real or imagined wrongs suffered by smallholders from actions by the contracting firm. This is common for contract farming in developing countries. According to Easton and Shepherd (2001), a “honeymoon’’ period after the establishment of a contract is followed by a period of contract tightening. They add that two reasons can be conjectured as to why contract terms and conditions might tighten as contracts mature. Firstly, contracts are likely to include some subsidization of smallholder setup costs. This may take the form of intensive attention from the firm’s extension officers or assistance with capital investments that are implicitly included in contracts through generously set prices and subsidization of inputs. Secondly, contracts

may tighten up because of the relatively high cost for producers who make lower profits from the contract. These producers are less likely to renew contracts or to be asked to renew by the agribusiness firm. As high cost producers leave the contract, the agribusiness firm can negotiate tougher terms without jeopardizing its procurement base. If this occurs, it would leave smallholders with the correct perception that the contract was getting tougher over time and, presumably, that they had something to complain about.

2.5.4 Transaction costs and contract farming

Contract farming may have high transaction costs that are incurred by agribusiness firms engaged in contract farming arrangement. According to Simmons (2002), these costs fall broadly into four areas namely, costs of drafting, negotiating and enforcing contracts; maladaption costs when contract specifications are not met; Set-up and running costs associated with governance; and bonding costs of effecting secure commitments. Each of these areas are explained below as follows.

2.5.4.1 Costs of drafting, negotiating and enforcing contracts

The initial costs of drafting contracts are increased by the necessity of having first season contracts work well. Glover and Kusterer (1990) report that farm contracts have a ‘honeymoon’ period in their first season where smallholders show high levels of goodwill towards the

contracting firm. However, smallholders' experience of the first season flows into later seasons when, with contract maturity, contract provisions tighten and smallholder attitudes harden as a more business-like attitude develops. Hence, getting the contract 'right' in the first season should be a priority for the agribusiness firm but is likely to be costly. Upfront costs in negotiating and managing contracts include:

- Costs of gathering agricultural, social and economic information about an area or region.
- Costs of contacting and establishing relationships with individual smallholders, farm groups and village committees or headmen. This may involve both political action and purchase of goodwill at the community level.
- Costs of gathering information on individuals to select smallholders/farmers' groups suitable from the firm's perspective, as partners in contracts.
- Costs of negotiating with individuals including possibly farm and family visits and establishment of personal relationships between smallholders and firm representatives.
- Costs of writing contracts and, where literacy is limited, legitimization of

contracts through a village committee or primary cooperative societies’

leaders.

- Costs of enforcement of contracts.

2.5.4.2 Costs when contract specifications are not met

A pervasive theme in the literature on contract farming is quality specification of contracted production (Glover and Kusterer, 1990; Easton and Shepherd, 2001). Smallholders may face difficulties in meeting quality requirements regarding the produce in terms of size, colour, blemishes and ripeness or seed grain moisture and purity requirements and, increasingly, food safety requirements related to chemical use. Glover and Kusterer (1990), also point out the economies of scale in quality management and the relatively small scale of production that most smallholder contractors actually achieve as the reasons for smallholders experiencing more difficulties in meeting quality specifications than is the case with their counterparts in the developed countries. Dorward (2001) argues that quality control for HVF crops requires more capital intensive production than for other crops, and hence the problem is essentially one of smallholders not being able to afford appropriate technology. Also, quality problems may arise for cultural reasons.

2.5.4.3 Set-up and running costs associated with governance

The governance of contracts requires a management team to support personal contact with smallholders in the village or region where the agribusiness firm is operating. Management personnel are likely to be involved in dealing with contractual problems such as payment issues and monitoring activities such as farm visits. This management effort may need to be integrated with the extension services offered at either individual smallholder or farm group level or these may be run separately with the extension services outsourced by the firm.

2.5.4.4 Bonding costs of effecting secure commitments

The agribusiness firm has an interest in 'bonding' the smallholder to the contract by subsidizing various types of capital acquisition. As the number of successfully completed contracts increases, smallholders gain specialized knowledge about the contracted crop and may invest in sheds, plant or field equipment to expand or make production more efficient. This build up of capital should cause a bonding process making contract renewal more likely and leading to a long term relationship between smallholder and the firm. Dorward (2001), reports that some frozen vegetable contracts in Mexico have operated over many years and apparently reflect very long-term expectations on the part of smallholders. Thus, the decision by an agribusiness firm to undertake expansion through contract farming reflects the costs of contracting compared to alternatives such as open market operations

or plantations. Both of these latter structures have the potential for relatively high transaction costs and contract farming, under the right circumstances, may be the least cost growth option for firms.

2.5.5 Advantages and disadvantages of contract farming

Efficiently managed and organized contract farming arrangement reduces risks and uncertainty for both parties as opposed to buying and selling crops on the open market (FAO, 2001; Dubois and Vukina, 2004). Critics, on the other hand, perceive contract farming arrangement as benefiting sponsors only (Litlle and Watt, 1994). However, the advantages and disadvantages varies with the physical, social and marketing environment, availability of alternative earning opportunities for farmers and the extent to which relevant technical information are availed to growers (Glover,1990).

2.5.5.1 Advantages to the farmer

(i) A guaranteed market

Marketing of large amount of produce is not often an easy task; contract farming offers such an opportunity. Sponsors normally undertake to procure the entire produced crop within the specified quality and quantity parameters (FAO, 2001). For example, tobacco growers in Brazil which is the 2nd largest tobacco producer by volume after China, sells about 450 000 tones annually through contractual arrangement (ITGA, 2006). In Thailand, more than 200 000 sugar cane growers during 1997/98 growing season for example, supplied about 4 to 46 tones in the country under contract (FAO, 2001).

(ii) Supply of production inputs

Structural adjustment programmes in many developing countries Africa in particular have drastically disrupted production inputs arrangement and extension provision, which were being facilitated by the governments (FAO, 2001; FAO, 1997). The vacuum created by either lack of inputs or low usage is being filled through contract farming arrangement. One of the factors impinging small – scale producer in developing countries is poor access to credit required to improve their production activities (FAO, 1997). Contract farming usually allows access to credit either from the sponsor or by offering liens guaranteed by sponsor i.e. contract serves as collateral. In Brazil, tobacco growers obtain bank credit for inputs and other investment through tobacco buyers' guarantee (ITGA, 2006). Whereas in Tanzania, tobacco buying companies procure and distribute inputs to cooperative societies/associations (TTCA, 2006).

(iii) Availability of improved technologies

Due to cost and risk involved, smallholder growers/producers are hesitant to accept and to adopt a new technology. Since the sponsor has an interest in the crop he/she can afford to spend in new technologies and extension services so as to remain competitive. In Kenya for example, the South Nyanza sugar Company (Sony) contracted with 1800 sugarcane out growers to feed its mills. The company provides one field assistant to 65 cane growers with a key focus on managerial skill when new technologies are introduced to the farmer (Kalamata, 2005).

(iv) Reduced uncertainties on price and yield

In contract farming, the uncertainty of price fluctuation is overcome because producers' prices are normally negotiated and agreed well in advance prior to the commencement of

production activities. Even when prices negotiation ends in deadlock, sponsors normally undertake to pay not less than the previous season's price (Simmons, 2002). As for yield uncertainty, Dileep *et al.* (2002) reported of the reduced yield uncertainty in Tomato production in India for contract farmers compared to non- contract which might be due to improved quality seedling and steady guidance by the field executives of the processing firms.

(v) Access to Credit

Many smallholders are credit constrained and hence do not have farm inputs needed to undertake new enterprises (Glover & Kusterer, 1990). Alternatively, if access is available they face high interest rates. Agribusiness firms usually include forward payment s or provision of inputs in contracts to overcome this problem.

(vi) Provision of Information

Information concerning quality and safety standards can be expensive to gather for a smallholder farmer. Hence agribusiness firm gathering and spreading information over many contracts has advantages in providing crop specific information over smallholders gathering their own information. According to Simmons (2002), most contracts have a provision to include visits by firm extension officers to either individual farmers or farm groups. These visits are for information dissemination, suggestions about management as well as providing firms with feedback on issues between themselves and growers. Information

disseminated may concern chemical restrictions related to food safety requirements in specific markets, timing of planting and harvest to meet markets, management of product quality and other market and technical information.

(vii) Promotion of commercial culture

Farmers are likely to benefit from the learning process that underlies contract participation. By participating in contracts, smallholders are involved in negotiations over production, storage, delivery and communication that often lie outside of the traditional farming experience. While much of this decision-making may be facilitated by participation in groups, farmers bear the final responsibility for these decisions. In the context of pressures from the new cash economy, urbanization and reduced government support associated with liberalization of domestic markets, contracting then becomes a facilitating component in a broader shift in developing country agriculture towards a cash exchange culture. In his study on contract farming in Africa, Ponte (2000) argues that a major effect of modernization has been the replacement of traditional exchange mechanisms based on mutual obligation, kinship and class structure with cash exchanges. Farm families now need cash for school fees, weddings and funerals and basic items such as food, clothing and medicine. Farm contracts can provide the cash to meet these needs and should facilitate adjustment to modernization by increasing

smallholders' awareness of options and knowledge of commercial practice.

2.5.5.2 Disadvantages to farmers

(i) Production and market risks

Farmers entering new contract farming venture are likely to face a number of production and market risks. Should farmers perceive that the sponsors are unwilling to share the risks, then, the contracts become jeopardized. According to FAO (2001), in Thailand a contract between poultry farmers and the contracting company turned sour when the company literally imposed a levy on farmers' income in order to off-set the possibility of high chicken mortality rate.

(ii) Rigid production conditions

Where sponsor rigorously control conditions under which crops are grown, growers face the problem of being compelled to adopt technologies which could be incompatible to the social life of the community and the realism of such innovations. In Fiji Island, encouragement of tobacco growers to cure tobacco rather than sell it in the fresh form ended in failure because the growers were unable to handle the highly technical curing operations and contracts were terminated as a result (FAO, 2001).

(iii) Manipulation by buyers

Default on quantity and quality can occur for a variety of reasons; and this is one of common problems in contract farming. Individual producers are often at a disadvantage in contract negotiations because they are far less contractors. Growers often complain that after the contracts have been signed, contractors have required additional investments for

renewal, provide lower quantities than the originally presented to growers, reduce payments or manipulate payment formulas or limit the contract's duration. Hovenkamp (2005), points out that legal and regulatory avenue are to be better designed to handle the commercial disputes that may arise under production contracts.

(v) Corrupt practices

This problem may come about as staff of the sponsor exploits their position in allocation of contract quota or procurement of the crops. On a large scale sponsors may use various techniques such as charging excessive fees to manage government owned ventures or convincing the government and other investors to set up a farming contract company and sell the company overpriced FAO, 2001).

(vi) Limited competition

Agricultural contract can restrict competition as they can be designed to either facilitate tacit collusion on prices or sales or exclude competitors by creating barriers to entry by raising entrant's costs and hence deter their entry. In Hog production in USA, some contracts tie livestock sellers and packers together for extensive period thus forcing a new entrant to wait for contracts to lapse so as to begin to acquire supplies (McBride and Key, 2003). According to James (2006), contracts can also help buyers and sellers realize market power in concentrated markets. In another context, contracts appears to facilitate shifts of agricultural production to large enterprises, creating a competitive disadvantage for smaller farms, especially if there are scale economies that favour large units.

(vi) Chronic indebtedness by the farmers

Contract farming endeavor requires proper monitoring of small scale farmers in order to avoid indebtedness and over reliance on advances due to production problem and or marketing charges (Asokan and Singh, 2003). Furthermore, the authors caution that advances that are not within the scope of the venture should not to be provided to farmers.

2.5.5.3 Advantages for sponsor

Sponsors in contract farming venture have a number of options to obtain raw materials for their commercial activities. Benefits conferred by contract farming are considered in relation to other alternatives, viz. spot-market purchase and large-scale estates (FAO, 2001).

(i) Political acceptability

It is more appealing politically for the sponsor to involve small-scale farmers in production rather than owns a big piece of land and operates estates. In Central America, multinational corporations have shifted from banana plantation to purchasing bananas from growers; the multinationals role has changed to that of providing technical and marketing services.

(ii) Overcoming land constraints

Pressure on land uses makes it difficult to obtain large tracts of land for plantation/estates because it is either costly or unavailable. According to Kalamata (2005), contract farming offers access to crop production from land that would not otherwise be available to a company.

(iii) Quality consistency

Markets for fresh and processed agricultural produce require stable quality standards. Additional requirements comprise compliance to production techniques particularly pesticide usage and traceability. Singh (2000) notes that quality consistency was one of the main reasons that influenced Pepsi Food to embark on contract farming in Punjab – India.

2.5.5.4 Disadvantages to sponsors

(i) Land availability constraints to growers

Successful contract farming requires that growers have unlimited access to land. When farmers have minimal or no security of tenure there is a possibility of the sponsor's investment to be wasted/lost as a result of farmer-land lord disputes. Customary affair may also compound the issue of land in order to engage in contract farming for fear of permanent land alienation that could occur as the result of matrimonial disputes (Little and Watts, 1994).

(ii) Difficulty repayment of credits

Credit supervision in contract farming is an important activity for sustainability of the venture. In Tanzania, the problem of inputs debt, which accumulated from 1995/96 to 1998/99 crop season, seriously affected tobacco production (TTB, 1999).

(iii) Extra contractual marketing

Sale of contracted produce to a third party normally occurs when alternative markets with attractive terms exist. This situation may occur under monopolistic situation i.e. where only one sponsor exists or even where several sponsors work with the same crop as the case of tobacco in Tanzania.

