Formal-Informal Institutional Linkages in the Nigerian Agribusiness sector and implications for pro-poor growth

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ACRONYMS AND ABBREVIATIONS

ADP	=	Agricultural Development Programme
BAT	=	British American Tobacco
BATIAL	=	British American Tobacco Isheyin Agronomy Limited
CBN	=	Central Bank of Nigeria
CF	=	Contract Farming
EA	=	Extension Agent
ESM	=	Extension Support Model
EU	=	European Union
FAO	=	Food and Agriculture Organization
FMARD	=	Federal Ministry of Agriculture and Rural Development
FOS	=	Federal Office of Statistics
FGD	=	Focus Group Discussion
GDP	=	Gross Domestic Product
IFDC	=	International Fertilizer Development Company
LBA	=	Licensed Buying Agent
LGA	=	Local Government Area
MARKETS	=	Maximizing Agricultural Revenue and Key Enterprises in Targeted Sites
MDGs	=	Millennium Development Goals
NACOTAN	=	National Cotton Association of Nigeria
NACRDB	=	Nigerian Agricultural Cooperative & Rural Development Bank
NAIC	=	Nigerian Agricultural Insurance Corporation
NAPEP	=	National Poverty Eradication Programme
NASC	=	National Agricultural Seed Council
NEPC	=	Nigerian Export Promotion Council
NGO	=	Non-Governmental Organization
NRCRI	=	National Root Crops Research Institute
OYSADEP	=	Oyo State Agricultural Development Programme
PAP	=	Poverty Alleviation Programme
PIA	=	Presidential Initiative in Agriculture
POP	=	Package of Practices
RMRDC	=	Raw Materials Research and Development Council
TFM	=	Trust Fund Model
TOT	=	Training of Trainers
TSM	=	Total Support Model
USAID	=	United States Agency for International Development

UNAAB	=	University of Agriculture Abeokuta
UBA	=	United Bank for Africa
UNDP	=	United Nations Development Programme
USA	=	United States of America
WIA	=	Women in Agriculture

1 INTRODUCTION

Poverty in Nigeria is deep and pervasive. The poverty scenario reflects a complex development paradox of various dimensions. For instance, Nigeria is endowed with tremendous potentials in terms of natural, human and material resources; yet the country is being ravaged by the quandary of poverty. The country occupies the sixth position on the list of oil exporters in the world and despite increasing oil revenue over the years, the number of people in poverty continues to be on the increase. Over the last two decades, poverty has been following an increasing trend in Nigeria. Available records show that the poverty level in the country rose from 28.1 percent in 1980 to 46.3 percent in 1985. After a slight decline to 42.7 percent in 1992, it climbed rapidly to 65.6 percent of the population in 1996 (UNDP 1998; FOS 1999; World Bank, 1999). In absolute terms, the population of poor Nigerians increased four-fold between 1980 and 1996. Whereas the moderately poor rose from 28.9 percent in 1992 to 36.3 percent in 1996, the proportion of the core poor increased substantially from 13.9 percent to 29.3 percent during the same period. By and large, the worsening of the poverty situation has been due to poor economic performance, which itself is a consequence of gross economic mismanagement, poor and inconsistent macroeconomic policies and poor governance. The ravaging effects of inflation, high rate of unemployment, knowledge deprivation and the deplorable conditions of infrastructural facilities both in urban and rural areas have tended to compound the poverty problem. Specifically, poor health care services, low level of education, large household size and inadequate access to market for goods and services are some of the factors associated with the high level of poverty.

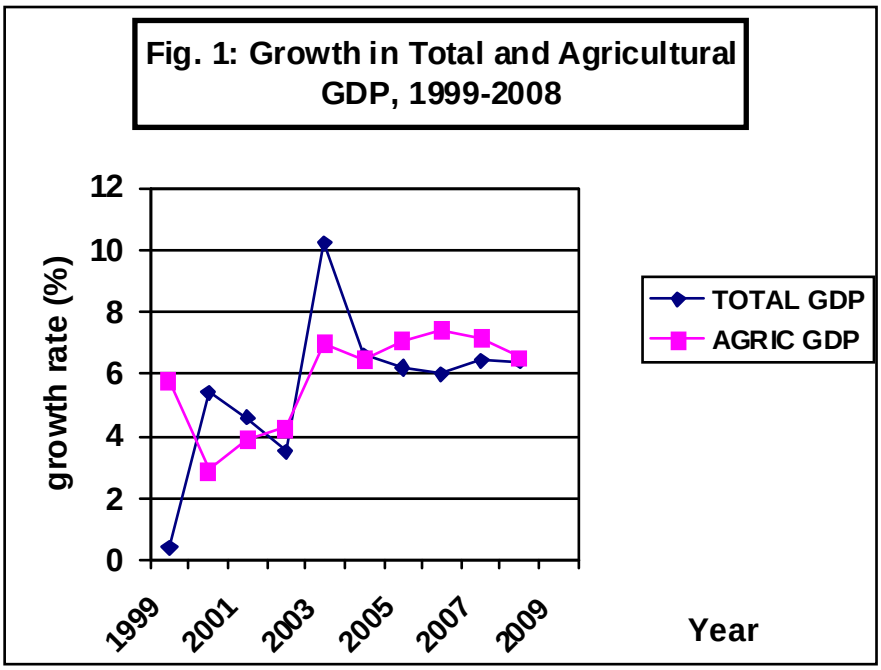
Despite the enormous human and material resources made by the government to reduce poverty through a plethora of institutions, the programmes which were put in place failed to have the desired positive impact on the poor due to several factors including the following: policy inconsistency and poor governance, ineffective targeting of the poor (leading to leakage of benefits to unintended beneficiaries), unwieldy scope of programmes resulting in resources being thinly spread among projects, overlapping of functions which ultimately led to institutional rivalry and conflicts, lack of mechanisms in various programmes and projects to ensure sustainability, lack of complementarity from the beneficiaries, uncoordinated sectoral policy initiatives, lack of involvement of social partners and other stakeholders in planning and evaluation and poor human capital development and inadequate funding. Soon after its inception in 1999, the current civilian administration put in place a poverty alleviation programme (PAP) to immediately address the intolerably serious problems of poverty in the country. Even as a placebo, the PAP was plagued by monumental and bugging deficiencies including (i) corruption, nepotism and lack of transparency, (ii) over-centralization of planning and implementation, (iii) unsustainable design, (iv) uncoordinated management, (v) over-politicization, and (viii) lack of logistics for proper monitoring and evaluation. The government had to stop the programme and replace it with the National Poverty Eradication Programme (NAPEP) which was implemented for some time and suspended during the last quarter of 2002.

From 2003 to date (2007) NAPEP had diversified and strengthened its operations. Consequently, the country has witnessed slight reduction in the incidence of poverty. The latest official statistics put the poverty rate in the country as at 2004 at 54.7 percent. And with the massive and rapidly growing population of Nigeria, the number of people in poverty in the country vis-a-vis the nation's resource endowment is now a source of embarrassment to the government. When the poverty rate was 65.6 percent in 1996 the estimated population was 102.3 million people whereas in 2004 when the rate dropped to 54.7 percent, the estimated population was 126.3 million people. Thus, despite the drop in the incidence of poverty, the actual population in poverty increased by about 2.0 million (from 67.11 million in 1996 to 69.09 million in 2004). Moreover, poverty in Nigeria is a rural phenomenon where agriculture is the major occupation of the people. As at 2004, the classification of poverty in the country shows that 62.6

percent of those in agricultural occupation were poor whereas the incidence of poverty among those in non-agricultural occupation was 53.9 percent.

Available data indicate that the contribution of agriculture to total GDP in the country averaged 35 percent between 2000 and 2005. The sector is also making significant contribution in providing employment for over 60 percent of the population and in ensuring food security in general. As growth in the agricultural sector and economic growth in general is on the increase, the actual population in poverty is also growing. This paradox raises the critical question as to whether or not growth in Nigeria is actually pro-poor. Moreover, as shown in Fig. 1, agricultural GDP has been growing at a decreasing rate since 2003. Thus, in achieving the broad goals of economic growth and poverty reduction in the country the overarching issue is not only to ensure that growth is pro-poor but also it must be sustainable in general and in the agricultural sector in particular.

The main challenge now is how to design effective mechanisms and institutional arrangements to alleviate rural poverty and sustain the growth of agriculture. Interestingly, as government is failing, local level institutions are bracing up to the challenge while individuals, groups and enterprises especially within the agribusiness sector are designing various coping mechanisms. These institutions and mechanisms have to be carefully examined for possible lessons and implications for pro-poor growth in the country. The private sector is being called upon to participate in poverty reduction programmes in terms of increased employment generation, investment and output expansion especially in the agricultural sector. Yet there is no institutional mechanism to bring this into fruition. The institutional arrangements linking agribusiness firms (in the organized private sector) and farmers (in the informal sector) if thoroughly researched and well understood, can be greatly improved upon and can be subjected to policy actions capable of re-directing the economy into the path of rapid growth and poverty reduction. These linkages manifest in various forms of contract farming arrangements in the agribusiness sector involving firms and producers of food and non-food crops; but their operations in ways that are supportive of pro-poor growth are yet to be substantiated. And this is the challenge of the study being proposed. Thus, the study will unravel the following key questions: (i) What is the nature of the linkages among key players in the agribusiness sector – processors and farmers? (ii) What are the strengths and weaknesses of the linkages? (iii) What factors influence the performance (success or failure) of the established links? (iv) What are the roles of various actors or facilitators in the link (government, private sector organizations, farmers organizations, NGOs, etc)? (v) What are the benefits and constraints? (vi) How are contracts organized and enforced? (vii) How are costs and risks shared and what incentives do they provide for all parties to the contract? What are the sources of conflict and how are the conflicts resolved?



1.1 Rationale for the Study

The agribusiness sector in Nigeria is beset with myriads of market constraints. The situation has been exacerbated by persistent failures in both input and output markets. The reasons for market failure include imperfect competition, public goods and institutional failure. In Nigeria, imperfect competition in input markets and in the credit market in particular is a major cause of market failure. A market failure in the financial sector has been that private banks have failed to provide appropriate credit and financial services to small and family farms and rural areas. The Nigerian agricultural credit market is beset by several imperfections including market segmentation, covariate risk, scarcity of collateral, information asymmetry and mass illiteracy of clients. The widespread information asymmetry often leads to problems of adverse selection and moral hazard which underpin the reluctance of commercial banks to lend to small-scale farmers. Adverse selection arises when the lenders do not know particular characteristics of borrowers especially in terms of uncertainties about a borrower's preferences for undertaking risky projects. In the case of moral hazard, the main problem is that borrowers' actions are not discernible by lenders. This heightens the risk of default in the sense that individual borrowers may be lax in making efforts to make the project successful or they may change the type of project that they undertake.

Market failures with regard to public goods manifest in various forms including lack of rural roads in major agro-ecological zones, grossly underdeveloped agricultural research system and limited use of modern technologies in the crop, livestock and fisheries sub-sectors. Moreover, the extension system is at the verge of collapse with the research-farmers-input-linkage system remaining extremely weak. The major areas of institutional failures include underdevelopment of rural market institutions for credit, labor, insurance and food markets, weak legal institutions and enforcement of contracts, land tenure issues and underdeveloped property rights as well as problems of collective action and development of cooperatives.

The market failures have imposed considerable constraints on input demand and supply as well as the output market. Input demand is affected mainly by low profitability and high risks in farmers' use of purchased inputs and by lack of access to seasonal finance. Profitability and risks in input use are affected by input and output price levels and stability, by the quality of inputs, and by the technical efficiency with which they are used. In the past market liberalisation has led to an increase in input financing difficulties and a decline in input profitability as a result of increases in input prices especially in the face of exchange rate depreciation and reduction in input subsidies. To date, input supply is characterized by high marketing costs, risks and uncertainties. Input selling is not only more risky but also more demanding of capital and knowledge than, for example, retailing of drinks, soaps, stationery etc. which does not require specialist knowledge and can turn over its capital regularly throughout the year. Farm input supply systems face a number of other difficulties associated with quality assurance, promotion, and their impacts on the natural environment. The nature of chemicals and seeds makes it difficult for farmers to gauge their quality at purchase, and they therefore need some form of assurance of the genuine quality of their purchases. The lack of effective varietal registration and certification regulations to protect farmers against purchase of poor quality seed, delays in getting seed approvals and the small size of seed markets present a serious disincentive to private sector seed suppliers. Weak incentives and systems for registering varieties within the national agricultural research system is also a major challenge.

For chemicals, there is a risk of sales of adulterated and/or out-of-date and ineffective stock and there is no regulatory mechanism to address the problem and to ensure that suppliers build up stable relationships and reputations with farmers in their localities. In the case of fertilizer, the market is so segmented in such a way that the farmers do not have access to the input at the right time and at affordable prices. The distribution is

always hijacked by political supporters who engage in fertilizer trading for quick money. While the emergency fertilizer distributors derive a lot of money from hoarding and sale at exorbitant prices, farmers do not have opportunities to apply the input in adequate quantities to achieve the desired increase in productivity and profitability. Input suppliers face a further difficulty in contributing towards market expansion and input use, as individuals rarely have funds to do this and they also face a problem from free-riding - if one enterprise invests in promotion of input use, others may enter and share in the benefits of the expanded market.

The constraints on output market came out clearly in a recent study by NISER (2009) which covers the six agro-ecological zones in the country. The major constraints highlighted are unrelieved supply shortages, poor capital flow, inadequate storage facilities, exorbitant transportation cost and inability and unwillingness of buyers to meet trade credit repayment obligations. Transportation constraint was by far the most common among marketers. It was revealed that marketers found no point in moving produce from rural to urban areas because the price would be too exorbitant for consumers. Most marketers bought and resold at the rural market, thereby multiplying the rural market chain without any improvement in the form of the commodity. For instance in the North-central zone (for both urban and rural areas), transportation constraint was ranked highest, implying that transportation problem have exacerbated the problem of food crisis in that zone. In all the zones, capital shortages ranked next to transportation, showing that food marketers are not service by various loan programmes available to farmers. Low capital flow would imply small volume of sale on each cycle, thereby escalating per unit marketing cost.

The constraints faced by marketers in the northern and southern parts of the country vary. While those in the north are losing profit through loss of market share, those in the south are losing profitability through the action of unions and other cartels. This is a result of poor market conduct and absence of effective market regulatory mechanisms. The problem in the north mostly reflects the direct impact of the food crisis and related price of fuel, while that in the south is an institutional problem resulting from poor market conduct. The poor state of rural infrastructure is a longstanding national problem that has defied decades of government effort. High cost of transportation occasioned by high cost of fuel, especially diesel is, however, a fall-out of the more global problem of high crude oil price. Inadequate supply response to meet the growing demand for industries and food is also a longstanding problem in Nigeria. With regard to the market access problems, a properly designed contract farming scheme is apt to provide appropriate remedy and improve the welfare of the farmers even in the remote areas. The various dimensions of the market access problems include the following.

Access to selling spaces in markets by poor producers and producer-traders

The power to control prices and supplies depends on the ability of market associations to act as cartels. This often depends on their control of key market spaces in urban areas and the ability to control who buys from rural areas. Although this form of market imperfection may vary between markets and within markets depending on the commodity, its occurrence is widespread in many urban markets in Nigeria. In Nigerian urban markets, Anyanwu and Jukes (1991) observe the way small traders may themselves choose relegation to sites outside the main market in order to avoid payment of market dues. However, Okali et al. (2001), also record rural producers in south-eastern Nigeria experiencing difficulties in accessing urban markets: "*rural respondents complained that the market unions in the city do not allow the rural farmer to sell his products directly to consumers…. even if the rural farmer transports his farm produce to the urban centre, he is forced to sell to the foodstuff unions in the urban market or else members of the union will frustrate the rural farmer's efforts to sell his produce. Understandably, this results in a substantial loss in potential income for the farmer who is forced to sell to the urban market unions at a much lower than the retail price*".

Access to Information and Extension Services

Producers and traders require a range of different types of marketing information. In addition to prices and supplies, information is required on alternative channels, quality, means of payment and financing. Due to their location and lack of networks, farmers may have less access to such information. Traders may be in a better position and studies in Benue State, Nigeria, found that prices in markets were reasonably integrated (NRI, 1995, quoted in Brocklesby and Ega, 2001). Of key importance are traders' personal networks that are used to obtain marketing information and access to credit from other traders. Access to information is likely to be different for different types of producers depending on the size of production, distance from markets and their own networks. Ayodele Ariyo et al. (2001) found in their study of urban and rural-based grain traders in the Kano region (all Hausa men) that the 30 rural traders relied more on farmers than any other information source, whereas their urban sample (30 traders again) also obtained information from other traders.

Access to Credit

The need for collateral has disadvantaged the access to financing by small-scale farmers (especially women) who often are unable to provide collateral. In general, large agribusiness firms do set up their own financial support system from inputs to price risk aversion mechanisms whereby farmers have to deliver their produce to these agribusinesses and follow the indicated production method. The consequence is that a large part of the production might not come on the market, making price manipulation to the disadvantage of the farmers possible. Work by Ayodele Ariyo et al (2001) in the Kano metropolitan area suggests that, as might be expected, rural grain traders have less access to diverse sources of capital – notably institutional or formal loans from the Government, Banks and private companies - to expand their activities than their urban counterparts. The difficulties for women in obtaining formal credit are particularly pertinent in the trading sector in Nigeria. These difficulties are linked to their low social status and lack of collateral.

Micro-credit programmes are growing in number in Nigeria but this has not significantly improved access to marketing credit especially by women. For instance, the EU's MPP3 programme in Rivers and Bayelsa states is, unusually, targeted at women, but food traders - many of whom are women – are often considered too risky by such programmes. There appears to be growing scepticism about the capacity of these NGO micro-finance projects and there have been recent calls for the formal financial sector (banks, credit unions and finance companies) to play a greater role in providing financial services to the rural poor (Havers, 2001; Gamser, 2001). Informal financing systems such as credit from suppliers, money lenders or rotating credit systems can be important but may be very expensive (Olomola 2000). Besides, there are inter-linked credit transactions which have been found to effectively address the problems of asymmetric information and enhance credit access. Three forms of credit inter-linkages (labour-credit, marketing-credit and animal-power credit inter-linkages) are well established in the informal sector and the main sources of credit are traders, moneylenders, friends, relatives and owners of draught animals (Olomola, 1996). This source of financing is vital to support rural livelihood although it can be used exploitatively if individuals become tied into debt relations over many years.

Access to Transport and Lorry Parks

Access to transport depends on the availability of appropriate vehicles at the right time and place, access to fuel in the case of motorised vehicles, the existence of suitable road infrastructure and the ability to load and unload in key urban areas. The expansion of the *paved road network* commonly plays a major role in encouraging food production because of its impact on all-season market access to major urban centres. In Nigeria (Porter 1997) the deficiencies in the paved network (along with shortage of high quality gravel roads) in rural areas is a major constraint on urban food supply from remoter rural locations. It is estimated that post-harvest food losses in Nigeria amount to 20-

25% of total output (Ali-Akpajiak and Pyke 2003:14), of which a substantial portion must be attributable to transport failure. Recent studies in individual regions of Nigeria, commissioned by the Ministry of Agriculture and Rural Development, illustrate the scale of current rural access problems and the linkages between poor road access and poverty (Imaga et al. 2000 for Enugu State; Unilag Consult 2001 for the Niger Delta; Transport Studies Unit 2001 for South West Nigeria; Uza et al. 2001 for Benue State; another study –Olawoye 2002 - focuses on gender issues).

Access to markets is often constrained by the high costs of moving produce from farms to road heads and local markets. Provision of feeder roads can therefore have a large impact on the rural poor, especially in remoter communities. So far as *transport services* are concerned, there is evidence from Nigeria that a conducive policy environment and the availability of credit can do much to encourage uptake and development of both motorised transport services and intermediate means of transport in the private sector (Barwell 1996). According to one survey, car ownership in Nigeria's urban areas has reached 14.9% of the total population, compared to only 4.5% in rural areas (Nigeria Demographic and Health Survey 1999). The percentage of working vehicles may, however, be much lower and there is ample evidence of the severity of transport access problems in rural Nigeria. Access to fuel can be a crucial factor in moving produce – especially perishable produce- to market. Ironically, in oil-rich Nigeria, petroleum shortages remain a major issue for food producers and frequent increases in petroleum prices over the years have led to considerable hikes in transportation cost. Another issue is the role of transport unions, which can restrict the development of efficient and inexpensive transport services as struggles around control of lorry parks have been exacerbated by the expansion of youth gangs and touts in many states of the federation. Other constraints are experienced during travel along the road during which roadside inspections by numerous administrative bodies are often a major cause of delays and charges.

Access to Inputs and Improved Technology

Fertilizer is a major input in agricultural production in Nigeria. However, access to this input by majority of farmers has been greatly restricted despite the fact that the input has enjoyed substantial subsidy over the years. Subsidy on fertilizer was removed in 1996 and re-introduced at a lower rate of 25% in 1997 and has remained unchanged since then. Also in trying to solve the problem of scarcity and high cost of the input a national Fertilizer Policy was approved in 2006 to guide control the production and distribution of fertilizer in agricultural production. NAFCON has been privatized in line with the policy of involvement of the private sector in input procurement and distribution. In spite of these programmes, fertilizer remains a scarce and expensive input. The national average level of fertilizer use is 7 kg/ha as against the FAO recommended 93 kg/ha. The process of fertilizer procurement and distribution has been grossly deficient and highly politicised. Politicians hijacked retail trade in fertilizer and thus deny the farmers the intended benefits.

The level of adoption of improved technology in Nigerian agricultural system is rather low. This is due to a number of demand- and supply-side constraints on technology generation, dissemination, adoption and commercialization. A recent assessment of some research institutes in the country (see Olomola, 2009) reveals that the institutes face virtually very similar set of constraints although some peculiarities in terms of the nature of constraints can still be identified. The major constraints on technology generation are inadequate funding, power outage, shortage of research vehicles, obsolete laboratory and field equipment and high staff turnover. The problems militating against effective dissemination vary among the research institutes but they are mainly financial, institutional and operational in nature. The key problems identified are shortage of extension agents, inadequate funding of REFILS activities and inadequate fund for the ADPs to support extension activities. The REFILS which is supposed to connect farmers with the research and extension systems has faced myriads of

operational problems including inadequate supplies of improved seeds for distribution to farmers, shortage of well-maintained vehicles for input distribution and lack of personnel for the fisheries component. The ADPs are short of manpower and have been unable to meet the required ratio of one extension agent to 1000 farm family.

Outside the research system, there are marketing constraints that militate against high rate of adoption of technologies. More often than not farmers cannot sell most of the output produced. The critical supply shortages in the input market seem to be a major constraint. For example, fertilizer is not within the reach of farmers and the little quantity available is unaffordable. The prevailing socio-economic conditions under which farmers operate impose considerable limitations on technology adoption. The poor road network in the rural areas where farming is carried out tends to discourage extension activities, increases transaction costs and renders farming unprofitable. In the light of the foregoing, it is clear that mere provision of funds alone will not be the panacea to the restricted access to agricultural technology in Nigeria. Effective utilization and proper targeting of available funds as well as alignment of research priorities with the development priorities of the agricultural sector will go a long way to upgrade the performance of the research system. The required coordination, cooperation and collaboration among the RIs can be achieved if the authorities provide the necessary policy attention and leadership and demonstrate a high level of commitment even with the current level of funding.

Access to Draft Power, Tractors and other Equipment

Agricultural mechanization especially among the small-scale farmers in Nigeria is at a very low level. Nonetheless, there are efforts to enhance access to tractor hiring services in many states of the federation. Availability of such services is limited and due to high cost, farmers' access has also been limited. Animal traction is regarded as a good alternative to tractorization in the northern parts of the country. Farmers recognize the potential benefits of the technology including expansion of farm size, timeliness in land preparation, reduction in rigour of work, provision of revenue and increase in productivity. According to Olomola (1998), however, the major factors militating against widespread adoption of the technology include scarcity of draught animals, high cost of acquiring draught animals, high cost of animal-drawn ploughs and lack of extension services for the training and management of draught animals. Despite the productivity advantages of mechanization, the potential benefits will not be realized unless the farmers are assured of regular and timely supply of key inputs at affordable prices.