2.6 Farm productivity and its influencing factors

According to Gillinger (1980) cited by Simbua and Ndunguru (2001), productivity is the measured relationship between production of an output and one, some or all of the resource inputs used in accomplishing the assigned task; it is a measure of efficiency, and is measured as a ratio of output per unit of input over time. The author adds that productivity has a direct relationship with profitability where other factors such as output prices, cost of inputs, taxation and tariff are constant.

In crop production including tobacco, productivity in terms of yield may differ from one farmer to another. This variation can partly be explained by factors such as farmer's education level, input use efficiency, farm size, technology, capital access; production contracts, agro-ecological factors and managerial skills and experience. Each of these factors is explained below.

2.6.1 Farmer's education level

Efficient use of modern agrotechnics and other inputs require a certain level of education to enable farmers to decode and comprehend their complex nature, to make efficient selection among them and to make appropriate reallocation of their resources to benefit from the opportunities provided by new superior inputs. In the U.S for example, Mcbride and Key (2003) noted that after the past two decades, farmers and farm workers were better educated and more knowledgeable than ever before. As a result, man-hour inputs in 1980 embody a relatively greater proportion of managerial input than was the case in the past two decades. Because of these and other technological changes, farm productivity and farm output per unit of input become considerably higher than at the start of that particular period.

In tobacco production for example, the value of knowledge can be appreciated by the performance differences of established tobacco growers and newly recruited tobacco growers. William and Colyer (1982) found that farmers who received training in tobacco production before joining the tobacco schemes did better than farmers in areas where training was not prerequisite for entering tobacco farming. This is due to the fact that tobacco production involves a series of complex activities that need to acquire the necessary skills for each activity.

2.6.2 Input use efficiency

Labour and fertilizer are the most important inputs in crop production including tobacco. Efficient use of fertilizer and labour inputs are significantly related to farm productivity (Mwakalobo, 2000). Furthermore, Mwakalobo adds that farmers would increase farm

productivity by using adequate capital-intensive input levels in order to maximize their efficiency. In a study by William and Colyer (1982) it was found out that an average of 530 man- days are required to take care of one hectare of tobacco. This labour input needs to be efficiently utilized due to its significance during the curing process which requires attention for 24 hours. The curing process is very critical as it affects both the quality and quantity of the crop, and therefore influences the productivity.

2.6.3 Farm size

Evidence from the study by Towsend *et al*. (2003) show that small farms have higher land productivity but lower labour productivity. The authors point out that to the greater labour intensity of smallholder farms is the reason for this trend. On the other hand, lager farmers could in theory compensate for less family labour per hectare with hired labour, non-labour variable inputs and capital to meet or surpass land productivity on small farms. Adesina and Djato (1996) showed this for large rice farms in Co d'Ivoire. The increased farm size diminishes the timeliness of inputs use (Mwakalobo, 2000). On large farms, activities are spread over time. Thus, it becomes more difficult for lager farmers to conduct their farm operations at the optimal times, hence an inefficient use of farm inputs. Also, given the importance of inputs in farming system and the low access to these inputs and their high cost, increasing the area cultivated implies a wider application of insufficient inputs that results in low yield.

2.6.4 Technology

According to John and Frank (1984), the increase in farm productivity in the US stemmed from two factors (1) Public and private investment in agricultural research and (2) the

farmer willingness to adopt new technologies. By adopting new technologies such as improved seed varieties, improved farm implements and improved storage facilities, farmers can reduce costs and/or increase profit in the short run.

2.6.5 Capital access

Adequate barns and steady fuel wood supply are very important aspects in tobacco production. Curing needs barns of good size to use the heat produced effectively (William and Colyer, 1982). Inadequate barn capacity may lead to a delay either in harvesting or storing the harvested tobacco leaves while waiting for the barn to be cleared. Both the late harvesting and delay in curing of the harvested tobacco leaves lead to substantial leaf losses. The losses may be as high as 15% of the harvested leaves (TORITA, 2001).

2.6.6 Production contract

According to Mcbride and Key (2003), production contracts may raise farm productivity by improving the quality of managerial inputs by speeding the transfer of technological information to growers, or by facilitating grower's access to credit thereby permitting the adoption of more new technologies. On the other hand, contracts may lower on-farm productivity if they reduce incentives for growers to work efficiently or invest fully in specific productive assets (Karam, 2004).

2.6.7 Agro- ecological factors

Rainfall reliability, distribution and soil fertility determines the suitability or otherwise of an area for farming. Variability in rainfall plays a significant role in determining both annual and seasonal crop production patterns. William and Colyer (1982) note that Flue-

cured tobacco thrive well in light loam and grayish brown sandy soils when there is an adequate amount of rainfall which is well distributed during the growing season.

2.6.8 Managerial skills and experience

Managerial skills and experience are important inputs in any farm production process. Access to all other resources involved in farm production (land, labour and capital/credit) does not ensure success for a farmer who lacks the right managerial acumen (Isinika and Mdoe, 2001). The authors point out further that good farm management is reflected through farm performance based on productivity indicators such as yield and returns accruing from various resources as such land, labour and capital. In addition, Guan and Alfons (2006) also found out that the coefficient of age was positively and significant, suggesting that productivity increases with experience and especially when the farmer adjusts his goals in the later stage of the life cycle. Thus, the above studies assert that managerial factors have a significant effect on farm productivity.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This chapter presents the methodology and analytical approach used in the study. It starts by presenting the description of the study area, followed by the theoretical framework, study design including procedures used to collect data and the analytical techniques employed. The last section highlights the limitations encountered during data collection.

3.2 Description of the study area

Uyui district was selected for the study because it is the second largest producer of tobacco after Urambo in Tabora region. In addition, Uyui district is not very far from Tabora town. This made it easier for the researcher to access transport and other services like secretarial services and accommodation. The district is one of the six districts in Tabora region where more than 60% of the country's total Flue- cured tobacco output is produced. The district lies between longitudes 32° to 34° East of Greenwich and between latitudes 4° to 5° south of the Equator. Uyui district is comprised of three divisions namely; Ilolangulu, Igalula and Uyui.

3.2.1 Climate and topography

Uyui district is within the central plateau of Tanzania, with an area of low relief between 1000m to 1200m above the sea level. This altitude provides a suitable climate for tropical varieties of crops. The climate is generally mild to warm with temperatures reaching their peak in September and October, just before the onset of the rainy season which lasts from

November to May. The average rainfall amounts to 760 mm per annum with variations from 420 mm to 1160 mm. The rainfall is more reliable in the western part (Ilolangulu division) than in the east and northern parts which are frequently affected by short 2- 4 weeks dry spell during the growing season. When this dry spell extends than four weeks, tobacco yield become affected in terms of quality and quantity.

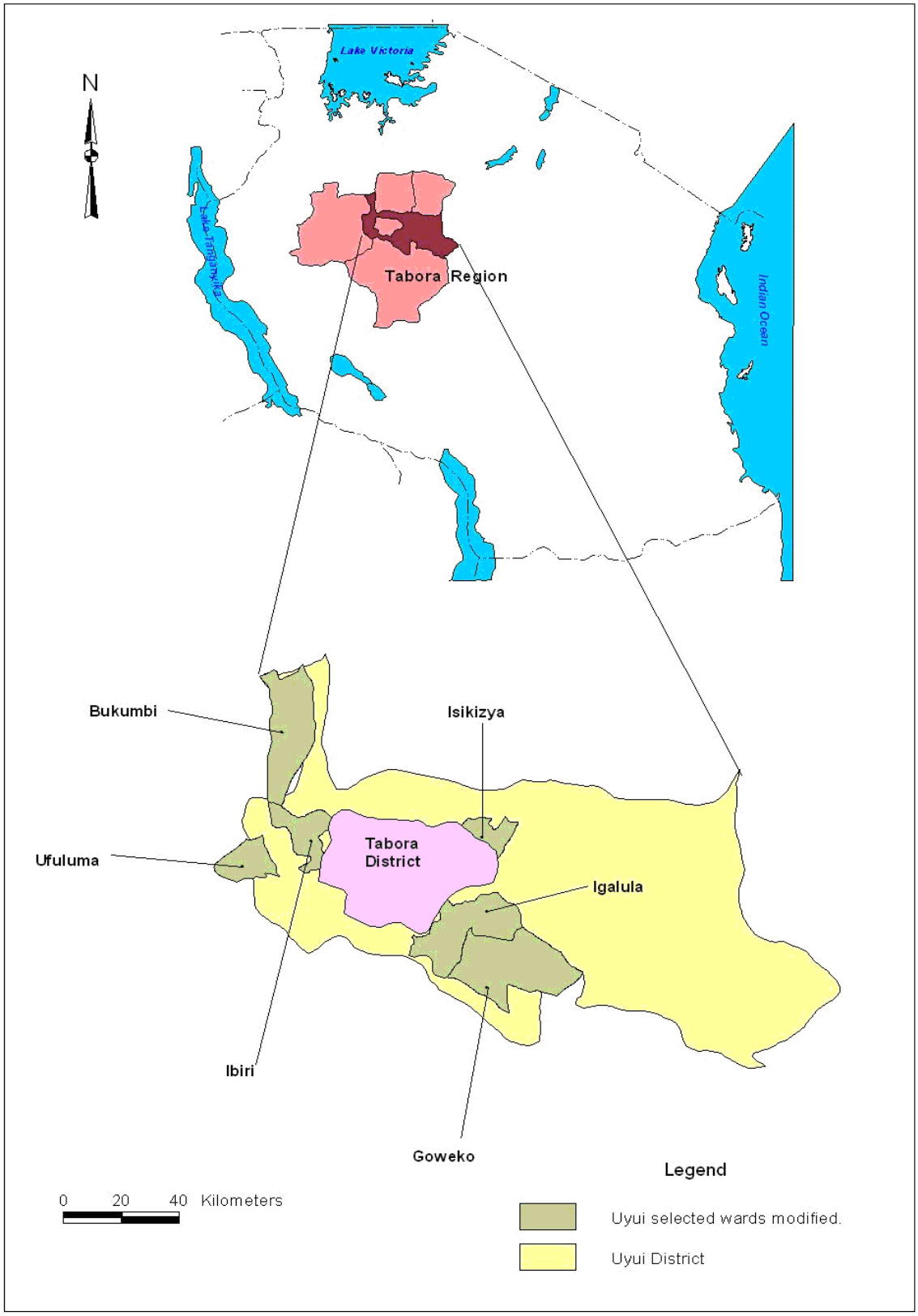

Figure 3: Map of Uyui district within Tabora region showing wards under study.

3.2.2 Population

According to the population census of 2002 (URT, 2003), Uyui district had a population of about 282 272 people with a population growth rate of 3.5, which is higher than the average national growth rate of 2.8%. The population density in the district was 20 persons per square kilometer, with an average of 6.5 people per household.

3.2.3 Economic activities

Crop production and livestock keeping are the main occupations in the study area (URT, 2005). Main crops grown are maize, rice, cassava, groundnuts, beans, tobacco, paprika and sweet potato. Cultivation is mostly by hand with the use of Oxen to a very limited scale. The family is the major source of labour for crop production, whereas tobacco attracts more lobour from neighboring regions such as Kigoma, Singida, with some few from Shinyanga and Mwanza. On the other hand, livestock keeping is also an important economic activity in the study area particularly in Igalula and Uyui divisions. The major food crop is maize and tobacco is the leading source of family incomes.

3.3 Theoretical framework

There are interactions among various factors and institutions in the process of tobacco production and marketing. The authority, responsibility, capability and working relationships of these institutions have a bearing on the question of productivity and profitability of the tobacco crop enterprise under contract farming arrangement, since the relationships of these parties involve the exchange of goods and services**.** For the benefits of both contracting parties, such a relationship has to be regulated so as to create an enabling environment for smooth business.

Small- scale tobacco farmers operate different types of mixed farming systems using capital, land, and labour as their basic inputs (Simon, 1998). The decisions they make on inputs utilization and adoption of technologies have a profound effect on farm productivity. Agro-ecological factors such as climate, soil types, vegetation and water determine whether or not a particular crop can grow well. In addition, demographic factors such as age and education modify the independent factors positively or negatively with respect to farm productivity.

Figure 4 represents the interaction of independent and intervening variables to influence the dependent variable i.e. farm productivity.