By and large, Nigerian remains a high production-cost country and grossly uncompetitive in international market. High transaction costs in agribusiness operations and the generally high production cost in the country have had adverse consequences on profitability and competitiveness in the agricultural sector (see Olomola, 2007). The linkage between agribusiness firms and farmers at the local level is one of the institutional mechanisms that is apt to serve as remedy if properly articulated and operated effectively. Although the linkage in the form of contract farming has a long history in Nigeria, its role as an instrument for fostering pro-poor growth has not been substantiated and the desired policy context for its widespread application is conspicuously missing in the country. Yet it has been argued that institutional interventions aimed at reducing transaction costs and risks are crucially important for farmers, traders and financiers to invest in smallholder agriculture. And to enhance pro-poor growth policy actions will include promoting strong linkages between farm and off-farm sectors (suppliers, processors), outsourcing of administrative tasks (e.g. partnering for effective management), and establishing longer-term contractual relationships (Olomola, 2006). Besides, the issues of increased investment, better access to markets, higher productivity and income which will be examined in the linkages between agribusiness and small-scale farmers are quite relevant to economic growth and poverty reduction in the country. Furthermore, the mere presence of contracts does not assure automatic Pareto improvement between parties and sustainability of the relationships. As

an institutional mechanism, contract farming requires a continuous adjustment process, according to the characteristics of the agents and the exogenous conditions they are facing. For instance, weak performance of contracts may also lead to losses for both parties, when asymmetric information and other transaction costs cause uncertainty or distrust between the agents. Hence, a better understanding of the interactions between the contracting parties and the driving forces in the relationship will enable us to understand the causes and effects of contract engagement in a liberalized market economy and the options for reducing distrust between parties to make the contractual exchange more reliable.

Moreover, the adoption of institutional mechanisms to enhance pro-poor growth and poverty reduction is becoming increasingly important in the development process especially in developing countries. The visibility of local institutions is enhanced by the renewed emphasis placed on them by national governments and international agencies in their bid to alleviate poverty and contribute meaningfully to development in such countries. The emphasis derives from several considerations. First, the economic crisis faced by many developing countries since the 1980s and the inability of governments to make significant impact in terms of economic recovery and development led to serious questioning of the role of the state. This situation has led to the re-examination of the possible contributions of other social institutions apart from the state. Second, is the commitment of many nations to the reduction of the scope and activities of the public sector and thus, strengthening private sector participation and initiatives. Third, is the general level of dissatisfaction of national governments, multi-lateral and donor agencies with the development records of many developing nations in general and African countries in particular regarding the lopsided allocation of resources and implementation of development programmes. The urban sector and people in the middle and upper income brackets have tended to benefit from development programmes while the low income categories including those living in the rural areas have gained little or nothing (Mabogunje, 1980).

Besides, it is believed by analysts that involvement of local organizations should be encouraged so that after the withdrawal of external stimuli it would be possible to sustain the tempo of development activities (Esman and Uphoff, 1984; Cernea, 1987). With increased democratization and decentralization in many developing countries, governments are being urged to include the rural people in creating sustainable and accountable local development. To this end, local level institutions are being re-evaluated and even considered strategic to development. Specifically, it is argued that local level institutions can contribute to poverty reduction through the generation of social capital (Donnelly-Roark et al, 2001).

In Nigeria, in particular, the advent of democratic governance and the demand that local people should play a greater role in matters affecting them has led to the emergence of various institutional arrangements to tackle the quandary of poverty especially in the rural areas. The local initiatives nurturing the process are multi-dimensional and have potential policy relevance. However, little is known about the various types of formal-informal linkages and the extent to which they could be relied upon individually and collectively for the enhancement of pro-poor growth and reduction of poverty. Specifically, the institutional interventions and linkages within the agribusiness sector need to be carefully studied and understood so that they can be actively supported by policy actions aimed at enhancing farmers' access to the market and reducing poverty in the country.

1.2 Objectives

The broad goal of the study is to examine the key institutional linkages between agribusiness firms and small-scale farmers in Nigeria with a view to drawing lessons for

pro-poor growth and poverty reduction in the country. The specific objectives are threefold:

i. To examine the nature of institutional linkages between small-scale farmers and firms in the Nigerian agribusiness sector. The key institutional issues to be addressed here include the design of contracts and enforcement of contracts, types of enterprises involved and services provided, formal and informal arrangements involved and governance of the relationships;

ii. To analyse the impact of the institutional linkages with a view to ascertaining whether or not they are supportive of pro-poor growth especially in terms of investment in agriculture, access to production credit, access to market and farm income; and

iii. To determine factors influencing the performance of the contractual relationships. This will involve the analysis of the strengths, weaknesses, opportunities and threats. If the relationship is successful why? And if not, why not?

1.3 Theoretical Framework

In spite of the widespread economic reforms embarked upon by the government for the past seven years and crave for the emergence of a free market economy in Nigeria, the market is still fraught with grave imperfections. Thus, the operations of the market cannot reflect the dictates and assumptions of the neoclassical economic paradigm. The New Institutional Economics (NIE) approach offers important analytical tools for an alternative understanding of the agricultural market and rural economy. NIE emerged as an interdisciplinary school of thought that combines economics, law, organization theory, political science, sociology and anthropology to understand the development of institutions. Its goal is to explain the nature of institutions, how and why they emerge, what purposes they serve, how they evolve over time, and how, if at all, they could be reformed (Martin, 1993; Ayala, 1999). NIE is especially concerned with the emergence of institutions to enable exchange to take place in a context of pervasive market failures. According to the New Institutional Economics, when market failures occur, either a surrogate institution emerges to allow the transaction to take place or the transaction simply does not occur at all (de Janvry *et al.*, 1991). By definition, institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction; in consequence they structure incentives in human exchange, whether political, social, or economic (North, 1990).

In the agricultural sector of developing countries, institutions evolve to deal with all kinds of market failures in an environment of pervasive risks, incomplete markets and information asymmetries (Key and Runsten, 1999). They often perform the functions of several imperfect markets, parallel to the spot market. Furthermore, they can involve vertical or horizontal relations or both. These alternative agrarian institutions can take the form of a cooperative, peasant association, marketing boards, insurance and credit groups, internal transactions within the household, as well as all types of contracts with interlinked transactions (Bardhan, 1980; Ellis, 1988). Thus, after the evaluation of their own resource endowments and transaction costs, individual farmers will make the best choice between the spot market and an alternative agrarian institution (Hayami and Otsuka, 1993). Most of the small and medium size farms in many developing countries including Nigeria are family enterprises; this means that decision-making procedures regarding production, consumption and reproduction are interlinked in imperfect markets (Ellis, 1988; Sadoulet and de Janvry, 1995). Consequently, these peasant households tend to value risk reduction more than profit, and therefore appreciate any institutional opportunities to acquire certainty regarding access to market outlets and delivery prices.

In the case of Nigeria, the economy is becoming increasingly market-oriented and private-sector led. The unfolding scenario is such that small-scale farmers face considerable market constraints including poor market information, restricted access to credit and modern inputs and high transaction costs arising from weak market integration. Consequently, the farmers are finding it increasingly difficult to compete and are becoming more vulnerable to economic exclusion and poverty. It is not surprising therefore, that the agribusiness sector is currently being encouraged to engage in contract farming and producers of food and non-food crops are responding to this institutional approach in many parts of the country. This is consistent with the view that when input or output markets fail, farmers can rely on alternative agrarian institutions in order to carry out the necessary exchange transactions. Indeed, it has been argued that contract farming can be considered an effective institutional response to overcome such market imperfections (Glover and Kusterer, 1990). Contract farming is a form of agricultural production involving an agreement between the producer and the buyer of the product. The agreement which may be verbal or written stipulates in advance the type, form, quantity, price and time of delivery of the agricultural commodity.

Weak market integration in terms of weak or lack of relationship between farms and agro-processing firms can also affect the performance of the agribusiness sector, since the firms are likely to be constrained by inadequate and irregular supply of raw materials. Relying on spot markets for the supply of raw materials may not be the best solution for some agro-industries, since a poor arrangement with a provider may imply delays in the delivery of raw materials. While agro-industrial firms may apply a vertical integration strategy, this option may not be suitable for every sector and could be less attractive when strict monitoring efforts are required to maintain product quality. Hence, in many particular cases, strong farm-firm institutional linkage tends to be the preferred option that could lead to a win-win situation for both parties. For the farmers, the positive effects of contracts can be in terms of favourable farm-gate prices, higher income, increased access to modern inputs and financial resources and sustained profitability since contracts permit a relocation of farm households into a secure market niche.

1.4 Review of Literature

Contract farming (CF) is a major agrarian institution that has been widely applied in developed and developing countries at different times for improved coordination and performance of the agricultural market and for addressing different types of market failures in general. CF has been found to be capable of removing market imperfections in produce, credit, land, labour, information and insurance markets. It has also helped in facilitating better coordination of local production activities which often involve initial investment in processing, extension and so forth and in reducing transaction costs (Grosh, 1994; Key and Runsten, 1999; IFPRI, 2005). It has also been used in many situations as a policy measure by the state to bring about crop diversification for improving farm incomes and employment (Benziger 1996; Singh, 2000). From the standpoint of the New Institutional Economics, CF can create positive externalities like employment, market development or infrastructure, if agribusiness firms can provide them better than the open market or the state (Key and Runsten, 1999).

In terms of the analysis of the effects of CF, one of the approaches often employed is to compare the returns in the production systems of contract farmers with the non-contract situation and/or competing traditional crops of a given region. For instance, it has been found that gross returns in CF systems are (almost three times) much higher than returns from traditional crops of wheat, paddy and potato in the case of tomato CF (Haque, 2000; Rangi and Sidhu, 2000; Dileep et al; 2002) and cotton CF (Agarwal et al, 2005) due to higher yield and assured price under the CF arrangements. Studies of tomato (Haque, 2000; Dileep et al, 2002), cucumber (Haque, 2000) and cotton (Agarwal et al, 2005) also found the net returns from these crops under CF to be much higher

than those under non-CF situation though production cost in tomato was higher under CF. More recent studies across crops, companies and locations also confirm higher net returns under CF than the non-contract situation due to higher yields and higher output prices even in circumstances where the cost of cultivation by non-contract farmers was higher (Tripathi et al, 2005; Kumar, 2006).

Other recent studies which employed the case study approach have also revealed successful performance of CF in several parts of the world (Singh, 2005a, 2005b, Saenz-Segura; 2006; Singh 2007). In India for instance, Singh (2007) noted that the agribusiness sector faced problems in getting quality raw materials for processing or fresh marketing, especially in perishable high value crops. The processing and marketing firms faced issues of high cost, lack of adequate availability, poor quality and timeliness. At the same time, there were gluts in markets for such produce and farmers realized low or un-remunerative prices. After the opening up of the Indian economy and entry of many domestic and multinational players into agribusiness sector, contract farming which was restricted, largely to seed production earlier, spread to perishable produce and has now become the dominant and growing mode of raw material production and procurement coordination among the processors and fresh produce marketers and exporters. According to the author the major conditions for successful interlocking between agribusiness firms and small producers include increased competition for procurement instead of monopsony, guaranteed market for farmer produce, effective repayment mechanism, market information for farmers to effectively bargain with companies, large volumes of transactions through groups of farmers for lowering transaction costs and the absence of alternative source of raw material for firms. The study by Saenz-Segura (2006), identified which type of farm households and processing firm can participate in contract farming and under which conditions. His case studies proved that contract farming could become a suitable institution with implications in terms of equity, efficiency and sustainability thus contributing to the understanding of the outcomes of contracting for the involved agents.

In the light of the foregoing, it is clear that the Nigerian agribusiness sector has a lot to benefit from CF. Contract farming itself is not new in Nigeria. It dates back to 1933 when a British transnational, the British American Tobacco (BAT) started the Nigerian Tobacco Company (NTC) which contracted growers to produce green leaf (uncured) tobacco. Similar arrangements were later initiated in other parts of Africa namely Kenya and Tanzania (see Minot 1986). The NTC contract was extended to food crops in 1980 (NTC, 1986) and the parastatal has since been closed down. Since the emergence of democratic governance in 1999, Nigeria has witnessed widespread economic reforms including agricultural reforms and initiatives which have relocated leadership role in economic activities from the public to the private sector. Since then the governance situation has changed from what it used to be during the military era from 1984 to 1998. The motivations for formal-informal institutional linkages, nature of incentives and economic conditions have changed dramatically over the years. Emphasis is now being placed on poverty reduction, the attainment of the Millennium Development Goals (MDGs), diversification of the economy and participatory development. In this circumstance institutional linkages have to be re-examined and the motivations and effects substantiated. Indeed, since there is no blue print or CF model for all situations, it is imperative to investigate its nature and performance within the Nigerian context currently being symbolized by various types of market failures in the midst of vigorous economic reforms and pursuit of reliance on market mechanisms and private sector dominance. The way farmers perceive CF will differ according to the type of firms, socio-economic conditions and cultural context.

1.5 Methodology

The formal-informal linkages examined in this study is a contract farming arrangement involving selected agribusiness firms operating in the organized (formal) private sector and small-scale farmers who operate largely in the informal sector.