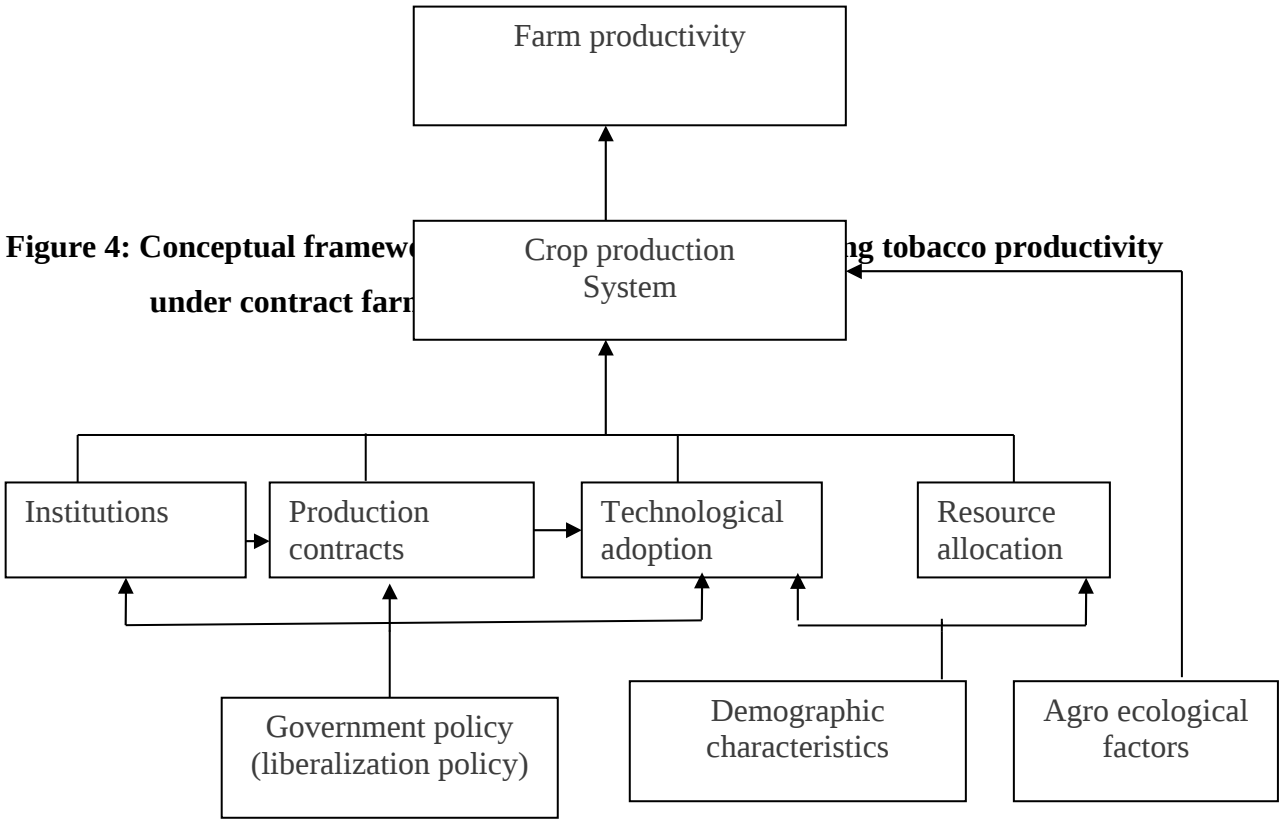

Figure 4: Conceptual framew ng tobacco productivity under contract farm

3.4 Study design

The design of this study involved cross section using a survey method. By cross sectional survey, data were collected by interviewing a representative sample at a single point in time i.e. between October and December, 2006.

3.5 Source of data

Data for the study were obtained from both secondary and primary sources during the field survey.

3.5.1 Primary data

Primary data collection involved administering of the questionnaire to tobacco farmers. Additional primary data were collected through informal discussion with agricultural field officers, primary co-operative society leaders, key informants and tobacco buying companies representatives in the study area

3.5.2 Secondary data

Secondary data were obtained from the Sokoine National Agricultural Library (SNAL), Tanzania Tobacco Board (TTB), Tanzania Tobacco Co-operative Apex (TTCA), Association of Tanzania Tobacco Traders (ATTT), and tobacco buying companies**.** Data intended in this category were related to; world tobacco production trend, tobacco input supply and distribution; tobacco production and sales record including input debt recoveries and tobacco grades (quality) trends, and inputs and tobacco prices trend.

3.6 Sampling technique

Multistage sampling technique was employed to sample from the study area. The technique was chosen because it took into consideration representation from divisions,

wards and villages scattered in a wide geographical area. From each division two wards were randomly chosen from the respective sampling frame, and from the list in each randomly selected ward, three villages were randomly selected to get a total of 18 villages (Appendix 1). From a list of tobacco farmers linked to tobacco buying companies through primary co-operative societies; the researcher randomly selected 10 farmers from each village. This made the sample size to be 180 tobacco growers, which is large enough to allow for statistical analysis.

3.7 Questionnaire design

A questionnaire was developed to obtain information required in accomplishing the objective of the study. The questionnaire was designed to capture both qualitative and quantitative data from the smallholder tobacco farmer on production and marketing under contract farming arrangement. The questionnaire consisted of both close- ended and open-ended questions. Close–ended questions were for items like age, marital status, source of income, education level etc. The open-ended questions were for items that were intended to seek understanding and solicit views on the aspect of contract farming and other factors influencing tobacco production. Questionnaire for flue cured tobacco farmer appears as Appendix 2.

3.8 Pre-survey

Prior to the main survey, a pre-survey was conducted. This was essential as it enabled the researcher to pre-test the questionnaire and to ascertain the feasibility of conducting the major survey in the study area. Questionnaire pre-testing was conducted using a small sample of ten tobacco farmers from each division of Ilolangulu, Uyui and Igalula.

3.9 Data collection

Data for this study were collected through formal and informal surveys. Informal survey was carried out to get in depth understanding of issues related to the tobacco industry and contract farming in general. Formal survey involved administering of a pre-tested questionnaire to the tobacco farmers. The questionnaire was administered by the researcher with the help of one trained enumerator, at the farmer's home or village offices/primary co-operative society offices after an initial appointment through village /primary society leaders or extension agents. Kiswahili language was used for interviews so as to ensure understanding and consequently high response. In addition, questions construction observed the issue of specificity and objectivity as Peterson (1982) mention that it helps to avoid obtaining biased responses.

3.10 Analytical technique

Primary data were coded, summarized and fed into a computer. A computer program Statistical Package for Social Science (SPSS 11.5) was used to analyze the data. The analysis of distribution and descriptive characteristics of variables employed FREQUENCIES and CROSS-TABS. Gross margin and multiple regression analysis were used as quantitative analytical tools.

3.10.1 Gross Margin Analysis (GMA)

Most often new technologies in smallholder agriculture are aimed at increasing farm productivity with a subsequent increase in income which is one of the immediate objectives of the overall farmer's enterprise. However, the costs associated with new technologies and new production and marketing arrangements might hinder the adoption (Johnsen, 2003). Thus, it was found useful to compare the gross margins of tobacco

enterprise before and after the inception of contract farming so as to establish whether or not tobacco farming is profitable. By using discounting technique, tobacco gross margin and returns to labour for 2005/2006 were discounted at 5% (market interest rate) to obtain the present value which was compared with the average gross margins and returns to labour in the study area for three successive years before tobacco market liberalization with a subsequent commencement of contract farming arrangement.

To define the concept of gross margin, we first have to distinguish between variable and fixed cost. Variable costs are those cost that increase or decrease as output changes; while fixed costs do not change as output change (Cramer *et al*., 2001). Common examples of variable costs in crop production include seeds, fertilizers, and pesticides. The most important fixed costs in agricultural production are owned land, family labour, farm buildings, farm machinery, and implements.

The gross margin of a farm activity is the difference between the gross income earned and the variable costs incurred (Ferris and Malcolm, 2000). Gross margin analysis is thereby a simple, but in many cases, a sufficiently powerful tool for economic analysis of introduced technologies. In this, study the gross margins for tobacco before and after contract farming were obtained as follows:

$$GM = TR_i - TVC_i \quad (1)$$

Where; GM = Averge gross margin (Tshs/ha)

TR_i = Average Total Revenue (Tshs/ha)

TVC_i = AverageTotal variable costs (Tshs/ha)

3.10.2 Multiple regression analysis

3.10.2.1 Model on tobacco output per unit area

In order to know the factors which determine the per unit area output (OTH) of tobacco in Uyui district, a linear multiple regression equation with the number of visits by the extension agent per season (NVE), the amount of fertilizer used per hectare in kilograms (AFH), hired labour used per hectare in man-days (LBH) and farmer's experience in tobacco production under contract farming (EXP) as independent variables were fitted. Education level of the household head (EDL) was used as a dummy variable in the equation in which Ordinary Least Squares Estimation (OLS) technique was employed.

According to Gujarati (1995), the OLS technique is commonly used in estimating linear and non- linear regression models. This technique is appropriate for single equation models. The OLS estimation requires selecting a population parameter estimator such that the ordinary sum of squares of errors is minimized. Errors are defined as the difference of observed values, say X_i and the expected value of the variable X or the population of parameter.

$$E_i = X - E(X_i) \qquad (2)$$

The OLS estimation technique is simple to use, eloquent and gives the best estimator and it does not require the knowledge of probability distribution of the underlying population being studied. Of all estimation methods, ordinary least square estimation (OLSE) leads to the best linear unbiased estimator and hence its popularity in applied econometrics (Gujarati, 1995).

The estimated specific model for tobacco output per unit area in linear form is as follows:

$$OTH_1 = A + \beta_1 NVE_i + \beta_2 AFH_i + \beta_3 LBH_i + \beta_4 EXP_1 + \beta_5 EDL_i + \varepsilon_i \quad (3)$$

Where $\beta_s's$ are regression coefficients and ε_i is the error term.

The expected results are that the output per unit area would be positively related with all the independent variables included in the model.

3.11 Limitations of analytical techniques

3.11.1 Gross margin analysis

According to Ferris and Malcolm (2000), gross margin analysis has the following limitations:

- Gross margin is not a profit figure. Fixed costs have to be covered by the gross margin before arriving at a profit figure.
- Gross margin can vary widely from one year to the next. This is due to differences in market prices, weather conditions and efficiency Gross margin can also differ considerably from farm to farm. This results from the differences in performance levels or the differences in the overall system of production or method of recoding. A comparison with average gross margins can be useful, but it should be done over a number of years. However, this comparison gives the starting point in the assessment of the enterprise.

3.11.2 Limitations of applying OLS in estimation technique

Mukras (1993) stated the following limitations of applying OLS in estimating models;

- Parameter estimates of econometric models obtained by OLS are generally biased.

- With non-linear models, variances of the estimates cannot be obtained easily and the estimates do not have well behaved statistical properties.

3.12 Limitations of data collection

Due to lack of proper record keeping by the respondents, collection of data depended mostly on respondent's ability to recall the past events. There was a notable difficulty on the part of the respondents to give a correct account of household production and marketing data such as actual area cultivated, quantity of inputs used and the average selling price of tobacco. Extension agents and PCS's leaders had to be consulted in areas where records of farmers were not available, and a lot of cross check questions were employed so as to confirm the given information.

Conversion of units was also a problem since some farmers use local units e.g. Oxen- cart trips for the quantity of firewood used to cure tobacco. These oxen- carts are not standardized; thus estimations and consultations with ATTT leaf technicians were made to convert these trips into cubic meters.

Despite of the above limitations, the researcher is confident that the data collected are reliable to address the objectives set for the study.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents results and discussion of the data obtained from both formal and informal surveys. The results are divided into three sections; the first section presents descriptive statistics showing characteristics of the sampled tobacco growers. This is followed by the results and discussion of enterprise budget in which gross margins for tobacco before and after contract farming are computed. Lastly, the chapter addresses the empirical results and presents a discussion from the econometric perspective.

4.2 Sample profile and household characteristic variables

4.2.1 Sample profile

The study covered 18 villages namely Ilolwansimba, Isikizya, Mtakuja, Chessa, Itobera, Ishihimulwa, Kigwa B, Nzigala, Imalakaseko, Inonelwa, Kilungu, Nyangahe, Mbeya, Kinamagi, Itundaukulu, Ipululu, Ufuluma and Ibiri. A total of 180 farmers were sampled and considered to represent the rest of the farmers in Uyui district. Of the 180 respondents 88.9 percent were males and the remaining 11.1% were females. This show that tobacco farming is male dominated enterprise as it requires a consinderable amount of resources to invest. In most African cultures or patriarchal African societies women are denied access to resources in favour of their male counterparts.In the study area, tribal culture of Wanyamwezi is likewise suppressive in terms of ownership of economic resources. This is exacerbated by the fact that land is inherited only by sons and not by daughters. Women are

thus dispossessed and denied fair participation in various economic pursuits by the very social fabric in which they live.

4.2.2 Household characteristics variables

The age of an individual has an influence on productivity and food consumption. Old people are likely to be less productive than people in the active age, although some argue that young people are likely to be less productive (Table 2). Most tobacco farmers are aged between 36 and 50 years. This category constituted about 52 percent of the farmers followed by the category of between 20 to 35 years that constituted about 29 percent of the interviewed farmers. The category of above 50 years of age was 19 percent. This implies that tobacco farming has absorbed a large number of the economically active population hence reducing rural poverty.

Respondents in the study area were also requested to state their marital status. The results in Table 2 reveal that 87% of the respondents are married. About 5% of the sample farmers were single. Divorced and widowed respondents constituted 1% and 7% of the sample farmers respectively. Having the large percentage of married respondents in tobacco farming can be explained by the fact that marriage increases household size, and therefore, married respondents venture into tobacco as a way of finding means of reliving themselves with financial problems facing the family.

As for education, tobacco farmers in the research area were moderately educated; the majority (76.1%) had formal education. In this category, primary school leavers constituted 59.4% while farmers who attained secondary education constituted 16.7%. Farmers who attended adult education classes constituted 22.2%, whereas those with no formal education constituted only 1.7%. Formal education attained by the majority of the respondents in the

study area is an encouraging situation because farmers with such a level of education are good at adopting modern innovations, given favorable farming environment.

Land acquisition is the pre-condition for any crop production including tobacco in the study area. Tobacco farmers acquire land in three major modes namely inheritance, purchasing and offer from the village authorities. From Table 2, it can be seen that the majority (55%) of sample farmers acquired land through purchasing, 25% through inheritance and 20% acquired land by offer from the village authorities. The average total area under cultivation owned by respondents was 1.2 ha. This is above the average landownership and occupation in accordance with the villagisation programme of 1960s and 1970s, which requires a household to have a homestead plot of about 0.5 ha (NEMC, 1998).

Table 2: Distribution of household characteristics variables (N = 180)

Variable	Frequency	Percent
Age of respondent		
20 – 35 years	52	28.9
36 – 50 years	94	52.2
> 50 years	34	18.9
Gender of respondent		
Male	160	88.9
Female	20	11.1
Marital status		
Married	157	87.2
Single	2	1.1
Divorced	10	5.6
Widowed	11	6.1
Level of education		
Primary	107	59.4
Adult	40	22.2
Secondary	30	16.7
None	3	1.7
Mode of land acquisition		
Bought	99	55.0
Inherited	45	25.0
Offered by village government	36	20.0

4.3 Farming activities

The household economy in Uyui district depends mainly on agriculture. Farmers in Uyui grow both cash and food crops. Tobacco and maize are the main cash and food crops respectively. From Table 3 it can be seen that the majority of sample farmers 59.4% regard tobacco as the most important crop enterprise with the remaining 40.6% in favour of maize.