1.5.1 Scope

The study covers all forms of contract farming arrangements between small-scale farmers and agribusiness firms. Producers of food crops such as rice, soybean and ginger and non-food crops (tobacco and cotton) are included in the study. The firms and corresponding crops included in the study are shown in Table 1.1.

Table 1.1: Crops and Agribusiness Firms Included in the Study

	CROP	AGRIBUSINESS FIRM	LOCATION	ZONE
1	TOBACCO	BAT	Isheyin, Oyo State	Southwest
2	COTTON	OLAM	Zaria & Funtua, Kaduna State	Northwest
3	GINGER	OLAM	Kwoi, Kaduna State	Northwest
4	SOYBEAN	NESTLE	Lagos, Lagos State	Southwest
		SLABMARK	Ibadan, Oyo State	Southwest
5	RICE	OLAM	Makurdi, Benue State	Northcentral

The choice of the crops is based on preliminary investigation which shows the existence of contract engagements by agribusiness firms to ensure regular supply of raw materials. The crops are also being actively promoted as export crops and this underscores their relevance in terms of increased employment and income potentials. Agrarian institutions such as different models of contract farming are likely to bring considerable improvement in the performance of the value chains of individual commodities and this is likely to enhance pro-poor growth and poverty reduction in the country.

1.5.2 Types and Sources of Data

Essentially, primary data are used in executing the study. Attention is focused on the contractual relationships between farmers and the relevant agribusiness firms as well as the production systems of the contract farmers and the non-contract farmers. The production-related data are obtained through the use of structured questionnaires. The data collected include quantity and cost of farm inputs such as seeds, fertilizer, herbicides and pesticides, hired labour, amount of credit obtained, utilized and repaid, area of land under cultivation, fixed capital and quantity and prices of output all relating to the immediate past production season. With regard to the contractual relationships, the required data are obtained through focus group discussions (FGD) and in-depth interviews. Relevant officials in each of the agribusiness firms were interviewed while FGDs were held with producers of each of the selected crops involved in contract farming. Using appropriate interview and discussion guides information about various aspects of the contractual relations including the motivation, operational procedures, governance, benefits, strengths, weaknesses, constraints, sources and methods of dispute resolution and success factors were obtained. The analysis of the effects of the institutional linkages involves comparison of the production systems of contract and non-contract farmers. Thus, a sample of these categories of farmers cultivating each of the target crops was drawn. In each category, 50 farmers were randomly selected for inclusion in the study. The only exception is tobacco in respect of which the non-contract

category does not exist in Nigeria. We employ qualitative and econometric techniques to analyse the data and to achieve the objectives of the study.

1.6 Structure of the Report

The report is structured into five chapters altogether. Following this initial chapter, is chapter two where the nature of formal-informal institutional linkages in the agri-business sector is examined with a characterization of the various contract farming models. Chapter three considers the market structure of the selected commodities and analyse the performance of the associated contract farming models while chapter four deals with the impact and pro-poor implications of the institutional linkages. The report is rounded off in chapter five with the presentation of the summary of main findings, policy recommendations and conclusions.

2 NATURE OF INSTITUTIONAL LINKAGES IN THE AGRI-BUSINESS SECTOR

The relationships between agribusiness firms and smallholder farmers are considered as formal-informal (the former being in the organized private sector while the latter are in the informal sector) linkages which are analysed here within the various contemporary models of contract farming. The role of contract farming in Nigeria is worthy of clear understanding and analysis both theoretically and in practice in view of the need to modernize and boost agricultural production, enhance farmers' access to the market and ensure sustained pro-poor growth.

2.1 Theoretical Consideration of the Role of Contract Farming

The production and marketing of agricultural commodities involve several decisions which have to be properly coordinated in order to realize the desired adjustment or balance between the supply of commodity and its demand. The decisions on what to produce, the product quantity and quality, where and when to sell; all need to be realistically planned and well coordinated because errors could be quite costly for the participants in the market and the efficiency of the production and marketing systems. The theory of industrial organization explains that vertical market coordination is required along the vertical chain of functions such as grading, packaging, transportation, processing, storage and distribution. According to Kohl and Uhl (1980), vertical market coordination refers to the process of directing and harmonizing the several inter-related and sequential decisions involved in efficiently producing and marketing agricultural commodities. Neo-classical economic theory with its assumption of a perfect market characterized by numerous buyers and sellers, free and complete information and absence of externalities seek to accomplish vertical coordination mainly through the price mechanism. Price is assigned the role of an impersonal coordinator which provides incentives to buyers and sellers to adjust in such a way as to establish equilibrium in the level of supply and demand.

However, these theoretical postulates do not accurately describe the agricultural marketing systems often met in practice. There are some information deficiencies in the agricultural sector and certain peculiar characteristics such as sharp seasonal fluctuation of supply, delayed supply response, perishability of products, geographic dispersal of production, wide variations in quality and unwholesome practices of middlemen which tend to undermine the role of price as a coordinator. Thus prices determined in an open market cannot be relied upon to transmit complete information concerning the detailed requirements of each participant in the market mix.

In developed countries, the need to supplement the market mechanism with other equivalent devices has been recognized and it is still being increasingly emphasized. Allen (1972) notes that coordination of the food production, marketing and distribution system cannot always be achieved with sufficient speed or exactness by the "hidden hand of the price mechanism", even when the government supplements such actions. In agricultural marketing, there has been a trend away from the use of open markets in spite of the constant improvement in price reporting. More precise information on prices has been made available by the wider use of ICT, by the development of electronic grading and other sorting devices as well as by expanded acceptance of government grading standards. Nonetheless, the increased demand for an improved communication network for a better coordinating mechanism has far outdistanced the capabilities of a system based primarily on prices. Yet price determination is of crucial importance in exchange transactions, this being basic to the allocation of income between the parties and allocation of resources among alternative uses. However, the emerging trend is towards the replacement of price coordination with administered coordination techniques such as spot market exchange, vertical coordination and contract exchange and others. The effectiveness of each coordinating device depends on the differences in product

characteristics, the technology of production and marketing, demand characteristics and the distribution of information.

Contract farming can be defined as agricultural production carried out according to an agreement between farmers and a buyer which places conditions on the production and marketing of the commodity (Minot, 1986). Such an agreement may be oral or written (Roy, 1972). The explanation of the motives for contract farming has witnessed diverse viewpoints. Allen (1972) considers it as a necessity if the consumer is to benefit fully from modern technologies especially in terms of promoting precise specifications and grades with regard to fruits, vegetables and livestock products. Morrissy (1974), treats contract farming as a way of effecting the transfer of agricultural technology from firms to growers and considers it a good way of improving farming skills. Glover (1984) places emphasis on the credit-facilitating aspect of contract farming as the farmers' principal motive for signing in. These authors do not analyse the foregoing rationale in accordance with the different kinds of contracts (market-specification contracts, resource-providing contracts and management and income-guaranteeing contracts) identified by Kohls (1967). Yet the distinction of the motives and role of contracting is likely to have a considerable analytical impact because contractual arrangements differ in the number of decisions influenced by the contract, the sharing of costs and risks and the incentives they provide for each of the parties for the agreement (Olomola, 1991). Minot (1986) offers a useful exposition on the incentives for each kind of contract which can provide important theoretical guide for the analysis of crop production contracts.

(a) Market-specification contracts. These specify some of the products characteristics that will be acceptable to the buyer and usually establish some of the basis of payment to the producer. Few of the farmers' management decisions are transferred to the other party. The transfer of marketing information to the farmer in respect of the timing and quality preferences of the buyer can be expressed in the contract in three ways. First, the buyer may use a varying price schedule to provide an incentive to the farmer to deliver the desired quality and at the desired time. Second, the buyer may simply require delivery of a certain level of quality on certain dates. Third, the buyer may require the use of production inputs and cultural practices which will ensure that the crop will mature at the appropriate time and meet the quality standards. Assuming no administrative cost, no externalities and perfect information, the first strategy would be the best. The second is, however, administratively simpler and the third is used in response to externalities and imperfect information. Invariably, a combination of these three strategies is usually employed in practice.

(b) Resource-providing contracts. These are the types of contracts in which the specifications of certain inputs to be used and their place of purchase are stipulated. Product prices are usually based on the open market system while income guarantees to the producer are minimal. A resource-providing contract may be motivated by a number of factors generally related to imperfections in input markets. First, productive inputs may not be available in the market. For instance, producing a new variety of crop by contract generally requires the provision of planting materials. Second, even when the inputs are available in the market, the contracting firm may be able to provide them at a lower cost. The buyer may enjoy certain economies of scale in mechanical operations, pest control as well as maintaining an existing distribution channel. Third, the firm may decide to encourage the use of an improved technology. Therefore, it will request for the use of associated inputs which will ultimately increase and stabilize the market for its own product. Credit supply is often an essential component of resource-providing contracts. This is particularly true in the case of contracts that have substantial purchased input requirements and a long production cycle. Characteristically, inputs are supplied on credit with their values being subtracted from the crop payment. Credit supply is usually based on the premise that the interest and transaction costs to the contracting firm in obtaining and distributing credit are less than the total costs that small farmers face in obtaining credit.

(c) Management and income-guaranteeing contracts. These often encompass the stipulations regarding production and marketing in respect of the aforementioned types of contract. In addition, they provide for the transfer of part or all of the market-oriented price and income risks from the producer to the contracting firm. This is usually done by paying the producer a pre-arranged return per unit of product or by guaranteeing against market-oriented financial loss. A market-specification contract has great influence on the decision on what to produce. Production-management contract also provides some instructions on how to produce such a crop. Furthermore, like the resource-providing contract, the latter is motivated by imperfect information and or externalities. Information imperfection relates to the transfer of the knowledge of production practices from the contracting firm to the farmer. The more vigorous the need for product standards and the newer the crop to the farmer, the less likely that farmers have the information to reach such standards. This means that on-farm technical assistance will be mandatory. Moreover, certain practices may be known by farmers but not practised because they do not yield sufficient return. A particular husbandry technique may contribute to product characteristics which are desired by the contracting firm but not reflected in the grade-price system. The need therefore, will arise for the firm to supervise production in order to ensure a satisfactory standard.

The foregoing theoretical consideration provides the basis for the characterization of the contract farming arrangements in respect of the five commodities included in this study.

2.2 Structure of Contract Farming in Respect of the Selected Crops

Considering the motivation for CF it is not surprising that the contractual arrangements are in line with the stipulations of the resource-providing and market-specification framework. If smallholder agriculture is to be commercialized and modernized, the use of traditional inputs should be discontinued and access to modern inputs, credit facilities and commodity market improved. This is an important motivation for CF. The cotton CF is structured in such a way that it is essentially resource-providing while the contractual arrangement in the case of ginger is a market-specification contract. Rice, soybean and tobacco are structured under resource-providing and market-specification contracts. The characteristics of the contracts are highlighted in Table 2.1. In what follows we examine the pattern of execution of the various contracts.

Table 2.1: Typology and Characteristics of Contract Farming in Nigeria

COMMODITY	TYPOLOGY OF CONTRACT	BASIC ELEMENTS
Cotton	Resource-providing	-Sale of seeds to farmers for planting at subsidized rate of 30% in Gombe, Funtua and Gusau buying zones. -Provision of credit in-kind in the form of cotton seed. -Supply of insecticide (cypermetrin) free of charge for application to about 500 ha. -Provision of cotton extension services including the distribution of cotton seeds to farmers at 15% subsidy.
Ginger	Market-specification	-Identification of farmers -Registration of farmers -Purchase of ginger from farmers
Rice	-Resource-providing	-Input supply in the form of credit in-kind -Establishment of model farms to produce good quality seeds for distribution to the farmers and to serve as demonstration plots during field days for training purposes. -Provision of insurance coverage for participating farmers
	-Market-specification	-Specification of variety and quality of rice desired -Purchase of rice from participating farmers
Soybean	-Resource-providing	-Provision of seed multiplication services -Input supply in the form of credit in-kind -Monitoring of farmers production from planting to harvesting
	-Market-specification	-provision of shelling services which farmers pay for -provision of cleaning, sieving and physical quality improving services -handling of bagging and weighing -Purchase of soybean from participating farmers -Specification of varieties and quality of grains desired
Tobacco	-Resource-providing	-provision of inputs as in-kind loan -provision of tractor for ploughing, re-ploughing, ridging and re-ridging, -provision of cash advance for firewood used for curing. -supply tree seedlings (100-300) per farmer each year for the establishment of woodlots
	-Market-specification	-Specification of varieties and quality of grains desired -Purchase of tobacco from participating farmers

Source: Author's compilation

2.3 Models of Contract Farming

Different models can be adopted in the implementation of CF schemes. Five broad models of CF have been defined in the literature (Eaton and Shepherd, 2001) depending on the product, the resources of the sponsor and the intensity of the relationship between the farmer and the sponsor. They are centralized model, the nucleus estate model, multipartite model, informal model and the intermediary model.

The Centralized Model. This is a vertically coordinated model where the sponsor purchases the crop from farmers and processes or packages and markets the product. The centralized scheme is generally associated with tobacco, cotton, sugar cane and bananas and with tree crops such as coffee, tea, cocoa and rubber, but can also be used for poultry, pork and dairy production.

The Nucleus Estate Model. Nucleus estates are a variation of the centralized model. In this case the sponsor of the project also owns and manages an estate plantation, which is usually close to the processing plant. The estate is often fairly large in order to provide some guarantee of throughput for the plant, but occasionally it can be relatively small, primarily serving as a trial and demonstration farm. A common approach is for the sponsors to commence with a pilot estate then, after a trial period, introduce to farmers (sometimes called "satellite" growers) the technology and management techniques of the particular crop. Although used mainly for tree crops, there are examples involving other products such as dairy nucleus estates in Indonesia with the central estate being primarily used for the rearing of parent stock.

The Multipartite Model. The multipartite model usually involves statutory bodies and private companies jointly participating with farmers. Multipartite contract farming may have separate organizations responsible for credit provision, production, management, processing and marketing.

The 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 fresh vegetables, watermelons and tropical fruits. Crops usually require only a minimal amount of processing. Material inputs are often restricted to the provision of seeds and basic fertilizers, with technical advice limited to grading and quality control matters. This is the most transient and speculative of all contract farming models, with a risk of default by both the promoter and the farmer.

The Intermediary Model. This involves the formal subcontracting of crops to intermediaries. It is a common practice in South East Asia. The use of intermediaries must always be approached with caution because of the danger of sponsors losing control over production and over prices paid to farmers by middlemen. Subcontracting disconnects the direct link between the sponsor and farmer. This can result in lower income for the farmer, poorer quality standards and irregular production.

The basic features of these models are summarized in Table 2.2. Of the five models only two (centralized and multipartite) are found to be applied to the selected crops with the exception of tobacco which CF scheme is being implemented following only the centralized model. The crops, their sponsors and the characteristics of the models are presented in Table 2.3.

Table 2.2: Basic Features of CF Models

CF MODELS	GENERAL FEATURES
Centralized	-Involves a centralized processor and/or packer buying from a large number of small farmers -Is used for tree crops, annual crops, poultry, dairy. Products often require a high degree of processing, such as tea or vegetables for canning or freezing -Is vertically coordinated, with quota allocation and tight quality control -Sponsors' involvement in production varies from minimal input provision to the opposite extreme where the sponsor takes control of most production aspects
Nucleus Estate	-Is a variation of the centralized model where the sponsor also manages a central estate or plantation -The central estate is usually used to guarantee throughput for the processing plant but is sometimes used only for research or breeding purposes -Is often used with resettlement or transmigration schemes -Involves a significant provision of material and management Inputs
Multipartite	-May involve a variety of organizations, frequently including statutory bodies -Can develop from the centralized or nucleus estate models, e.g. through the organization of farmers into cooperatives or the involvement of a financial institution
Informal	-Is characterized by individual entrepreneurs or small companies -Involves informal production contracts, usually on a seasonal basis -Often requires government support services such as research and extension -Involves greater risk of extra-contractual marketing
Intermediary	-Is characterized by individual entrepreneurs or small companies -Involves informal production contracts, usually on a seasonal basis -Often requires government support services such as research and extension -Involves greater risk of extra-contractual marketing

Table 2.3: Characteristics of Contract Farming Models in Respect of the Selected Crops

COMMODITY	MODEL	SPONSOR	CHARACTERISTICS
Cotton	-Centralized -Multipartite	OLAM	-Centralized processor (Olam) buying seed cotton from registered farmers -Involvement of LBAs in the purchase of cotton
Ginger	-Centralized -Multipartite	OLAM	-Centralized processor buying ginger from registered farmers -Involvement of LBAs in the purchase of ginger
Rice	-Centralized -Multipartite	OLAM	-Centralized rice miller buying rice from farmers -Farmers registered as cooperative group members -Operate through appointed group coordinators -Involvement of Nigerian Agricultural Insurance Corporation (NAIC)
Soybean	-Centralized -Multipartite	NESTLE SLABMARK	-Centralized processor buying soybean from farmers -Link with farmers through government agency (OYSADEP) which is also playing a facilitating role
Tobacco	-Centralized	BAT	-Centralized processor buying tobacco from registered farmers -Quota allocation and very tight quality control

Source: Author's compilation

2.3.1 The Cotton CF Model

The cotton contract farming model in Nigeria as currently being developed by Olam can be described as a centralized model in the sense that it involves a major processor, Olam buying seed cotton from registered farmers for processing in the ginnery owned and managed by the firm. It is multipartite in the sense that various agents including Licensed Buying Agents (LBAs) are involved in the procurement of the seed cotton. Essentially, it is a form of strategic partnership which brings the farmers, government agencies and the private sector together to ensure good flow of information as well as dissemination and utilization of technological innovations in the cotton industry. Cotton production in Nigeria is dominated by small-scale farmers who are scattered, ill-equipped and ill-motivated to profitably engage in an emerging modern cotton market.

The Nigerian cotton industry is faced with the problems of very low productivity, lack of high yielding crop varieties, inadequate and irregular supply of modern inputs, high production cost, lack of farm equipment for land preparation and harvest, lack of farmers cooperatives, weak extension services, poor quality of raw materials as well as poor market access and exploitation by middle men. The introduction of cotton CF by Olam is aimed at providing solutions to these problems. The cotton CF model designed by Olam started in Katsina state in 2006 and was meant to cover cotton production in four local governments – Funtua (150 hectares), Mallumfashi (100 ha), Kankara (100 ha) and Faskari (150 ha).

2.3.2 The Ginger CF Model

Ginger CF is being pioneered in Kaduna State by Olam Nigeria Ltd. The scheme seeks to (i) develop farmers' capacity for improved ginger production and productivity through training of farmers in improved production practices, post-harvest handling of ginger and marketing strategies, (ii) improve the marketability of ginger through quality improvement and improved storage technologies, (iii) improve profitability of ginger cultivation by encouraging the use of appropriate productivity and profitability enhancing technologies, (iv) facilitate farmers' access to improved seed (rhizomes) varieties and other modern inputs and (v) buy back ginger directly from farmers at prevailing market prices. The ginger CF is a multipartite model involving Olam Nigeria Ltd., the farmers, Nigerian Export Promotion Council (NEPC), National Root Crop Research Institute (NRCRI), Kaduna State Government, Federal Ministry of Agriculture and Rural Development (FMARD) and the University of Agriculture in Makurdi, Benue State. The farmers are involved in the production of sufficient quantities of good quality ginger. Olam develops foundation technologies for improved production, productivity and post-harvest handling of ginger, train the farmers in partnership with NEPC, NRCRI and the University of Agriculture, to impart skills in best agronomic and post-harvest handling practices to ensure improved quantity and quality of ginger, establish model farms and make it a centre for learning and training for farmers as well as generate and provide relevant market information on quantities and quality requirements of the market and ensure a ready market for their produce.

2.3.3 The Rice CF Model

The development of the rice industry through public private partnership (PPP) is being supported by Olam Nigeria Limited through contract farming (CF) programmes in three states in the north-central part of the country; specifically in Benue, Kwara and Niger states. The objectives of the CF programmes are to (i) support the development of farmer groups through the mobilization of farmers and facilitation of group formation, (ii) develop the capacity of farmers for increased production and improved productivity through training in rice production management practices, post-harvest handling, maintenance of high quality standard and improved marketing strategies, (iii) improved the marketability of farmers' produce through quality improvement, increased output

and improved storage facilities, (iv) establish viable strategic partnerships that include farmers, government agencies and Olam to ensure good flow of information, knowledge and technological innovations, (v) facilitate farmers' access to modern inputs such as improved seed varieties, fertilizers and agro-chemicals and (vi) increase profitability of rice cultivation by providing assured markets and profitability-enhancing technologies.

Olam refers to the CF model in Benue state as the Total Support Model (TSM). This involves three main components. First, is the supply of all inputs by Olam to the participating farmers on credit. The inputs are certified seeds, herbicides, crop protection chemicals, fertilizers and sprayers. Second, is the capacity building component which is a form of extension services involving (i) training of trainers for lead farmers – 5% of total population, (ii) field demonstration days in various model farms during which all contract farmers are invited to take part twice in a year and (iii) exposure of contract farmers to site-specific package of practices. Third, is the buy back of produce involving the provision of the following incentives by Olam.

- provision of uniform bags to farmers for rice packaging
- provision of tractors to lift the produce from the farm gate
- absorption by Olam of incidental costs of loading and off loading
- provision of financial rewards to group leaders on a per-metric-tonne basis
- procurement of rice on prevailing market price decided by a 10 member committee

The paddy rice procured by Olam from the farmers are milled and packaged for sale in the domestic market. There is hope that as time goes on such rice will also be exported. In the TSM, USAID MARKETS also performs key functions such as capacity building programmes through training of trainers (TOT) and organization of field days, facilitation of farmers' group formation and management of the model farms in terms of sending technicians to monitor day-to-day operations on the farms. The role of the Benue state government is the facilitation of the supply of fertilizers.

There is a variant of the rice CF model which is in place in Kwara state known as the Trust Fund Model (TFM). The parties involved are Olam Nigeria Limited, USAID MARKETS, participating farmers, Kwara State Government, Central Bank of Nigeria (CBN), United Bank for Africa (UBA) and the National Agricultural Seed Council (NASC). This TFM of rice CF is essentially a seed multiplication project in which the loan amount required to implement the project is contributed by Olam (30%), CBN (25%), UBA (25%) and the farmers (20%). The Trust Fund is managed by the participating commercial bank, UBA, and the loan given out to the farmers attracts 17% interest rate. Farmers who repay promptly are to enjoy a 6% subsidy which is provided by the CBN. Olam and USAID perform similar functions as in the case of the TSM, the Kwara State Government facilitates the provision of fertilizer while NASC is responsible for seed certification. The total loan package under the project is ₦55,000 per hectare and the area covered is 750 hectares. The seed procured by Olam from this project is supplied to out-growers in other CF projects in other states.

There is yet another variant of the rice CF model known as the Extension Support Model (ESM) for rice out-growers in Niger State. This is essentially an extension programme initiated by USAID MARKETS and supported by Olam. Other partners include IFDC, Nassara Multipurpose Cooperative as well as Candel which provides inputs on cash and carry basis and FITSCO which provides rice (technology) kits also on cash-and-carry basis. The programme involves the management of 10 demonstration plots, organization of training of trainers (capacity building) workshops for 500 lead farmers and organization of field days for farmers. There is buying back agreement between Olam and the farmers.

2.3.4 The Soybean CF Model

Soybean CF in Nigeria involves centralized and multipartite models. Companies that process soybean and market the products (Nestle Nigeria Plc and Slabmark Nigeria Ltd) link up with farmers for the production of the required soybean. The multipartite nature of the contract manifests in the way the firms secure the linkage with farmers and in the roles performed by intermediaries in the implementation of the contract. The linkage between Nestle and the soybean farmers is through the Oyo State Agricultural Development Programme (OYSADEP) and the University of Agriculture, Abeokuta (UNAAB). The OYSADEP also serves as an intermediary in the linkage between Slabmark and the farmers. Whereas the Nestle CF model can be described as a market specification contract, the Slabmark model is a resource-providing contract. The Nestle model started in 2004 whereas the involvement of Slabmark in contract farming in the Southwest is a much more recent phenomenon taking full effect during the 2008 production season.

2.3.5 The Tobacco CF Model

The tobacco contract farming model is basically a centralized type. The British American Tobacco Iseyin Agronomy Ltd (BATIAL) is a subsidiary of the British American Tobacco (BAT) Nigeria Ltd which deals with the processing of tobacco in Nigeria. BATIAL is involved with the implementation of the tobacco CF programme in South-west Nigeria. Basically, under the tobacco CF arrangement, farmers are registered and contracted to produce tobacco and sell only to BATIAL. The company started operations in September 2003 as a subsidiary of BAT Nigeria Ltd which was incorporated in July 11th, 2000 and subsequently merged with the Nigerian Tobacco Company (NTC) plc in November of the same year. BATIAL is a company using tobacco leaf as raw material. There are no independent tobacco producers in Nigeria, so the company caused tobacco to be produced. BATIAL is involved in contract farming to ensure sustainable supply of raw material and contribute towards agricultural development in its area of operation.