Other minor crops such as cassava, ground nuts, rice and beans were also ranked by the respondents according to their importance. From Table 3 cassava was the third most important crop (35%) because it can tolerate the adverse weather conditions like drought and thus, the crop can be a life saver to farmers during food shortage. The fourth crop as ranked by the respondent 26% was ground nuts because the crop is an important

component of relish. Rice was ranked as the fifth crop ranked by 20% of respondents as it can be used for food security as well as cash earning. The last crop was beans ranked by 19% of respondents.

Table 3: Important crop enterprises ranked by the sample farmers

Main crops	**Frequency**	**Percentage**
Tobacco	107	59.4
Maize	73	40.6
Total	**180**	**100.0**
Other crops		
Cassava	63	35.0
Ground nuts	47	26.0
Rice	36	20.0
Beans	34	19.0
Total	**180**	**100.0**

Table 4 presents criteria used to rank crop enterprise by tobacco farmers. The majority (68%) of the sample farmers rank tobacco as their most important crop enterprise because of the cash earnings realized through its sales .On the other hand, 53% of the sample farmers considered maize as the most important crop for food security reasons.

Table 4: Criteria used by sample farmers to rank crops

Criteria	Frequency (N = 180)	Percentage
Cash earning	122	68
Food security	95	53

Note: Totals add up to more than 180 farmers or 100% due to multiple answers.

4.3.1 Tobacco pre and post harvest activities

Tobacco farming season begins in late August. The first activity marking the beginning of the season is firewood collection. This is followed by nurseries preparations that also start in August. Bush clearing and ploughing activities are undertaken from October through December. Planting (Transplanting) is done between November and January. Other pre-harvesting activities like weeding and fertilizer application are carried out between November and January. Harvesting is usually done between January and early June. Post-harvest activities such as curing, bulking, sorting, grading and baling are also done during this period. Marketing of the crop starts from March through September. All these activities require knowledge and skills in order to be successful carried out.

Table 5: Areas for more education/attention as pointed out by respondents

Activity	Frequency	Percent
Curing	72	40.0
Grading and storage	35	19.4
Field management	33	18.3
Sales floor	24	13.3
Nursery	16	8.9
Total	**180**	**100.0**

Tobacco farmers in the study area were asked to mention the important areas or activity where they face more problems and would require more education and/or attention from the extension agents so as to improve their farm performances. From Table 5 above, forty percent of the sample farmers mentioned curing as the most important area where they

would require more education. Grading and storage was ranked the second (19.4%) followed by field activities particularly application rates for chemicals which was mentioned by 18.3% of the sample farmers. Education concerning sales floor (tobacco grades and classification regulations) was reported by 13.3% of the respondents as an important aspect in making sure that farmers' tobacco is not under classified. Nurseries/seedbeds were reported by a few (8.9%) of the respondents as an area which requires more education or attention.

4.3.2 Farm resource availability and use, investment and equipments

4.3.2.1 Farm inputs

a) Fertilizer

In order to produce tobacco, farmers need fertilizer which is the most important input. From Table 6, about 99% of the respondents obtained fertilizer on credit terms from the buying company they had contracted with; and only 1% of the sample farmers obtained fertilizer from other sources on cash terms. This is unhealthy situation for farmers' income. For example Table 6, on farmers views on input (fertilizer) prices indicate that the majority (95%) of respondents reported that, fertilizer obtained on credit terms from the leaf dealers are expensive than those obtained on cash basis. Only few (5%) of respondents reported that fertilizer obtained from tobacco companies on credit are not expensive as opposed to fertilizer obtained from other sources.

Table 6: Sources of fertilizer and views on prices from respondents

Source	Frequency	Percent
Tobacco companies	178	98.9

Other sources	2	1.1
Total	**180**	**100.0**
Views on fertilizer prices:		
Expensive	171	95.0
Not expensive	9	5.0
Total	**180**	**100.0**

As for fertilizer availability and use categories in the study area, it can be seen from Table 7 that the majority (77.8%) of the respondents reported to have obtained the required amount of fertilizer, while 22.2% faced shortage of fertilizer. The underlying reasons for fertilizer shortage are untimely delivery to farmers and poor input requirement estimation from farmers. On timeliness of inputs delivery, 93.3% stated that they received inputs at the right time whereas 7.7% reported that inputs were not timely delivered. The recommended fertilizer application rate is from 500 kg – 750 kg per hectare. From Table 7 it is evident that the majority (56.7%) used fertilizer according to the recommended rate and the remaining 43.3% did not use the input at the recommended application rate due to some reasons including shortage of fertilizer.

Table 7: Fertilizer availability and use categories

category	Frequency	Percent
125 to 499	78	43.3
500 to 750	102	56.7
Total	**180**	**100.0**
Input satisfaction		
Sufficient	140	77.8
Not sufficient	40	22.2
Total	**180**	**100.0**
Input delivery		
Timely	168	93.3
Untimely	12	7.7
Total	**180**	**100.0**

b) Seeds and agrochemicals

Seeds and agrochemicals are important inputs in any crop production enterprise. Before market liberalization, seeds and chemicals for nurseries were packed and supplied together in the seedbed packs which were part and parcel of the input loan package. As a strategy to improve the quality of tobacco, traders supply seeds (certified) free of charge to their contract farmers. Chemicals for nurseries are inclusive of the loan package. During the cropping season under study, all the sample farmers obtained seed from the contracting companies. This could be the possible explanation that the prevalence of pest and diseases was not a big problem among the problems faced by farmers in tobacco production.

c) Packaging materials

Packaging materials include Hessian cloth and Jute and Cotton twine. These materials are supplied by the leaf- dealers as part of the input loan package. During the season under study, all the sample farmers reported to have no any problem with the availability of the materials and therefore farmers faced no problem in handling their crop produce.

d) Firewood

Firewood is essential input since fuel wood provides the only source of heat necessary for tobacco curing. Almost all farmers interviewed revealed that they obtain firewood from the forest as far as more than fifteen kilometers away from home. Due the increased distances from firewood collection points, respondents in the study area complained of the increased production costs. In 2005/2006, firewood costs contributed about 21% of the total costs for physical inputs. On the other, hand the increased distance of firewood source reflects the rate of deforestation; an environmental problem associated with tobacco production.

4.3.2.2 Labour

According to the survey, tobacco crop enterprise is very much demanding in terms of labour requiring 475 mandays per hectare. From sample of farmers interviewed, it was found that 80% employed family labour in tobacco production and the average acreage was 2 acres (0.8 ha).The remaining proportion (20%) of the sample farmers used both family and hired labour in 2005/2006 farming season. Tobacco being labour intensive crop, most of the family labour becomes fully occupied during the crop production period. According to respondents, farmers who undertake any form of off-farm activity, do so mostly during the off season which is a very short period for those farmers who sell their crop at the end of the marketing season.

4.3.2.3 Farm implements

Simple farm tools were a characteristic of almost all sample farmers interviewed. The majority of sample farmers (83%) used hand hoes while the remaining percentage used both hand hoes and Oxen-plough for cultivation. None of the sample farmers used tractors. Other simple farm tools used included, Oxen-cart, matchets and axes.

Barns and stores are structures necessary for tobacco curing and storage respectively. Barns differ in sizes and mode of construction ranging from conventional ones - that can last for only four to six years, to the complex and improved ones that can last up to ten years or more. In the study area a large proportion of respondents (67%) had the barn capacity i.e. number of barns and sizes that corresponded with their acreage. The remaining proportion (33%) had inadequate barn capacity.

4.3.2.4 Tobacco inputs price setting mechanism

Under contract farming arrangement, inputs for tobacco production and, to some extent maize production are obtained from tobacco leaf- dealers on credit through PCS's. Each farm household is linked to one leaf- dealer through contract farming arrangement. Field tobacco and input prices are negotiated through the Tanzania Tobacco Council where growers, government representatives and buyers meet to set prices for the coming farming season. The agreed tobacco prices are referred to as minimum indicative. A number of factors are considered before reaching these prices, which include world market prices and per unit production cost for tobacco. As for inputs, the prices are reached by considering CIF prices, handling charges and transport costs.

Despite the fact that tobacco and fertilizer prices are reached through negotiations, the rate at which input price increases outpace that of tobacco. This could be attributed by the monopoly market structure where there are few input suppliers who are also tobacco buyers. Given the small number of tobacco buyers (input suppliers) available, the set price is therefore monopolistic, and does not reflect the competition expected to be instituted

through liberalization. On the other hand, if buying firms were many, tobacco price increase could have corresponded with the input price and therefore reflects the actual production costs and profit margin. Table 8 below shows the rate of price increase of fertilizer as compared to that of tobacco.

Table 8: Tobacco and input prices trend 1993/94 - 2005/06

Crop season	Fertilizer N.P.K			Produce (Tobacco)		
	Price (Tshs/bag)	Difference	% change	Price (Tshs/kg)	Difference	% change
1993/94	9250			600		
1994/95	15 600	6350	68.50	630	30	5.0
1995/96	14 500	-1100	7.05	668	38	6.0
1996/97	15 000	500	3.45	701	33	5.0
1997/98	15 200	200	1.33	743	42	6.0
1998/99	16 200	1000	6.58	766	22	3.0
1999/00	16 350	150	0.93	766	0	0.0
2000/01	16 350	0	0.00	766	0	0.0
2001/02	16 350	0	0.00	766	0	0.0
2002/03	16 350	0	0.00	820	54	7.0
2003/04	19 700	3350	20.49	921	101	11.0
2004/05	24 500	4800	24.40	980	59	6.0
2005/06	28 000	3500	14.30	1009	29	3.0
Overall difference		18 750	132.90		409	52.0

Source: TTCA, 2006

Farmers' views regarding input and tobacco prices are summarized in Table 9. From the table, 95% of the sample farmers reported that inputs obtained from tobacco buying companies are more expensive than those obtained from other sources. Only 5% of the respondents indicated that inputs obtained from tobacco buying companies on credit are relatively cheap. Regarding tobacco price increase as compared to that of inputs and their fairness in relation to production costs, the majority (67.8%) of the sample farmers reported that tobacco prices offered by the contracting companies are not fair and do not correspond to the actual production costs. The remaining proportion (32.2%) of the sample

farmers reported that the offered prices are fair. From these results, it can be seen clearly that tobacco farmers are not satisfied with the prices. This could be the consequence of monopolistic market structure of the tobacco industry in which only two firms are supplying inputs and buying tobacco.

Table 9: Summary of farmers' views on input and tobacco prices

Input prices	Frequency	Percent
High priced	171	95.0
Low priced	9	5.0
Total	**180**	**100.0**
Tobacco prices		
Fair	58	32.2
Unfair	122	67.8
Total	**180**	**100.0**

From Table 9 above, it is evident that the majority of the farmers are aware of input prices on credit basis being expensive than inputs obtained on cash terms due to the addition of interest. However, the majority (89.7%) of the sample farmers reported to be continuing to obtain inputs on credit from the tobacco buying companies due to the lack of capital to buy them on cash (Table 10). Lack of alternative source for specified fertilizer formulation (NPK 10:18:24) was another reason mentioned by a sizeable number (14.4%) of respondents. Over-reliance culture for tobacco farmers on credit for even the inputs they can afford to buy on cash was pointed out by 6.9% of the respondents. Only 2.3% of the respondents pointed out distribution of risk between them and the contracting company as one of reasons as to why they have to continue to depend on credit for inputs.

Table 10: Reasons for continuing obtaining inputs on credit

Reason	Frequency (N = 180)	Percent
Lack of capital	156	89.7

No alternative source	25	14.4
Over-reliance culture	12	6.9
Risk distribution	4	2.3

Note: Totals add up to more than 180 farmers or 100% due to multiple answers.

4.4 Tobacco contract farming in Uyui district

Contract farming as it is defined in section 2.5 is an arrangement between farmers and processing agent/firm; for the farmer to produce a specified quantity and quality of the produce normally at pre-determined prices. The arrangement involves the purchaser in providing a degree of supporting through the supply of inputs and the provision of technical advice. Various models of contract farming are adopted depending on the product, resource of the sponsor, and the interest of the relationship between farmers and the sponsor (FAO, 2001).

The adopted model of contract farming in tobacco industry in the study area is the centralized model. This is a vertically coordinated model where the sponsor supplies production inputs on credit to farmers, provides extension services, and purchases the entire produced crop at pre-determined prices. On the other hand, a farmer is obliged to sell the crop to the contracted buyer and the input loan directly recovered from the crop sales

Tobacco farming arrangement in Uyui district involves farmers on one side and green leaf tobacco buyers as sponsors of production activities on the other side. These two parties work together through contract farming. The principal legislation that governs contract, in Tanzania is the law of contracts – CAP 433 of the laws of Tanzania (MAFS, 2004). For the purpose of supporting specific industry's operations however, separate laws have been enacted. Thus, in cognizance of the developments contained in the Agricultural Policy

1997 regarding involvement of the private sector in the roles previously performed by the public sector, the Tobacco Industry Act, 2001 was enacted so as to provide a legal basis for tobacco contract farming.

Tobacco contract farming between farmers and tobacco buyers is thus stipulated by the Tobacco Industry Act 2001 16(2). The later is backed up by Tobacco regulations 2000 19(1), (2), (3), (4), (5) and (6) which details the operational aspect of contract farming (URT, 2000). Regulation 19 (1) for instance states that: 'any buyer may enter into a farming contract with any grower……''. On the other hand, Regulation 19 (4) states that; 'the parties to the farming contract shall specify the crop production estimates in hectares and crop volume, and the corresponding inputs requirements…….''.