2.4 Governance of the Contractual Relationships

2.4.1 Governance of the Cotton Contract Farming

Design of Cotton Contracts

Since 1995, farmers sold seed cotton to agents and the agents sold to licensed buying agents (LBAs) while the LBAs sold to Olam. By 2000, Olam started selling seeds to farmers for planting at subsidized rate of 30% in Gombe, Funtua and Gusau buying zones. During the year, 1000 farmers were covered across the zones. Between 2001 and 2003 an average of 3000 bags of cotton seed (40 kg/bag) were sold to farmers at an average of one bag per hectare. Between 2004 and 2005 this increased to 4000 bags yearly. In 2006, however, the subsidy on seeds was stopped as Olam started the Farmers Out-growers Programme (FOP) which has an in-built credit component. Farmers were selected by procurement officers from the major buying villages (Kakuni, Guga, Malumfashi, Kankara and Kafur) to participate in the programme. About 500 ha were covered at an average of 2 ha per farmer. About 600 bags (40 kg/bag) of cotton seed were given out as loans to the farmers during the year. Farmers came to buy the seeds at the village nearest to them. During the buying season, Olam had to buy back but some farmers paid back in cash.

In 2007/2008 production season, Olam gave out insecticide (cypermetrin) free of charge to cover the 500 ha. Also 600 bags of seeds were given out as loans to the farmers but only in Funtua zone. In giving out the loans Olam expects that the farmers will realize higher yields and with increased production, they will be in a position to increase their sales to the firm. Usually the farmers can also obtain loans from other sources for the purpose of purchasing other inputs (e.g. fertilizer). This implies that only a fraction of

the farmers' output can actually be sold directly to Olam to repay their loans. Thus, if Olam expects to buy the whole output of farmers, total loan support is advisable. In this regard, the loan should be extended beyond seeds to cover other inputs such as fertilizer, herbicide and pesticide. Seeds were given out on loan around May ending in 2007.

Usually, planting of cotton is carried out between June and August while harvesting begins in October and continues till December. Pesticides were also distributed to farmers free of charge. There is buy back of produce up to 80 percent of the loan amount while 20 percent is more or less written off. In terms of loan disbursement, 80 percent is distributed directly to the farmers while the remaining 20 percent is disbursed through the LBAs to the farmers. During repayment, farmers had to bring their produce to the Olam office in Funtua. Some LBAs insisted that they would participate in the loan disbursement so as to secure some assistance from Olam and curry favour from the farmers during the sale of seed cotton. The participation of LBAs may also be a disadvantage because no one is sure that the seeds will be fully disbursed (if at all) to the farmers. Under the FOP, 600 farmers were identified in 2008 and categorized into various groups under appointed group leaders. Plans are underway to give loans for pesticides and sell fertilizers to the farmers at 20 percent subsidy. The second form of linkage is the Cotton Extension Scheme under which cotton seeds are distributed to farmers at 15 percent subsidy. It is estimated that 250 tonnes (i.e. about 6000 bags at 40 kg per bag) of seeds will be distributed to about 2000 farmers.

Rationale for Linkage Between Olam and Cotton Farmers

Olam has 3 methods of procuring seed cotton for processing and export (i) purchase from LBAs (merchants), (ii) purchase from farmers and (iii) purchase from sub-agents. In terms of coverage, Olam operates in three zones – Funtua and Gusau in the Northwest and Gombe in the Northeast. The number of LBAs supplying seed cotton to Olam has been increasing; from a total of 90 in 2004 to more than triple (285) in 2008 with the highest concentration in the Funtua zone (see Fig. 2). Olam started with LBAs; but it was realized that they often engaged in unwholesome practices such as hoarding of products (an LBA can hold about 5,000 tonnes of cotton) and arbitrary increase in prices. The LBAs were also found to be involved in the adulteration of seed cotton. Moreover, after receiving the procurement advances from Olam, LBAs are fond of hoarding cotton, create artificial scarcity and thus offer the firm higher prices. By so doing, they hold the firm to ransom since there is nothing it can do to recover the money being held by the LBAs. As from October 2007 to May 2008, Olam has over ₦60 million outstanding credit which the LBAs have not been able to repay (Table 2.4). Sometimes they may even force Olam to receive bad quality seed cotton on the argument that they could not find any better quality. The LBAs are equating procurement advances to political largesse and so deliberately refuse to comply with agreements. They are also fond of influencing the judicial process and bring any lawsuits against them to a deadlock. With this experience, Olam started to adopt the second and third approaches since 2000.

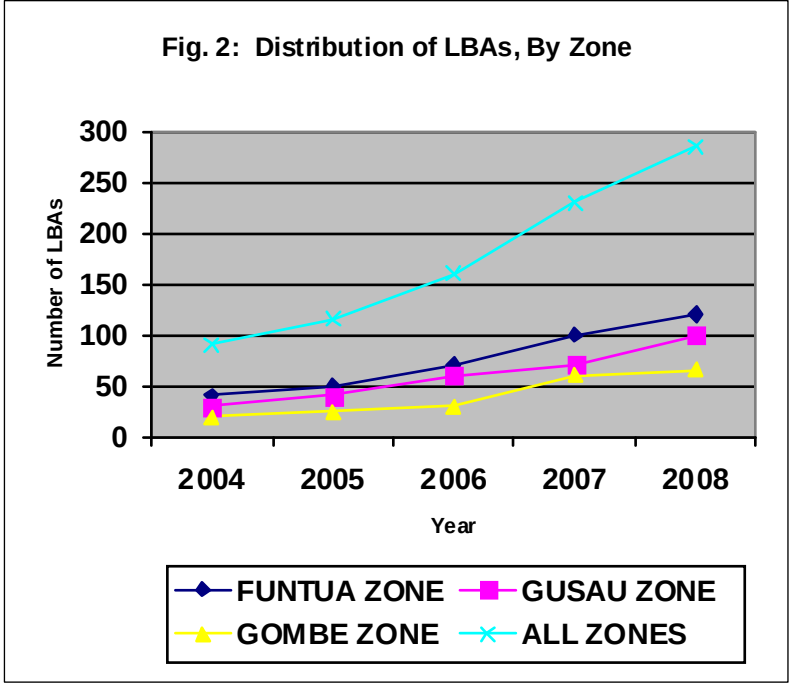


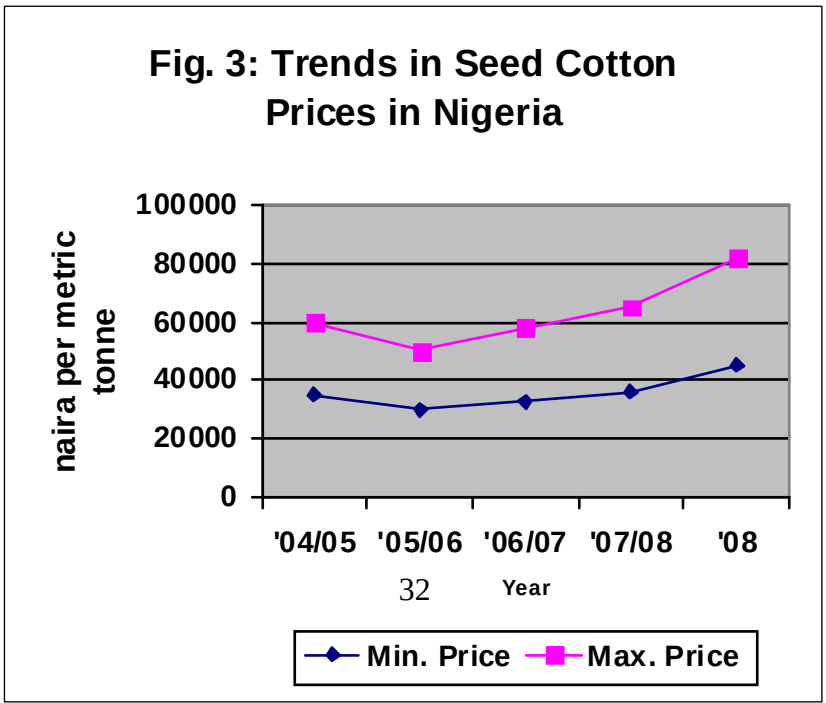
Table 2.4: Cumulative Loans Outstanding With LBAs, By Zone

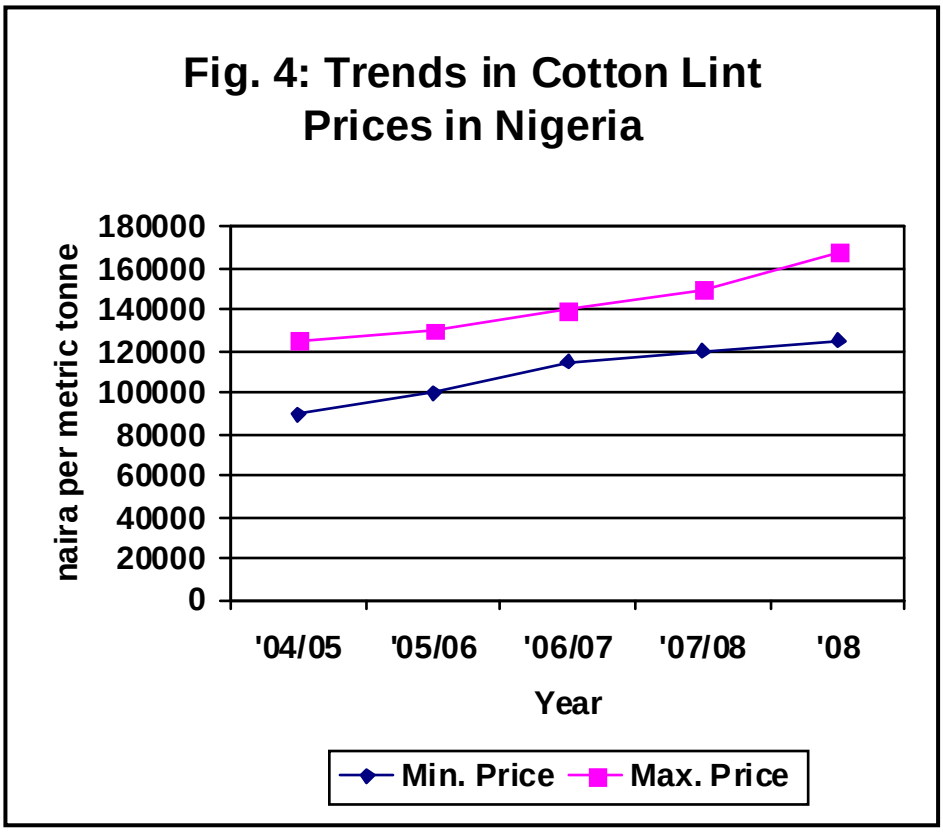
Year	Funtua Zone (₦million)	Gusau Zone (₦million)	Gombe Zone (₦million)	ALL Zones (₦million)
2004	10	8	4	22
2005	15	10	5	30
2006	20	17	7	44
2007	30	25	10	65
2008	32	27	12	71

Source: Olam's Office, Dakace, Zaria, Kaduna State

Cotton Pricing Mechanism

Product prices are not pre-determined before harvest. Olam had to inform the farmers that they would be paid the prevailing market price during buy back. There is no formal agreement signed by both parties. Ledgers were opened for identification purposes and farmers were required to deliver seed cotton to the nearest Olam's warehouse. Cotton prices have maintained an upward trend since 2005. The minimum price per metric tonne of seed cotton rose from ₦30,000 in 2005 to ₦45,000 in 2008 while the maximum price increased from ₦50,000 to ₦82,000 (Fig. 3). The minimum price of cotton lint trended upwards from ₦90,000 in 2004 to ₦125,000 in 2008 while the maximum price increased from ₦125,000 to ₦150,000 during the same period (Fig. 4). The rising prices of the commodities continue to be an incentive for both the farmers and the processing company (Olam) to continue their participation in the cotton CF.





The Role of Intermediaries

The Licensed Buying Agents (LBAs) serve as intermediaries as far as cotton business linkages are concerned. The role of the LBAs is to buy cotton from farmers and agents and supply to Olam. Usually, Olam advanced some funds to the LBAs who supply cotton at a later date and received commission for their services (see Table 2.5). The amount advanced depends on the buying capacity of the LBAs.