In Uyui district, two tobacco companies namely TLTC and AOTTL have contracts with tobacco farmers. It is a tripartite contract that involves tobacco companies, primary cooperative societies and cooperative unions. Out of 180 sample farmers interviewed in this study, 66.7% belonged to primary societies contracted to TLTC, while 33.3% belonged to AOTTL. The ratio of growers between the two companies reflects the distribution of primary co-operative societies between the two companies in Uyui district.

In practice, tobacco buyers, primary cooperatives, and unions enter into contractual agreement by using the framework prepared by the Tanzania Tobacco Council. The council is a forum composed of tobacco farmers, traders, tobacco industry regulator, and government representative from the ministry responsible for agriculture. The council was established under section 42 of the Tobacco Industry Act, 2001 to discuss issues of mutual interest. The main aspects covered by the framework include:

- Definitions of parties to the contract and concepts
- Buyer's obligation, which amongst other things embrace, supply of inputs on credit terms or cash payments, provision of extension services, payment to growers after tobacco sales, and inputs debt recovery.
- Seller's obligations, which among other things spells out preparation of inputs estimates for submission to the buyer, maintenance of input records, payment of inputs debt, and sale of all tobacco to the input supplier.
- Negotiation of inputs and tobacco grades prices.
- Change of ownership of tobacco from seller to buyer.
- Union obligations
- Tenure of contract
- Arbitration of disputes
- Contract termination
- Force Majeure (Acts of God)

Unless circumstances warrant making some amendments, most often the contracting parties adopt the framework utterly for signing.

4.4.1 Selection of a contracting company

Before the commencing of the farming season, farmers sign farming contracts with the buying companies from which they obtain inputs and in turn sell their tobacco. From Table 11, it is apparent that the majority (52%) of the sample farmers did not choose the company on their own desires; they have to sign contracts because of the presence of a single tobacco company in their locality as provided in the Co-operative Act of 2005

which states that each village/primary co-operative society shall have a specific area of operation. However, many complaints were reported by the sample farmers that the system is an obstacle to competition as it deprives farmers of their freedom of choice of the tobacco company they prefer. About 29% of the respondents mentioned that PCS's leaders are the ones who decide which company to contract with. The provision of good services by the company (leaf-dealer) was mentioned by 15% of the sample farmers while only 4% reported to have inherited the contracting company from their parents.

Table 11: Criteria for selection of a contracting company.

Criteria	Frequency	Percent
Area of operation	93	51.7
PCS leaders' decision	52	28.9
Good Services	27	15.0
Inherited from parents	8	4.4
Total	**180**	**100.0**

4.4.2 Contract terms and conditions

As mentioned earlier that, before the commencement of the farming season, farmers and leaf-dealers enters into contracts. Like any other contracts, these contracts have terms and conditions that have to be adhered to by both parties. In the study area, farmers were asked as to whether they were satisfied with contract terms and conditions. From Table 12, the majority (78%) of the respondents reported that they were not satisfied with those terms and conditions. However, they reported to have signed the contracts since they had no alternative. On the other hand, 22% of the respondents reported to have been in favour of contract terms and conditions.

A tenure period of three years was one of the conditions where the majority (73.3%) of the respondents reported to have been dissatisfied with, and instead they prefer one year period, so as to be able for them to shift to another company for better terms. On the other hand, 20% of the sample farmers favoured the existing tenure period of three years with the reason that such period is sufficient for the farmer to repay loan in case he/she fails to settle debts in one farming season due to uncertainties such as drought and hailstorm. Furthermore, they added that one year period is not enough for a contracting company to build confidence with contractees. Only 6.7% of the respondents reported to be in favour of two years contract tenure.

Hundred percent debt deductions on the current selling season was another area where the majority (83.9%) of the sample farmers indicted to be the reason for not favouring the existing contract terms. Since farmers sell their tobacco through the PSC, and the contract is between PCS and the tobacco buying company, the debt is hundred percent deducted from the PCS's sales regardless of the individual PCS member farmer who has recovered his/her debt from sales. According to the interviewed farmers, the above discussed system denies a good farmer from getting all his/her money from the sales; instead his/her money settles the debts of dishonest and lazy farmers. On the other hand, the minority (16.1%) favoured the system with the reason that debt accumulation is limited.

Table 12: Farmers' views on contract terms and conditions

Terms and conditions	Frequency	Percent
Satisfied	40	22.2
Not satisfied	140	77.8
Total	**180**	**100.0**
100% debt repayment on the current selling season:		
Not good system	150	83.9
Good	29	16.1

Total	**180**	**100.0**
Preferred contract tenure:		
One year	132	73.3
Two years	12	6.7
Three years	36	20.0
Total	**180**	**100.0**

4.4.3 Contract farming perception among tobacco farmers

Depending on the community in which contract farming operates, the arrangement can be perceived differently. From Table 13, the majority (65.5%) of the sample farmers who perceive contract farming as of benefits indicated availability of inputs on credit as the major reason why they view contract farming arrangement to be of meritorious. Reliable market for their tobacco was reported by 56.3% as one of the benefits of the arrangement. The remaining proportion (4.7%) reported provision of extension services as an important benefit gained from contract farming arrangement.

Table 13: Reasons for perceiving contract farming as advantageous

Reason	Frequency (N = 64)	Percent
Obtain input on credits	42	65.6
Reliable market	36	56.3
Provision of extension services	3	4.7

Note: Totals add up to more than 64 farmers or than 100% due to multiple answers.

Farmers' views regarding the provision of extension services as one of the benefit of contract farming, was supported by the accessibility of the services during 2005/2006 farming season as seen from Table 14 in which about 97% of sample farmers acknowledged receiving extension services while only 3% did not. Extension services in the study area are mostly offered by the extension agents employed by leaf-dealers with the help from co-operative union's extension agents and to a lesser extent from the government extension officers.

Table 14: Extension services access by sample farmers

Responses	Frequency	Percent
Received extension services	174	96.7
Did not receive	6	3.3
Total	**180**	**100.0**

Of the respondents who viewed contract farming as disadvantageous, 36% pointed out the lack of say or autonomy as one of the disadvantages of contract farming. Farmers reported that once you sign a contract to obtain production inputs and other services like extension you forgo your sovereignty. Lack of freedom of choice as to where they would prefer to sell their tobacco was reported by a reasonable number (28.8%) of the respondents as another major disadvantage of contract farming.

Higher prices of inputs obtained on credit under contract farming arrangement were reported by a considerable number (20.8%) of the respondents to as one of the major demerits of contract farming. Other disadvantages pointed out by the respondents includes hundred percent repayments of debts on the current selling season, pointed out by a sizeable proportion (19.2%) of the respondents; and low prices of tobacco offered by the contracting company pointed out by a reasonable number (14.4%) of respondents as it is indicated in Table 15.

Table 15: Reasons for perceiving contract farming as disadvantageous

Reason	Frequency (N = 125)	Percent
Lack of say	45	36.0
Limited freedom of choice	36	28.8
High price of inputs	26	20.8
100% loan repayment on the current selling season	24	19.2
Low price of tobacco	18	14.4

Note: Totals add up to more than 125 farmers or 100% due to multiple answers.

As mentioned in sub section 4.5.2**,** the majority (77.8%) of the respondents in the study area reported to have been dissatisfied with the terms and conditions contained in farming contracts. The remaining proportion (22.2%) reported to have been satisfied with the terms and conditions. Table 16 presents the summary of cross-tabulation results for some selected variables against farmers' perception regarding contract farming which is reflected through satisfaction or dissatisfaction with contract terms and conditions.

Chi- square test results for the independence between farmers satisfaction and contract farming arrangement revealed a high significant difference ($p<0.01$). This is in respect with the level of farmer's education and yield as indicated in Table 16. The result also reveal that other variables such as farmer's gender, acreage, company affiliation, profit realization after tobacco sales and returns per unit area (Tsh/ha) were not statistically significant on influencing farmer's perception about contract farming which is reflected by the satisfaction and dissatisfaction of contract terms and conditions. Overall, the results suggest that tobacco farmers do not perceive contract farming differently and thus confirm the null hypothesis, which states that contract farming arrangement is not differently perceived among tobacco farmers

Table 16: Summary of results for cross-tabulated variables

Variables	Chi-square	Degree of freedom	Significance
Gender by the level of satisfaction	1.10	1	0.751^{ns}
Education by the level of satisfaction	15.484	3	0.001***
Acreage by the level of satisfaction	5.643	2	0.06^{ns}
Contracting company by the level of satisfaction	2.106	1	0.147^{ns}
Return (Tshs/ha) by the level of satisfaction	1.346	1	0.246^{ns}

Yield (kg/ha) by the level of satisfaction	13.996	2	0.001***
Profit realization by the level of satisfaction	3.575	1	0.592^{ns}

Note: *** = p< 0.01
ns = Not significant

4.5 Gross margin Analysis

In order to assess whether tobacco farming has been profitable or not, budgeting techniques were used to establish gross margins for tobacco crop enterprise before and under contract farming arrangement i.e. before 1994/1995 growing season and under 2005/2006 growing season.

By using discounting method as described by Michael and Denis (1999), gross margin and returns to labour for tobacco crop enterprise under contract farming were discounted at the market interest rate of 5% to get the corresponding present values after fourteen years of contract farming. These present values were compared to gross margin and returns to labour before contract farming. From Table 17 the results suggest that tobacco production under contract farming is more profitable, with the higher gross margin of 649 255 shillings (327 923 Tshs. present value) per hectare as compared to 182 961 Tshs before contract farming. Returns to labour for tobacco production under contract farming also had higher cash of 1367 Tanzanian shillings (690 Tshs. present value) per manday as compared to 345 Tshs before contract farming (Table 18). The higher returns to labour observed under contract farming arrangement could have been contributed to adoption and use of labour serving technologies such as improved curing barns, the use oxen-plough and the use of desuckering agent such as “Yamaotea’’. In addition, the increase in yield of 1087 kg/ha recorded in 2005/2006 farming season compared to 865 kg/ha obtained before contract farming is another reasons for the higher returns to labour obtained from tobacco

enterprise under contract farming. These results justify the rejection of the null hypothesis that tobacco farming under contractual arrangement in Uyui district is not profitable.

However, when family labour is valued at the prevailing market wage for hired labour, the average cost for labour for tobacco production was found to be Tsh. 641 250 per hectare (475 mandays/ha x Tshs 1350/mandy). This brings total production costs to Tshs 1 165 955 per hectare. From Table 17, when total costs are deducted from total revenue, tobacco farmer in the study area remains with Tshs 8005 which is very small profit margin. Since social price for labour is the output foregone in other parts of the economic activity as a result of employment in the tobacco production, farmers particularly in the study area have to spend their labour in tobacco production since tobacco is the only cash crop with reliable market and climatic suitable in those areas.

Table 17: Gross margin and returns to labour for tobacco - Under contract farming

Farm activity	**[a]Mandays**	
Nursery works	85	
Barn construction and Maintenance	20	
Firewood collection	24	
Land preparation and ridging	36	
Transplanting	20	
Fertilizer and chemical application	15	
Weeding and re-ridging	40	
Topping and desuckering	12	
Reaping, tying tobacco leaves and barn loading	83	
Curing	90	
Sorting, grading, tying tobacco hands and baling	45	
Uprooting of crop residuals	5	
Total	475	
Materials:		Tshs.
Fertilizer	525 kg	292 480
Agrochemicals	3 kg	30 000
Agrochemicals	1 liter	20 000
Hessian cloth	45m	27 225
Firewood	7.5m3	112 500
Jute/Cotton twine	25 kg	42 500

[b]Total costs of physical inputs		524 705
[c]Average yield	1087 kg	
[d]Average price		1080
Gross returns		1 173 960
Gross margin		649 255
Returns per manday		1367

Farm size = 1ha.

[a]Mandays ; Labour requirement as obtained from survey data

[b]Total costs for physical inputs as computed from survey data

[c]Average yield as computed from survey data

[d]Average price as computed from survey data

Table 18: Gross margin and returns to labour for tobacco - Before contract farming (CF)

Farm activity	[e]Mandays	
Nursery works	100	
Barn construction and Maintenance	15	
Firewood collection	20	
Land preparation and ridging	45	
Transplanting	25	
Fertilizer and chemical application	15	
Weeding and re-ridging	50	
Topping and desuckering	20	
Reaping, tying tobacco leaves and barn loading	100	
Curing	85	
Sorting, grading, tying tobacco hands and baling	50	
Uprooting of crop residuals	5	
Total	530	
Materials:		Tshs.
Fertilizer	525 kg	25 993
Agrochemicals	3 kg	5 244
Agrochemicals	2 liters	2 800
Hessian cloth	45m	9 603
Firewood	$7.5m^3$	36 126
Jute/Cotton twine	25 kg	3 693
[f]Total costs of physical inputs		83 459
[g]Average yield	865 kg	
[h]Average price		308
Gross returns		266 420
Gross margin		182 961
Return per manday		345

Source: TTB – Zonal office, Tabora.

[e]Mandays: Labour requirement as obtained from secondary data
[f]Total costs for physical inputs as computed from secondary data
[g]Average yield for three consecutive seasons before CF as computed from secondary data
[h]Average price for three consecutive seasons before CF as computed from secondary data

4.5.1 Tobacco productivity in Uyui district

Farm productivity in terms of production per unit area, can have a considerable impact on returns and crop enterprise profitability. During the survey, farmers were asked whether or not they realize surplus income after selling tobacco and recovering their debts. The majority particularly in Igalula division reported to have realized surplus income or profit when family labour cost is not accounted, but they pointed out unfavorable weather

(drought) as a major contributing factor which badly hit the division in 2005/2006 farming season.

From Table 18, it is vividly clear that in Igalula division, a large proportion (60%) of the respondents belonged to farmers whose productivity ranged from 600 to 800 kilogram per hectare. According to TORITA (2006), the potential yield is 1800 kilogram per hectare. Thus, the large proportion of farmers in Igalula division are producing about one- third of the potential yield. As for Ilolangulu and Uyui divisions, the majority (48.3%) of the respondents belonged to farmers whose productivity ranged from 801 – 1000 kilogram per hectare. Overall the results suggest that the large proportion (42.8%) of farmers in the study area produces between 801 – 1000 kg/ha, followed by the category whose productivity ranged from 600 – 800 kg/ha and which comprised 42.2% of the respondents, and only 15% of the respondent happen produced above 1000 kilogram per hectare.

Table 19: Average yield category by division

	Divisions			
Category	Uyui (n=60) %	Ilolangulu (n=60) %	Igalula (n=60) %	Overall (n=180) %
600 - 800 kg/ha	31.7	35.0	60.0	42.2
801 – 1 000 kg/ha	48.3	48.3	31.7	42.8
Above 1 000 kg/ha	20.0	16.7	8.3	15.0

As for production and returns per unit area, the majority (60.6%) of the sample farmers reported to have observed an increase in tobacco yields since contract farming arrangement started. On the other hand, 24.4% of the respondents reported to have a negative trend in production per unit area. Only 15% reported to have not experienced any changes in production per unit area (Table 20). As for the income from tobacco enterprise,

55.6% of the sample farmers reported to have experienced an increase in returns from tobacco farming, and the rest (44.4%) reported have experienced the opposite.

Table 20: Farmers' views on yield and returns per hectare

Yield	Frequency	Percent
Increased	109	60.6
Declined	44	24.4
Unchanged	27	15.0
Total	**180**	**100.0**
Returns:		
Increased	98	55.6
Declined	82	44.4
Total	**180**	**100.0**

Regarding the factors which have contributed to an upward trend in tobacco yield as reported by the majority of the sample farmers, good farming practices was the major reason (61.7%) followed by increased experience of farmers in tobacco farming (23.3%), improved technologies such seeds and barns (13.9%) and lastly good weather (2.8%) as shown in Table 21.

Table 21: Reasons for increase in yield

Reason	Frequency (N = 180)	Percent
Good farming practices	111	61.7
Increased experience	42	23.3
Improved technologies	25	13.9
Good weather	5	2.8

Note: Totals add up to more than 180 farmers or 100% due to multiple answers.

Table 22 presents the reasons pointed out by farmers from the category of farmers who reported an increase in returns from tobacco farming. The majority (82.7%) of the farmers in this category mentioned an increase in yield as the major contributing factor for the per unit area returns increase. Improve quality of tobacco was pointed out by 42.9% of the respondents under the category. Farmers who mentioned tobacco price increase as the

reason for an increase in returns was 28.6% and the remaining 19.4% mentioned the increase experience in tobacco farming as the reason.

Table 22: Reasons for the increase in returns

Reason	Frequency (N=98)	Percent
Increased yield	81	82.7
Increased experience	19	19.4
Price increase	28	28.6
Improved quality	42	42.9

Note: Totals add up to more than 98 farmers or 100% due to multiple answers.

4.6 Problems encountered by farmers in tobacco production

Interviewed farmers in the study area reported a number of problems as far as tobacco production is concerned. Table 23 presents the major problems reported to have been affecting farmers in tobacco farming. From the table below, it is evident that the major problem encountered by the majority of the respondents is drought, which constituted 66.7%. Lack of adequate capital was reported by 47% of the respondents whereas hailstorm was mentioned by 27% of the sample farmers. Unavailability of laborers and increased firewood distances were also mentioned by a considerable number of the sample farmers; 19% and 18% respectively. Poor primary society governance, poor extension services and harassment from the buyer representative/blenders also featured more among problems faced by farmers in tobacco production. A small proportion of farmers complained on untimely input delivery reported by 7%, the incidence of fire on tobacco curing was reported by 5.6% and pest and diseases reported by only 5% of the respondents.

Table 23: Problems encountered by farmers in tobacco production

Problem	Frequency(N = 180)	Percentage
Drought	120	66.7

Lack of adequate capital	85	47.2
Hail storm	49	27.2
Labour availability	35	19.0
Increased firewood distances	33	18.3
Poor primary society governance	29	15.5
Inadequate/Poor extension services	25	13.9
Harassment from blenders	15	8.3
Untimely inputs delivery	13	7.2
Fire incidences	10	5.6
Pest and diseases	9	5.0

Note: Totals add up to more than 180 farmers or 100% due to multiple answers.

4.7 Multiple regression analysis

The results on regression analysis (Table 24) show that the regression model was significant as indicated by the significance of F-value ($p< 0.01$). This implies that the factors included in the model explain the variation obtained in tobacco yield in the study area. Moreover, the multiple determination coefficient R^2 (adjusted) indicates that 70.5% of the variation in tobacco yield obtained by farmers in the study area is explained by the variable included in the estimated model, and only 29.5% of the variation in tobacco yield is explained by the variables not included in the model.

Table 24: Regression analysis results

Variable	Beta Coefficients	Std Error	t-ratio
β_0 (Constant)	324.093	57.622	5.624***
EXP	27.929	4.496	6.211***
AFH	0.479	0.106	4.522***
LBH	0.133	0.054	1.089^{ns}
NVE	93.019	8.208	11.332***
EDL Dummy	61.332	25.105	2.443**

Adjusted R^2 = 0.705
F- Value = 81.751***
*** = Significant at p= 0.01
** = Significant at p= 0.05
ns = Not significant.

The results in Table 24 show that the farmer's experience (years) in tobacco farming has had a positive effect on yield. The variable was statistically significant at $p<0.01$ implying that those farmers with many years in tobacco farming have a higher possibility of producing more tobacco per unit area as compared to farmers with less experience in tobacco production.

The coefficient of amount of fertilizer used per unit area as a variable had the expected positive sign and was significant at $p<0.01$ (Table 24). The positive relationship between the amount of fertilizer used per hectare and tobacco yield realized implies that the farmers who use fertilizer at the recommended amounts are likely to realize more yield as compared to those who use less fertilizer. The recommended fertilizer rate is 500 – 750 kg/ha (TORITA, 2006).

The coefficient of hired labour used per hectare has the expected sign but was not significant. This might be due to the fact that smallholder farmers including those in the

study area, mostly use family labour for all farm activities and when hired labour (laborers) is added, the marginal physical productivity of labour becomes small due the lack of experience and managerial skills of the labourers. .

The coefficient of the level of education for the farmer has had the expected sign and significant at $p<0.05$. This may be due to the fact that educated farmers are more likely to understand and follow the advice and directives from the extension agents on the importance of using improved technologies and the use of inputs on recommended rates. A similar conclusion was reached on education by Kalamata (2005) on the study to assess the performance of extension services under contract farming. The author concluded that recommended practices are more likely to be adopted by farmers with a certain level of education.

Basing on the regression analysis results, the second hypothesis (section 1.6) that productivity in tobacco farming is not influenced by farmer's education level is rejected. It can thus be concluded that farmer's education level has a significant influence on farm productivity.

The parameter estimate for the number of visits by the extension agent to the farmer is positive and statistically highly significant. This is because extension education exposes the farmer to improved production techniques which results into the increased farm performance. Similar results were reported by Mutayoba (2005) who found a positive relationship between the number of extension visits and farmer's level of education on farm performance in Vanilla production.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The general objective of this study was to assess the impact of tobacco contract farming on farm productivity and returns in Uyui district. The study aimed at the estimation of the relative profitability of tobacco farming under contract farming arrangement as compared to tobacco production before contract farming. The study also aimed at analyzing problems affecting tobacco productivity among smallholder farmers under contract farming and examining farmers' perception on contract farming arrangement. This chapter therefore presents a summary of the major findings followed by conclusion and recommendations.

5.2 Summary of the major findings

The study found out that smallholder tobacco growers in Uyui district have household characteristics common to most rural household settings elsewhere in Tanzania. Tobacco production is the most important enterprise because of the cash earnings realized from the crop. Maize production ranked the second most important crop enterprise because of food security seasons and thus, competes with tobacco for resources in terms of land, capital and labour. Competition for labour is due to the fact that both crops need to be planted in the beginning of rainy season so as to take advantage of first rains.

Farmers in the study area are faced with many problems in their production activities, but unfavourable weather conditions and lack of adequate capital were the most prominent ones. Extension services were found to be accessible to the majority of smallholder tobacco growers. Tobacco curing was found to be the most important farm activity for

which farmers would need more education or more assistance from the extension agent so as to increase their farm productivity. Seasonal financing for crop production depended mostly upon tobacco leaf dealers. Inputs loan repayment is a hundred percent for each growing season, a system which raised many complaints from tobacco farmers.

In terms of resource, land is acquired free by the majority of the smallholder farmers either through inheritance or by being offered by village authorities. Therefore, land as a domestic resource is no yet a problem in the study area. In terms of labour, family labour comprised over 80% of the labour used in tobacco production for respondents who cultivated less than 0.8 ha in 2005/2006 growing season. Farmers whose tobacco acreage was above 0.8 ha had to complement labour requirements with a considerable amount of hired labour.

As for other inputs such as agrochemicals and packaging materials, these were also obtained from the leaf tobacco dealers on credit bases except seeds which are provided free of charge. Regarding firewood, all the interviewed farmers reported to be obtaining the input from the natural forest which may be as far away as more than fifteen kilometers from their farmstead, a situation which is dangerous to environmental conservation.

Regarding terms and conditions of contracts, the study found out that the majority of farmers are not satisfied with the terms and conditions that govern the contract. However, farmers continue to enter into contracts with the tobacco companies in order to secure production inputs and other services like extension services. The study found out that under contract farming arrangement, farmers are denied their freedom of choice since they

are bound to be selling their produce only to the contracted company, a situation that does not promote competition within the tobacco industry.

Despite the above mentioned shortfalls, contract farming arrangement has had a positive impact in terms of yield and revenue to farmers. Gross margin analysis indicates that tobacco production under contract farming is more profitable than it was before contract farming. Furthermore, the study found out that tobacco production under contract farming in Uyui district has had higher returns to labour as compared to the returns before contract farming. The higher returns to labour have been contributed by the improvement in yield and reduced labour requirement (mandays) as a result of adopted innovations brought in under contract farming arrangement

The results from the regression analysis reveal that farmer's experience in tobacco farming (years), amount of fertilizer (kg) used per hectare, the number of visits by the extension agent and farmer's level of education have a significant contribution to the yield. The results also revealed that the contribution of hired labour to the yield in the study area is insignificant. This might be due to the fact that smallholder tobacco farmers' source of labour is over 80% coming from family labour, and when hired labour is added, the marginal physical productivity of labour is very minimal due to the lack of experience and managerial aspects of the hired labour force.

As for contract farming perception among tobacco farmers in the study area, the study found out that the majority (77.8%) of the interviewed farmers perceived contract farming

as disadvantageous to them and thus, they reported to have been dissatisfied with the terms and conditions of the contracts.

From the Chi-square test results, the study revealed a highly significant difference ($p<0.01$) on farmer's perception regarding contract farming arrangement with respect to farmer's education level and the respective production per unit area. On the other hand, farmer's gender, company affiliation, profit realization after selling tobacco and returns per hectare had no significant influence on farmer's perception about contract farming. Furthermore, the acreage or size of the farm had no influence on farmer's perception regarding contract farming.

5.3 Conclusion

Basing on the findings of the study the following conclusions are made:

- Low tobacco productivity is due to unrecommended use of production inputs particularly fertilizer, and variability in weather patterns couple with periodic drought. Another important reason for low tobacco productivity is low farmers' awareness level on the free market economy.Tobacco farmers are still affected by the legancy of state controlled market in which the government was buying, processing and exporting tobacco. In such a system, farmers' sense of responsibility was very low because wrong perception that the government would light of the debts even if they get loss and fail to repay their input debts.
- Although tobacco production under contract farming arrangement has not yet brought the potential benefits to tobacco farmers, still, the enterprise is more

profitable as compared to before arrangement because of improved productivity as a result of newer expertise brought in by contract farming.

- Tobacco farmers in the study are faced with many problems in their production activities, but unfavourable weather conditions and lack of capital were the most prominent ones. Lack of quality and appropriate extension services particularly on tobacco curing seemed to be a problem since a considerable number of respondents report to need more education or more assistance in that aspect so as to increase their farm productivity. This urgument is support by the regression analysis result whereas the coefficients of farmer's education and the number of visits by the extension agent indicated a positive and significant relationship with yield.
- Along with the benefits of contract farming arrangement such as provision of inputs on credit and other cash advances, provision of extension services and introduction of newer innovations such improved seeds and curing barns; still the majority (78%) of the respondents do not favour the existing contract terms and conditions and thus perceive contract farning as disadvantageous.