Table 2.5: Rates of Commission Offered by Olam to Suppliers

YEAR	LBAs (₦/MT)	SUB-AGENTS (₦/MT)
2004	4,000	2,000
2005	4,500	2,000
2006	5,000	3,000

2007	6,000	4,000

Source: Olam's Office, Dakace, Zaria, Kaduna State

Major Risks Associated with the Cotton Contract Farming

(i) Financial Risks. Olam provides funds to LBAs in advance and if cotton is not supplied it can lead to great financial loss.

(ii) Price Risk. Olam agrees with LBAs at a price initially. But if price increases Olam must buy at that prevailing price. This will have adverse effect on profitability.

(iii) Quality Risk. The LBAs deliberately mix sand, stone, water etc. with the cotton they supply. There is also the risk of polypropylene contamination (which manifest in the form of cotton strands of various colours) arising from the poor quality bags used by farmers and suppliers. Contract farming can be the solution to this problem. In which case Olam can take trailers to farms and load seed cotton directly and bring to the office premises for bagging.

2.4.2 Governance of the Ginger Contract Farming

Design of Ginger Contracts

Olam has been buying and exporting ginger in Nigeria since 2003. The company has 3 warehouses in Kaduna State. They are located in Kwoi in Jaba LGA, Kachia in Kachia LGA and Kafanchan in Jemma LGA. Olam is purchasing ginger from local Licensed Buying Agents (LBAs) and local farmers. As at April 2008 there were 20 LBAs selected from Kwoi (10), Kachia (6) and Kafanchan (4). The farmers were selected from 5 villages (Nok, Chori, Sambam-Gida, Sambam-Daji and Daddu) in Jaba LGA and 2 villages (Gumel and Mazugal) in Kachia LGA for experiment in ginger farming. The objective is to boost ginger production and improve quality. The District Head and the Village Heads were contacted before farmers were selected and they provided necessary assistance in mobilizing the farmers. Olam officials held meetings with the farmers in their various locations and advised them to organize themselves into groups. Group leaders were thereafter selected to serve as link between Olam and the farmers. Registration involved the issuance of number, code and identity cards with photographs to each farmer. Farmers are registered on individual basis, but they are classified into groups on the basis of their locations within the villages for ease of administration. A group leader is then assigned to represent the interest of farmers in each group. The assigned group leaders gather members' products (especially those in small quantities) together and bring to Olam's premises where such products are sorted, weighed and paid for. The leaders convey important marketing and other information to farmers and give Olam feedback on the problems of the farmers which deserve immediate attention of Olam. Besides, the leaders serve as witnesses in the marketing transactions to ensure that the farmers are not cheated.

Moreover, farmers are also being involved in the marketing transactions to ensure further injection or re-investment of capital into agriculture. There is no guarantee that the LBAs will invest their profit in agriculture. Although participation of LBAs may enhance non-farm employment opportunities and help diversify the economy of the area. The firm provides the LBAs with funds to carry out procurement of ginger from the local markets. As middlemen, the LBAs buy from both the local markets and directly from farmers. For the advances extended to the LBAs by Olam, they provide collaterals ranging from vehicles, motor cycles, landed property and household electronic equipment. The amount advanced depends on the value of collateral provided by the LBAs.

Ginger Pricing Mechanism

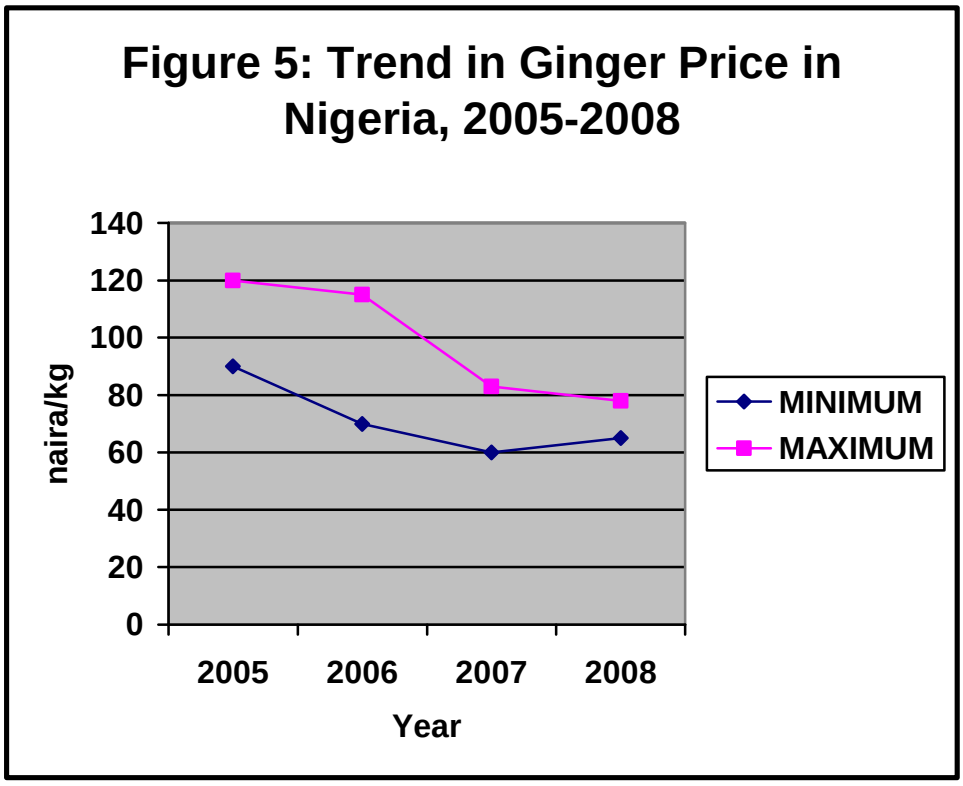
Olam considers international price trend in determining the price to be paid for the ginger procured in the area. Within a year there is usually considerable price variation;

with the gap between the minimum and maximum price ranging from 20 to 64 percent during the period 2005 to 2008 (see Table 2.6). The price has not provided the desired incentive for increased ginger production in the area. The minimum price declined from ₦90/kg in 2005 to ₦65/kg in 2008 while the maximum price fell annually from ₦120/kg to ₦78/kg during the same period (see Fig.5)

Table 2.6: Trend in Ginger Price Under the Olam's Purchasing Arrangement

Year	Minimum Price ₦/Kg	Maximum Price ₦/Kg	Price Gap (%)
2005	90	120	33.30
2006	70	115	64.28
2007	60	83	38.33
2008	65	78	20.00

Source: Olam's Office, Kwoi in Kaduna State



2.4.3 Governance of the Rice Contract Farming

Design of Rice Contracts

Basically Olam is a trading company in agricultural commodities all over the world. Its engagement in rice CF is a kind of backward integration to ensure a regular source of raw material for its rice mill and to enhance farmers' productivity and profitability. It is also embarked upon as part of the company's corporate social responsibility. The contracting procedure is by registering interested farmers. Registration of farmers is on an annual basis. Farmers are registered as groups – cooperative societies. As at 2007, Olam operated with 72 cooperative groups with group members ranging from 30 to 120. Usually, Olam appoints a coordinator to manage the groups and there can be between 13 to 20 groups under each coordinator. The coordinator signs contract agreement on behalf of Olam while group leaders sign on behalf of the members. The coordinator reports directly to the project manager. The contract hinges specifically on input supply and buy-back of paddy. In Benue State, Olam operates in 7 LGAs namely, Guma, Makurdi, Gwer West, Gwer, Otukpo, Tarka and Gboko.

Rice Pricing Mechanism

There is a price committee consisting of group leaders and coordinators. They move around markets in Benue State and outside and analyse the market prices and unanimously take a decision as to what should be the price of the paddy for that period. Their decision is presented before Olam management for approval. Olam management compares feedback from price networks within the country with the price placed before it and approves accordingly. The management consists of the General Manager, the Product Head in charge of rice (who is in the Lagos Office) and the Project Manager. There can be variations in the prices received by farmers based on the quality of paddy. The degree of admixture (of long grain and short grain e.g FARO 44 and TON 2) is the quality criterion which is often applied to differentiate prices. Variation in moisture content does not affect pricing. Further drying of paddy can be carried out at the factory if need be.

The prices of both paddy and milled rice have been rising steadily since 2005 as shown in Tables 2.7 and 2.8 implying that the farmers and Olam faced the right price signal for increased production over the years. In recent times, however, the increase in the price of milled rice produced by Olam is far more encouraging than the farm gate price of paddy (see Figures 6 and 7).

Table 2.7: Trend in Price of Milled Lobi Rice

Type of Bags	2005	2006	2007	2008	
				Market Price (₦)	Staff Price* (₦)
5 kg				550	525
10 kg				1200	1000
25 kg				3500	2500
50 kg	3600	4400	5400	6800	5000

Source: Olam Office, Makurdi, Benue State, Nigeria
*With effect from March 25th, 2008.

Table 2.8: Comparison of Paddy and Milled Rice Prices ₦/MT

Type of Rice	2007	2008
Paddy	42,500	50,000*
Milled Rice	108,000	136,000

Source: Olam Office, Makurdi, Benue State, Nigeria
*With effect from March 31st, 2008.

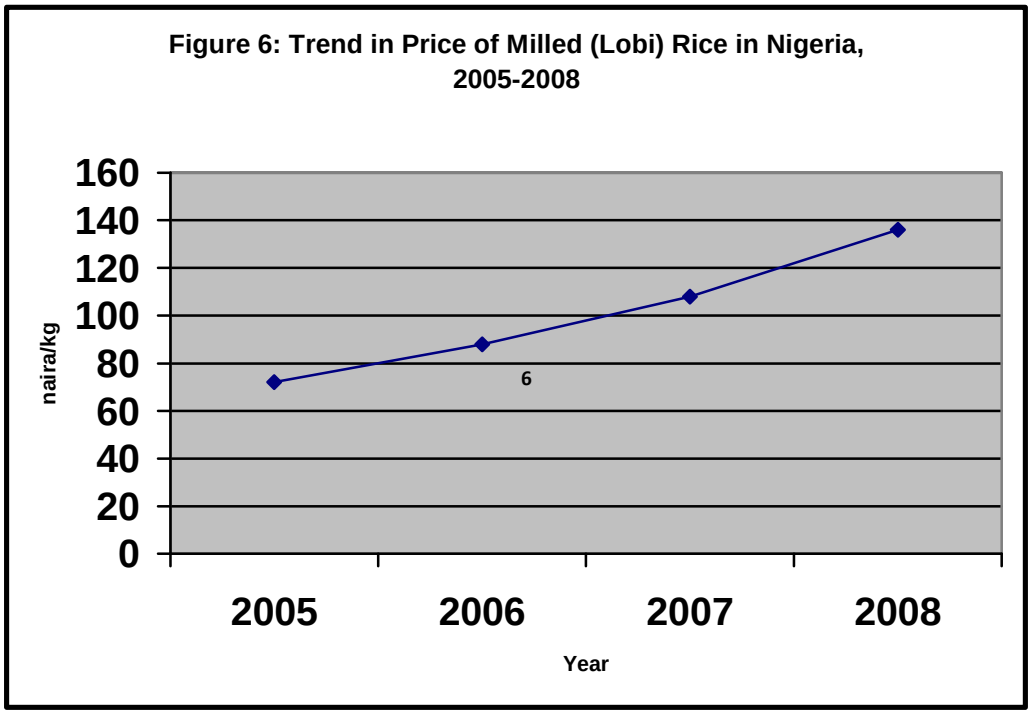


Figure 6: Trend in Price of Milled (Lobi) Rice in Nigeria, 2005-2008
160
140
120
100
80
60
40
20
0
naira/kg
6
2005
2006
2007
2008
Year