5.4 Recommendations

This study was conducted during the 2005/2006 cropping season, more than a decade since the liberalization of the tobacco industry that lead to private tobacco buying companies venturing into contract farming with farmers. Based on the study findings, the following recommendations are made with the aim of improving tobacco productivity and farmers' returns.

i. Growers initiatives for arrangement to ensure self-reliance

One generally observed characteristics of tobacco enterprise is the requirement for seasonal purchased inputs. The majority of smallholder farmers cannot afford to purchase adequate quantities of seasonal inputs on cash basis at the start of farming season. Growers are therefore forced to enter into contract farming with leaf dealers to ensure adequate and timely supply of inputs. This situation is a severe weakness on the part of growers that has to be tackled. Farmers must be encouraged to establish their own local organization, such as savings and credit co-operative societies or a tobacco development scheme. The co-operative unions could also consider establishing farmers' co-operative bank that can deal with farm credit/loans to tobacco growers, such organizations must be able to access capital from wider financial markets.

ii. Ensuring quality and appropriate provision of extension services

Technical updating of tobacco growers is an important component in the efforts of improving production and marketing of the crop. The increase in yield can be achieved through improved growing techniques. Improved quality and presentation can be achieved through better handling, curing, grading and advanced marketing techniques. It is estimated that tobacco farmers lose up to 40% of crop through post-harvest losses before marketing stage. Such losses have to be addressed as one way of rising tobacco productivity and farmers' income. The provision of quality and appropriate extension services is therefore vital; and the emphasis by the government and stakeholders should be to ensure that qualified extension agents are employed.

iii. Growers acquisition of shares in the Morogoro processing factories

There are three tobacco processing factories, two of them are based in Morogoro for processing of the Flue-Cured tobacco (VFC), whereas the remaining factory Songea which is specifically for Dark fire-Cured (DFC) tobacco, is based in Songea. All the two factories in Morogoro are wholly owned by tobacco buying companies which are also the primary tobacco processors. DFC processing factory in Songea is jointly owned by farmers and green leaf tobacco buying company. This ownership structure provides an opportunity for the growers to influence the processing of their tobacco. The government in collaboration with farmers through their organizations should deliberately look into the possibilities of acquiring some minority shares in the tobacco processing factories. This measure could enable tobacco farmers to benefit by selling within the domestic market.

iv. Government subsidy in tobacco inputs

Tobacco production inputs particularly fertilizer contributes more than forty percent of the total production cost incurred in tobacco production. Thus, any change in fertilizer prices is bound to bring about a considerable impact on tobacco farmers' income. To minimize and to ensure that crop producers especially smallholders are accessing fertilizer at an affordable prices, the government in 2004 introduced subsidies to the major food and cash crops including tobacco. However, for tobacco fertilizer, the subsidy is on transportation costs which are about 700 Tshs (0.02% of the price) per bag of fertilizer. This amount brings no considerable impact on the cost of fertilizer, considering that most of the rural roads where farmers live are in poor condition. In order to realize positive impact, the government should increasing subsidy on transportation and fertilizer costs.

v. Farmers' awareness on free market economy

In free market economy, quality of the product or service is an important aspect. For one to capture the full benefits of the free market, products or services ought to be of high quality. In the tobacco industry, the majority of smallholder farmers are still affected by the legacy of state controlled market in which the government was buying, processing and exporting tobacco. In such a system, tobacco farmers' sense of responsibility was very low because they perceived that the crop was the government's property. In order to reverse this trend, deliberate efforts should be put to educate tobacco farmers on the importance of quality tobacco so as to capture the full benefits of free market economy.

vi Further area for research

This study is based on only one district out of about 18 tobacco growing districts and the data obtained are based on cross sectional survey.Therefore further research which covers a large geographical area need to be carried out so as to enrich the findings of this study especially on the actual production costs and profitability of tobacco production under contract farming; and propose a suitable contract farming model that could ensure equal gains between farmers and the contracting company.

REFERENCES

Adesina, A.A and Djato, K.K (1996). Farm size, relative efficiency and agrarian policy in Cote d'Ivore: Profit function analysis of rice farms. *Agricultural Economics* 14: 93-102.

Asano- Tamanoi, M. (1988). Farmers, industries and the state: the culture of contract farming in Spain and Japan. *Comparative studies in Society and History*, 30 (3): 432- 452.

Asokan, S.R and Gurdev Singh (2003). Role and Constraints of Contract Farming in Agro-Processing Industry. *Indian Journal of Agricultural Economics* 8 (3): 556-576

Bank of Tanzania (2003). Economic bulletin for quarter Ended 31 March 2003. 118pp

Bank of Tanzania (2005). Economic bulletin for quarter Ended 31 December 2005. 94pp.

Cramer, G. L, Jensen, C.W. and Southgate, D.D. (2000). *Agricultural Economics and Agribusiness*. Wiley and Sons. Inc., New York. 925pp.

DALDO (2006). District agriculture and livestock development. Annual report for Uyui district. 24pp.

Dileep, B.K, Grover, R.K and Rai, K.N. (2002). Contract Farming in Tomato: An Economic Analysis. *Indian Journal of Agricultural Economics* 57 (2): 197- 210.

Dorward, A. (2001). The effects of transaction costs, power and risk on contractual arrangements: a conceptual framework for quantitative analysis, *Journal of Agricultural Economics* 52 (2): 59-73.

Dubois, P. and Vukina, T. (2004). Grower risk aversion and the cost of moral hazards in production contracts. *American Journal of Agricultural Economics* 86 (3): 835 – 841.

Easton, C. and Shepherd, A.W (2001). *Contract Farming: Partnerships and Growth*, FAO Agricultural Services Bulletin 145, FAO, Rome.

Ferris, A. and Malcolm, B. (2000). *Farm management Economic Analysis*. University of Melbuorne. Parkville Victoria. Australia. 679pp.

Fones, S.M (1987). Role of price policy in stimulating agricultural production in Africa. Issue paper No. 2, Swedish University of agricultural Sciences. 13pp.

Food and Agricultural Organization (2001). Contract Farming: Partnership for growth. [http:www. fao. org/ag/ags/AGSM/contract/cftabcon.pdf] site visited 4/07/2006.

Food and Agricultural Organization (1997). *Improving Agriculture Extension: A Reference Manual*. (Edited by Swanson, B. E; Bentz, R.P and Sofranko, A.J) Food and Agriculture Organization, Rome, Italy. 220pp

Glover, D. (1990). Contract farming and outgrowers schemes in east and southern Africa. *Journal of Agricultural Economics* 41(3): 303 -315.

Glover, D. and K. Kusterer (1990), *Small Farmers, Big Business: Contract Farming and Rural Development*, Macmillan Publishing Company, London. 178pp.

Guan Zhengfei and Alfons Oude Lansink (2006). Source of Productivity Growth in Dutch Agriculture: A Perspective from Finance. *American Journal of Agriculture* 88 (3): 644 - 656.

Gujarati, D.N. (1995). *Basic Econometrics.* Fifth Edition. McGraw Hill. International Edition, Boston. 705pp.

Haque, T (2000). Contract arrangement in Land and Labour Markets in Rural India. *Indian Journal of Agricultural Economics* 55 (3): 233 - 252.

Hovenkamp, H. (2005). *The Antitrust Enterprise: Principal and Excution.* Cambridge University Press, New York. 134pp.

International Tobacco Grower's Association (2006). *Annual General Meeting Report*. International Tobacco Growers' Association. East Grinstead, West Sussex, England. 117pp.

Isinika, A.C and Mdoe, N. S. Y. (2001). *Improving Farm Management Skills for Poverty Alleviation: Case study of Njombe district. Research on Poverty Alleviation (REPOA) Report No. 01.1*. Mkuki and Nyota Publication, Dar-es- salaam. 57pp.

James, M. Macdonald (2006). Agricultural Contracts, Competition and Anttrust. *American Journal of Agricultural Economics* 88 (5): 1244 – 1250.

John, P. Doll and Frank Orazem (2nd Ed) (1984). *Production Economics*. *Theories with Applications.* John Wiley & sons, New York. 672pp.

Johnsen, F.H. (2003). Using Gross Margin Analysis in the TARP II – SUA Project. In: Impact: *Lessons Learnt from Farmer- Oriented Research Newsletter.* Sokoine University of Agriculture. 4 (1): 19-21 pp.

Kalamata, S.L. (2005).Performance Assessment of Extension Services under Contract farming Arrangement: A case study of Flue- Cured Tobacco Growers in Urambo district. Dissertation for Award of Msc. Degree at Sokoine University of Agriculture, Morogoro, Tanzania, 150pp.

Karam, S. (2004). Emerging trends in Agro-processing Sector. *Indian Journal of Agricultural Economics* 59 (1): 51-54.

Little, P. and Watts, M.J (Eds.) (1994). Living under contract: Contract farming and Agrarian Transformation in Sub-Saharan Africa. University of Wisconsin Press, Wisconsin. 224pp.

Michael, R.B and Denis, W.J. (1999). *Money, Banking and Financial Market: An Economic approach.* AITBS Publishers, Delhi, India. 543pp.

Mcbride, W. and Key, N. (2003). Production Contracts and Productivity in the U.S Hog Sector. *American Journal of Agricultural Economics*. 85 (1): 121-133.

Ministry of Agriculture and Food Security (2004). Legal basis of contract farming in Tanzania. In: *Proceedings of Contract farming Workshop*. (Edited by Mandepo, G.). 29 June, 2004, Dar es salaam, Tanzania. 1-7pp.

Mwakalobo, A.B.S. (2000). Productivity and Allocation Efficiency in Smallholder Coffee Farmers in Rungwe District. [http://www.fluc.org/iaup/sap] site visited on 9/10/2006.

Mukras, M.S. (1993). *Elementary Econometrics Theory*. *Applications and Policy*. East Africa Education Publishers. Nairobi, Kenya. 647 pp.

Mutayoba, V. (2005). Economic Analysis of Vanilla Production and Marketing: A case study of Bukoba district, Kagera Tanzania. Dissertation for Msc Degree at Sokoine University of Agriculture, Morogoro, Tanzania. 86 pp.

National Environmental Management Council (1998). *An Environmental Profile for Tabora Region, Tanzania*. 273pp.

Peterson, R.A (1982). *Marketing Research.* Business Publications Inc.Plano, Texas. 309pp

Ponte, S. (2000). From social negotiation to contract: shifting strategies of farm labour recruitment in Tanzania under market liberalization, *Word Development* 28 (6): 227-238

Porter, G. and K Phillips-Howard (1997), Comparing contracts: an evaluation of contract
farming schemes in Africa, *World Development* 25 (2): 227-238.

Simbua, E. F and Ndunguru, B. J (2001). Large scale Tea production in Tanzania: Role of Entrepreneurship and Research toward enhancing profitability. In: *Proceedings of The Fourth Scientific Conference of the Agricultural Economics Society of Tanzania* (Edited by Ntengua, S.Y. Mdoe *et al.*), 4 - 6 August 2001, Morogoro, Tanzania. 34 – 49pp.

Simmons, P. (2002). Overview of smallholder contract farming in Developing countries [htt:// www.flaging.org] site visited on 4/4/2007.

Simon, M.M. (1998). Peasant Strategic Resource use under free market Conditions and the factors affecting its optimal allocations. A case study of Tobacco based farming systems in Tabora, Tanzania. Dissertation for Award of Msc Degree at Sokoine University of Agriculture, Morogoro, Tanzania, 194pp.

Singh, Sukhpal (2000). Contract Farming for agricultural Diversification in India Punjab: A study of Performance and Problems, *Indian Journal of Agricultural Economics* 55 (3): 283-294.

Tanzania Tobacco Baord (1999). *Social- Economic Importance of Tobacco in Tanzania* 24pp.

Tanzania Tobacco Board (2006). *Tobacco Sub-Sector Development Programme 2006 – 2011*. Morogoro, Tanzania. 64pp.

Tanzania Tobacco Co-operative Apex (2006). *Annual Report 2005-2006.* Morogoro, Tanzania. 18pp.

Tobacco Research Institute of Tanzania. (2001). *Annual Report 2000-2001*. Mzumbe Book Project, Morogoro, Tanzania. 42pp.

Tobacco Research Institute of Tanzania. (2006). *Corporate Strategic Plan to the year 2015 and Beyond.* Tabora, Tanzania. 39pp.

Towsend, R.F, Kirsten, J and Vink, N. (2003). Farm size, Productivity and Returns to Scale in Agriculture: A case study of Wine Producers in South Africa. *Journal of Agricultural Economics* 19: 175 - 180

United Republic of Tanzania (2000). Tobacco Regulations, 2000 Subsidiary Legislation. Government printer, DSM. 20pp.

United Republic of Tanzania (2001) *Agricultural Sector Development Strategy*. National Printing Company, DSM 82pp.

United Republic of Tanzania (2003). Population and Housing Census, 2002 [htt://www.tanzania.go.tz/census/tabora.htm] site visited on 6/8/2006.

United Republic of Tanzania (2003). *Agricultural Sector Development Programme. Framework and Process Document. Final Draft.* Government printer, DSM. 65pp.

United Republic of Tanzania (2003). *National Trade Policy*. Government printer, DSM. 92pp.

United Republic of Tanzania (2005). *Tabora Region socio-economic Profile*. Joint Publication by The National Bureau of Statistics DSM and Regional commissioner's office, Tabora.284pp.

United Republic of Tanzania (2006). Privatization and Contribution to the government coffers. Presidential Parastatal Sector Reform Commission, News letter Issue No. 33. p. 17.

William, S.M. and Dale Colyer (1982). *Costs and Returns from tobacco production in Tabora Tanzania: International Agricultural Research Report*. IAF publication. No.81. West Virginia University, Morgantown.43pp

Wilson, A. (1990). 'The political economy of contract farming'. *Review of Radical Political Economics.* 18 (4): 47-70.

World Bank (2004). Development Indicators. Oxford University Press for the Word Bank, Oxford. 146pp.

APPENDICES

Appendix 1: List of villages, wards and divisions where the study was conducted in Uyui district

DIVISION	WARD	VILLAGE	PRIMARY SOCIETY	CONTRACTING COMPANY
Uyui	Isikizya	Isikizya	Isikizya	TLTC
		Ilalwansimba	Ilalwansimba	TLTC
		Itobera	Itobera	AOTTL
	Bukumbi	Ishihimulwa	Ishihimulwa	TLTC
		Mbeta	Ishihimulwa	TLTC
		Nyangahe	Ishihimulwa	TLTC
Ilolangulu	Ufuluma	Ufuluma	Ufuluma	TLTC
		Mtakuja	Mtakuja	AOTTL
		Chessa	Chessa	TLTC
	Ibiri	Ibiri	Ibiri	AOTTL
		Kilungu	Tupendane	TLTC
		Inonelwa	Inonelwa	AOTTL
Igalula	Igalula	Kigwe B	Kigwa Makazi	TLTC
		Kinamagi	Ndeki	AOTTL
		Nzigala	Kigwa Kijiji	TLTC
	Goweko	Ipululu	Ipululu	TLTC
		Itundaukulu	Itundaukulu	TLTC
		Imalakaseko	Imalakaseko	AOTTL

Appendix 2: Questionnaire for flue cured tobacco growers.

TITLE: **ASSESSING THE IMPACT OF CONTRACT FARMING ON FARM PRODUCTIVITY AND RETURNS: CASE STUDY OF TOBACCO FARMING IN UYUI DISTRICT, TABORA.**

Questionnaire No…….. Date of interview…….interviewer's name……..

PART A: Household identification variables

1. Farmer's name……...
2. Gender…….. Village……Ward…….....
   Division……
3. Gender of the household head…….Age …….. (Years)
4. Marital status **(Tick appropriately)**
   1 = Single
   2 = Married
   3 = Widowed
   4= Separated/abandoned.
5. Level of education of the farmer (**Tick appropriately**)

   1 = None ( )
   2 = Adult education ( )
   3 = Primary education ( )
   4 = Secondary education ( )
   5 = Others (specify)……
6. Household composition:

Age group	Males	Females
Below 17 years		
17 – 50 years		
Above 50		

Part B: Farm activities:

A. land availability and input use

7. What is the total land area owned by the family?
   ……. (Acres)

8. How did you acquire this land? (**Tick appropriately**)
   1 = Inherent
   2 = Bought
   3 = Hired
   4 = Offer form the village government.

9. Give the actual acres allocated to different crop enterprises in the last farming season (2005/06)

Crop enterprise	**Hectares grown**
Cassava	
Maize	
Tobacco	
Groundnuts	
Sun flower	
Potatoes	
Others (specify)	

10. Rank your crops according to the order of importance.
……..
……...
11. What criteria do you use in ranking the crops?
…….
…….
…….
12. Indicate the source, quantity and cost of inputs/services used for tobacco production during the 2005/2006 season.

Inputs	**Source/Type**	**Quantity**	**Price/Unit**		**Transport cost**		**Total**	
			Cash	**Debt**	**Cash**	**Debt**	**Cash**	**Debt**
Fertilizer (bags)	NPK:							
	CAN:							
Insecticides (Pct[1]/lt[2])	Hasafat							
	Confidor							
	Yamaotea							
Seedbed packs								
Firewood (Trip) O-cat/lorry/Tractor								
Others (specify)								

B. labour availability and use.

13. Indicate labour used for tobacco production during last season (2005/'06)

Activity	**Labour (Man-days)**														
	Family					**Exchange**					**Hired**				
Nursery works (Prep. Sowing & watering)															
Barn construction & Maintenance															
Firewood collection															
Land preparation & ridging															
Transplanting															
Fertilizer and pesticides application															
Weeding and re-ridging															
Topping & desuckering															
Harvesting															
Tying tobacco leaves & barn loading															
Sorting, grading, tying t/ hands & bailing															
Others (Specify)															

Part C: Investment and equipment costs

14. How many barns and their respective sizes did you in curing tobacco last season? (2005/2006)

No. of Barns	**Size (ft²)**	**Year constructed[1]/rented[2]**	**Expected useful life (Yrs)**	**Price/cost**

15. Indicate price/cost, year purchased/rented, expected useful life for the different Item/equipment

Item	**No.**	**Year purchased[1]/ rented[2]/constructed[3]**	**Expected useful life (Yrs)**	**price/cost**	
				Cash	**Debt**
Land					
Oxen- cat.					
Empty Drum (s)					
Hand hoe (s)					
Ox-plough (s)					
Watering can (s)					
Sprayer (s)					
Others (specify)					

Part E: Tobacco output, and marketing

16. How many kilograms of tobacco did you sell in the last selling season?
……kgs (……..bales).
17. What was the average production per acre during 2005/2006 farming season? (**Write in the provided space**)……kgs/acre.

18. Has output per acre (yield) of tobacco increased since 2000 up to the last season (2005/06)? (**Tick appropriately**)
1 = Yes ( ) 2 = No ( )
19. If yes, what were the most important reasons for the increase? ……..
……...
……...

20. From 17; if **No**, what are the reasons for the decrease?.....
……...
. ……..
21. How far is the selling point from your homestead? …….....km

22. What was the transportation cost from home/ store up to the marketing center?
Tshs……per bale.

23. What was the average price after selling your tobacco?.....Tsh/kg.

Part F: Credit and selected financial data

24. What are your present sources of credit? (**Tick appropriately**)
1 = TLTC ( )
2 = AOTTL ( )
3 = Bank ( )
4 = Others (specify) ( )
25. Did you have any out standing debts from the previous seasons borrowing (before the 2005/2006 season?) (**Tick appropriately**)
1 = Yes ( )
2 = No.( )

26. If yes, how much and when did you borrow? Tshs…….. 200.....

27. What are the reasons as to why you fail to repay your debts…….
……..
…….

28. Did you take any loan (cash) for farm operations during the 2005/2006 season?
(**Tick appropriately**)
1 = Yes ( )
2 = No ( )
29. If yes, what was the value of the loan? Tshs……

30. Please indicate how the loan was allocated among the various enterprises/activities on the farm.

Enterprise	Fertilizer Allocated	Pesticide allocated	Labour allocated
Tobacco	……	……	…….
Maize	……	……	…….
Other (specify)	……	…….	…….

31. What interest rate do you pay and what is the repayment period? Rate……%
repayment period……..

Part G: Contract farming:

Tobacco farming is under contract farming arrangement which requires the buyer to supply inputs, to provide extension services and to buy the all produced tobacco; while the farmer has to sell his/her tobacco to the contracted buyer.

32. How long have you been growing tobacco under contract farming arrangement?.....Years.

33. Is there any advantages or disadvantages of the arrangement?
Advantages……
……..
……..
Disadvantages……..
…….....

34. There are two companies operating in the business. What criteria do use to choose the one to contract with?.....
…….

35. Are the inputs (fertilizer) provided on credit by the contracting company expensive than from other source? (**Tick appropriately**)
1 = Yes ( ) 2 = No ( )

36. If yes, why do you continue to obtain fertilizer on credit from the company?
……..
. ……

37. Has returns per acre increased since you started to grow tobacco under contract farming? (**Tick appropriately)**
1 = Yes ( ) 2 = No ( )

38. If yes, what do think are the contributing factors?.....
…….
…….

39. A farmer is required to repay 100% of his/her debt during the current selling season. What are your views regarding this arrangement/condition?
…….
…….

40. What is the tenure of the contract?…….years

41. Are you satisfied with the terms/conditions of the contract? (**Tick appropriately**)
1 = Yes ( ) 2 = No ( )

42. If no, what are the areas/sections would you recommend to be amended?.....
……
……

43. In your views what tenure/term of the contract would you prefer? (**Tick appropriately**)
1= one year ( ) 2 = two years ( ) 3 = three years ( )

44. What are the reasons for your preference?.....
……...
……..

45. Are there any costs involved in the process of signing/handling the contracts?
1 = Yes ( ) 2 = No ( )

46. Do you receive advice from the extension agent on production and marketing of tobacco? (**Tick appropriately)**
1 = Yes ( ) 2 = No ( )

47. If yes; how many times the extension agent visited your farm and gave advice in the last season? (**Tick appropriately)**
1 = None ( ) 2 = Once ( )
3 = Twice ( ) 4 = More than three times ( )

48. Where do you experience most problems in your tobacco farming activities? (**Tick the appropriate)**
1 = Nursery ( ) 2 = In the field ( )
3 = Curing ( ) 4 = Grading and storage ( )
5 = Marketing ( )

Part I: Miscellaneous information

49. Were the inputs supplied to you sufficient for your tobacco farming requirement during 2005/2006. (**Tick appropriately**)
i) Yes ( )
ii) No ( ) proceed with question No. 50

50. If yes, were the inputs supplied to you at the time when required? (**Tick appropriately**)
i) Yes ( )
ii) No ( )

51. If no, where did you obtain additional inputs? (**Tick appropriately**)
i) Input stockists ( )
ii) Other tobacco growers. ( )
iii) Could not obtain additional inputs ( )

52. What were the possible reasons for the shortage of inputs to meet your farm requirement? (**Tick appropriately**)
i) Poor estimate ( )
ii) Limited stock by the company ( )

iii) Untimely delivery of inputs ( )
iv) Others (specify) ( )

53. How do you compare input (fertilizer) prices for 2005/2006 farming season and prices that prevailed during 2004/2005 farming season (**Tick appropriately**)
    i) Went up ( )
    ii) Declined ( )
    iii) Remained stable. ( )

54. By looking at input prices for 2005/2006 farming season did you realize surplus income after tobacco sells? (**Tick appropriately**)
    i) Earned surplus income; what percentage……../how many …….Tshs.
    ii) Did not.

55. Are there any changes in the price/charge of labourers since 2000 up to the last season? (2005/06) (**Tick Appropriately**)
    1 = Yes ( ) 2 = No ( )

56. If Yes, what is the cost/charge per labourer per day?…….Tshs, or……..Tshs. per season and how do you compare with the changes in price of tobacco?.....
    ……...
    ……

57. What problems you are facing in tobacco production?.....
    ……..
    ……..
    …….

Appendix 3: Indicative prices for VFC tobacco grades 2005/2006 farming season

S/no.	Grade	Price (Tshs/kg)	S/no.	Grade	Price (Tshs/kg)
1	P3O	1348	34	L3L	1446
2	P3L	1275	35	L4O	1379
3	P4O	1234	36	L4L	1334
4	P4L	1223	37	L5O	1149
5	P5O	1082	38	L5L	1086
6	P5L	1040	39	L5R	1134
7	X30	1372	40	LOV	998
8	X3L	1328	41	LLV	920
9	X4O	1299	42	LOJ	615
10	X4L	1280	43	LLJ	578
11	X5O	1103	44	N1O	915
12	X5L	1045	45	N1L	882
13	XOV	897	46	N2O	835
14	XLV	877	47	N2L	782
15	XOJ	546	48	LOK	157
16	XLJ	541	49	LLK	155
17	XOK	186	50	B1O	310
18	XLK	181	51	B1L	280
19	XN1O	882	52	S1O	202
20	XN1L	837	53	S1L	191
21	XN2O	778	54	S2O	156
22	XN2L	753	55	S2L	151
23	C2O	1443	56	XNK	126
24	C2L	1400	57	LOKD	157
25	C3O	1380	58	LLKD	155
26	C3L	1351	59	NK	148
27	L2OF	1566	60	LOG	92
28	L3OF	1561	61	LLG	90
29	L4OF	1513	62	NG	100
30	L5OF	1474	63	NGG	100
31	L2O	1534	64	NGS	100
32	L2L	1523	65	STEM	60
33	L3O	1507			

Source: TTCA, 2006

Appendix 4: Flue cured tobacco grade outturn in Uyui district

Crop season	Grade outturn (%)		
	Top	Medium	Low
2000/01	21.5	37.2	41.3
2001/02	20.3	34.9	44.8
2002/03	19.2	40.0	40.8
2003/04	35.8	36.6	27.6
2004/05	41.1	33.9	25.0
2005/06	49.0	28.0	23.0

Source: Tanzania Tobacco Board, 2006

Appendix 5: Flue- cured tobacco production and yield in the major producing countries

Country	Production (metric tones) by years			Average yield (kg/ha)
	2004	2005	2006	
Argentina	86 000	91 786	81 788	2 181
Canada	39 871	38 709	39 065	2 750
Brazil	697 980	690 960	633 240	2 024
China	1 810 000	2 099 000	2 050 000	1 900
India	240 000	250 000	240 000	1 254
Kenya	13 000	22 000	20 000	1 267
Malawi	23 184	24 731	16 299	1 325
Pakistan	59 800	65 780	75 410	2 540
S.Africa	22 266	18 896	12 500	2 400
Tanzania	41 213	50 241	46 730	1 055
Uganda	2 043	8 200	8 200	1 066
USA	192 000	173 673	210 594	2 470
Zimbabwe	69 000	75 000	55 000	1 300

Source: ITGA, 2006.

Appendix 6: Tobacco production and yield trends, 1993- 2006

Year	Area planted (ha)			Quantity (10^6 kg)			Yield (kg/ha)	
	VFC	DFC	Total	VFC	DFC	Total	VFC	DFC
			35					
			217					
		8312	35					
		8242	104					
		10	37					
1993	26 905	100	257	21.838	3.593	25.413	812	432
1994	26 862	12	42	18.270	4.360	22.360	680	529
1995	27 157	430	003	23.415	5.183	28.598	862	513
1996	29 573	22	71	27.101	8.272	35.380	916	666
1997	49 580	146	726	41.274	9.953	51.227	832	447
		23	78					
1998	55 549	105	654	32.499	5.482	37.981	585	237
		19	50					
1999	31 565	237	802	16.110	8.235	24.345	510	428
		13	38					
2000	24 529	688	217	18.232	6.584	24.816	743	481
			35					
2001	30 545	4901	446	25.902	1.800	27.702	848	367
		11	41					
2002	29 460	598	058	23.085	4.812	27.897	784	415
			39					
2003	30 567	9181	748	30.149	3.407	33.556	986	371
		12	52					
2004	40 669	045	714	41.394	5.983	47.377	1018	497
			54					
2005	47 868	6919	787	50.494	5.228	55.722	1055	756
			48					
2006	41 147	7163	470	46.729	3.537	50.266	1136	494

Source: Tanzania Tobacco Board, 2006.