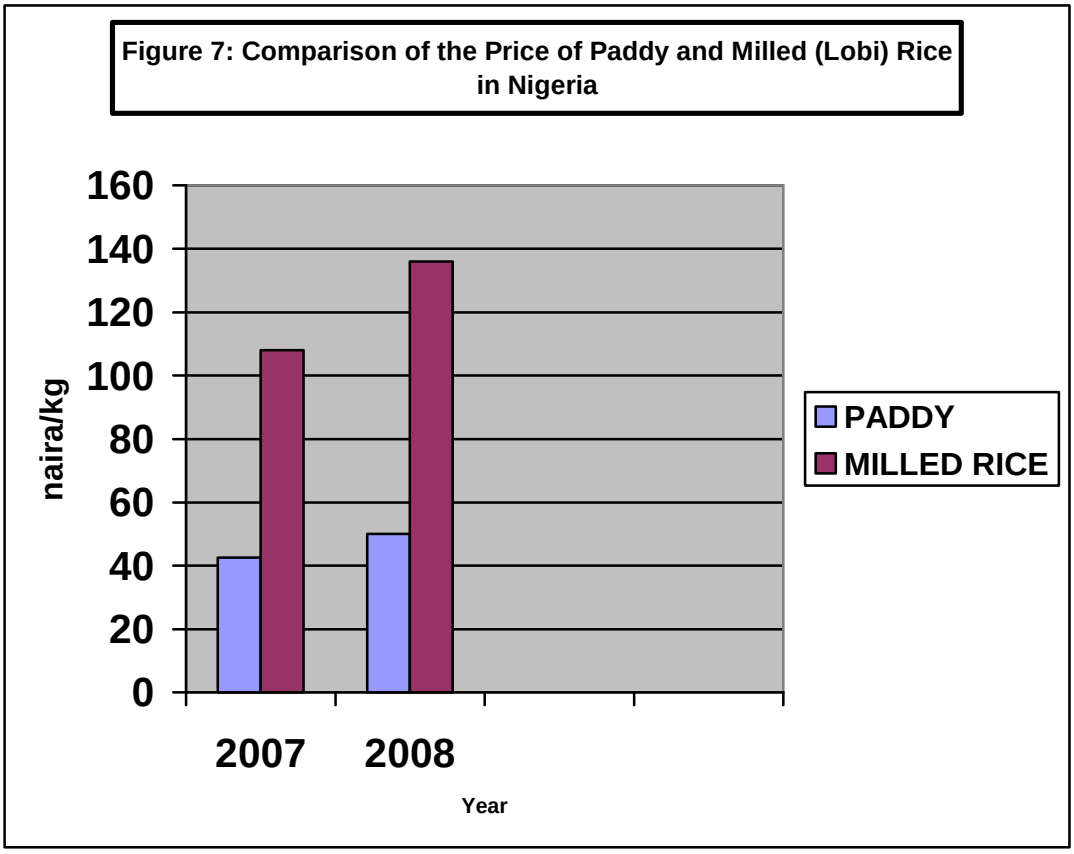


Figure 7: Comparison of the Price of Paddy and Milled (Lobi) Rice in Nigeria
160
140
120
100
80
60
40
20
0
naira/kg
2007
2008
Year
PADDY
MILLED RICE

Major Risks and Risk Sharing Mechanisms

There are two important risk areas associated with the rice CF: (a) Financial risk and (b) Commodity risk. With regard to the financial risk, note that the contract involves input supply as credit in-kind and there is need to intensify loan recovery efforts to sustain the system. Our loan recovery experience ranges from 50 to 90 percent. At the current level of funding the risk appears to be manageable but if there is expansion of the programme to cover a larger number of rice farmers, the money involved will be too large for Olam to provide. Provision of any amount larger than what is currently being provided will imply moving into the high risk area because of the uncertainty in recovering such a large amount. For example, for 6000 farmers in 2007, the amount involved was about ₦170 million. If the number of farmers is expanded to 10,000 in 2008 as being planned, the volume of money goes to ₦300,000 million and this is a great risk. For this reason, it is only in Benue that Olam has a total support model for the contract engagement. Different models have to be adopted in the case of Kwara and Niger states.

The commodity risk is inherent in the buy-back system. All the inputs supplied remain with the farmers right from the beginning of farm operations when they have to be supplied as a package. The final products which are supposed to be given to Olam is also under the control of the farmers and remain with them until they decide to bring to Olam. There lies the commodity risk. Unless farmers bring the produce to Olam, the possibility of total loss of the investment involved is quite high. Invariably, effective monitoring of groups through the group leaders and buy-back of the produce at the prevailing market price are key instruments being employed to ensure that rice farmers will not sell in other markets but bring the produce to Olam. The major risk sharing mechanisms are as follows.

Establishment of Model Farms. To produce good quality seeds for distribution to the farmers and to serve as demonstration plots during field days for the training of farmers. This includes the green stage training otherwise known as the in-season training and the brown stage training during which farmers are taught Good Agricultural Practices. At the green stage, cultivation practices such as land preparation, planting, weeding and plant protection measures are taught. At the brown stage attention is focused on pre-and post harvest practices, bird scaring and proper harvesting methods. There is training of trainers workshop (TOT) for the group leaders who are to embark on training of farmers in addition to the Field Days organized for the farmers.

Provision of Buy-Back Incentives. Olam provides bags and tractors for transportation and some money for bagging, stitching and security. The group leaders report to coordinators, collect tractor and go to the villages to convey the produce and bring to Olam's rice mill in Makurdi. Thereafter the paddy goes for milling. They are finally packaged into 5kg, 10kg, 25kg and 50kg bags. Olam provides the following incentives.

- 10 empty bags per MT at no cost
- ₦650/MT towards loading and delivery expenses
- bear the cost of transportation of the paddy from farmers' villages to the mill –about ₦4000/MT
- Olam ensures that payment is made in full within 24 hours of receipt of paddy at the mill. If the bags weigh more than 100 kg (which is the standard package for paddy), there is additional proportional payment for the excess quantity.

Provision of Insurance Facilities. Olam ensures that the out-growers farms were insured with NAIC in 2007. The premium paid is 3% of total cost of cultivation for the 6000 ha. Cost of production was estimated at ₦55,000 per ha. The crop cycle is from May to December but the actual gestation period is from 90 to 120 days for the FARO 44 and 52 varieties. In the case of any damage during the production year, compensation is limited to the proportional cost incurred up to that particular stage in the production process. There were reports of flood damage from 140 rice farmers in 2007. A sum of

₦4.7 million has been claimed by Olam as compensation from NAIC. This will be paid to the affected farmers after the buy-back exercise is over around May 2008. If farmers default in their loan repayment the claim amount due to the farmers concerned can be used to partly offset the loans.

2.4.4 Governance of the Soybean Contract Farming

Design of Soybean Contracts

During the period of ONADEP, soybean was introduced to Oyo North by IAR&T. Farmers cultivated the crop on small-scale basis in the form of on-farm trials. Following its adoption, some farmers started planting the crops on their farms. However, there was not enough market to absorb the production. Under the Women in Agriculture (WIA) programme of the ADP, efforts were made to popularize the consumption and use of soybean for soya-cheese, soy-ogi, soya-milk and so on. Invariably production was in excess of demand and the need arose to seek out marketing opportunities outside the ONADEP area. The ONADEP seed manager therefore, visited Nestle in 1998/99 to establish marketing contact so that the company can buy excess soybean from the farmers. Nestle gave the varieties they wanted as well as quality specifications of grains desired in terms of size, milk content etc. The first purchase by the company was in 2000. The extension agents who have information about the farmers who grow soybean on a continuous basis and who have demonstrated good performance, were involved in the identification and selection of farmers for participation in the supply of soybean. In 2007, there was no sale to Nestle because many of the farmers sold their product as seeds which commanded higher prices than grains which the company required. There was competition for soybean for livestock feed and human consumption. In 2008, Nestle offered ₦74,000 per tonne but the farmers were supposed to receive ₦64,000. But there are other buyers who are ready to pay the farmers more than this price so, the farmers may not be interested in selling to Nestle. Besides, for other buyers, the arrangement is more or less on "cash and carry" basis whereas in the case of Nestle, payment often takes quite some time.

Soybean Pricing Mechanism and negotiation process

The marketing manager of Nestle met with the Director of Technical Services and the Seed Manager of the Oyo State Agricultural Development Programme (OYSADEP) for negotiation and agreement on price. The price was reviewed yearly depending on the demand by Nestle, quantity required from the OYSADEP farmers and ability of the farmers to supply. The OYSADEP offered prices based on cost of production and transportation. For instance in 2006, the asking price was ₦70,000 per tonne while after negotiation the agreed price was ₦65,000 per tonne. After the agreement on price Nestle would issue an LPO.

The Role of Intermediaries in Soybean CF

In general, since 2000 the OYSADEP has been serving as intermediary and has not disappointed Nestle. However, as from 2004, UNAAB came into the picture and started to operate as an intermediary between Nestle and the farmers. The entry of UNAAB is supposed to create a better image for the OYSADEP and to ensure that farmers remain in production so that they can supply Nestle on a continuous basis. However, the farmers have confidence in OYSADEP which is greatly trusted in all parts of the state. The functions of OYSADEP in the marketing arrangement are as follows.

- Allocation of hectarages for soybean cultivation to farmers
- Monitoring of farmers production from planting to harvesting
- Provision of shelling services which farmers pay for
- Provision of cleaning, sieving and physical quality improving services (stones and dirts)
- handling of bagging and weighing (usually in 50 kg bags)

- payment of individual farmers by issuing cheques
- Collection of farmers produce from zones to the Headquarters preparatory to supply to Nestle
- Supply direct to Nestle in Ota Warehouse from OYSADEP Silo in Shaki

Design of Contract in respect of Slabmark's Soybean CF
Officials of SLABMARK came to OYSADEP Shaki in June to explore the possibility of having contractual relationship with soybean farmers in the area. There mission was prompted by the inability of SLABMARK to produce at full capacity resulting mainly from inadequate supply of soybean. The firm requires about 70-100 tonnes of soybean per day. SLABMARK met with OYSADEP officials and found out the problems militating against continuous production of soybean in the area and what the farmers would need to stay in business. In general, problems identified were (a) non-availability of tractors for mechanized production, (b) inadequate supply of modern inputs, (c) lack of finance, (d) lack of processing facilities and (e) lack of market for soybean.

The company therefore, decided to embark on a resource-providing CF that will address these problems. The OYSADEP is to serve as intermediary to perform the following functions: (a) mobilize the farmers and serve as link between them and SLABMARK, (b) supervise the seed multiplication aspect of the CF arrangement, (c) conduct training in farm management practices for the soybean farmers and mobilize its extension agents to participate in the buy-back of products and facilitate recovery of loans. The farmers were registered under an umbrella organization known as the Apex NAPEP Multipurpose Cooperative Society Shaki West Branch. This organization, on behalf of the farmers, signed an agreement for the soybean CF with SLABMARK.

2.4.5 Governance of the Tobacco Contract Farming

Design of Tobacco Contracts
The contracting procedure is by registering interested farmers. Registration of farmers is on an annual basis. The criteria for registration are physical presence in the farming village (no absentee farmer), ownership of land and farming experience. For the identification and selection of farmers, visits are usually made to the villages for registration of farmers; and existing farmers also circulate information within their communities. BATIAL recruits willing farmers of the right attitudes and who have access to land in the areas where the company wants to operate. It enters into agreement in respect of hectarage to be cultivated, financial support, loan repayment, marketing of produce and payment of proceeds from sales. Usually, agreement is for one growing season but this is renewable. About 80% of the farmers who started the contract scheme continue to renew their participation. Some farmers started originally with the defunct NTC about 20 years ago. But resumed with BAT in 2000 when the firm came round.

The land area to cultivate depends on each farmer's ability and this determines the level of support. BATIAL has extension agents who reside in farmers locations and monitor their activities to ensure good result at the end. Operations fall within 8 LGAs in Oyo North in about 23 main villages. Loans given to farmers are in both cash and kind. But no interest is charged whatsoever. The in-kind loans are in form of fertilizer, flue pipes, iron sheets for barn construction and agrochemicals (insecticides such as KARATE and pre-emergence herbicides which serve as growth regulator). The contract agreement contains the company's commitment especially the quantity of output of farmers that must be purchased. If excess is declared by any farmer, the company is ready to absorb it. Such excess has never been refused whenever it occurs. And when farmers cannot meet their target, no penalty has ever been imposed, because it is characteristic of agricultural production and this is usually understood. The contract agreement is

prepared by the Legal Department of BAT. In a year, cases of breach is less than 1% and this may be due to death or sickness.

A ledger is opened for each farmer for proper record keeping at the company level. All the loans given out are debited into the farmers' accounts. When they start bringing tobacco for sale to the company the amount paid is credited into their account. Once the loan is offset, further sales belong to the farmer. Statements of accounts are printed and sent to the farmers on quarterly basis.

Tobacco Pricing Mechanism and Negotiation Process

The price at which BATIL will purchase farmers' output is usually a subject of discussion and negotiation based on trend in the tobacco industry. The previous year's price, the prices of materials (inputs) to be supplied by BATIAL are also considered. The global tobacco price situation and its implications for local operations are also examined. The agreed prices are printed and distributed to farmers after the discussions and before the commencement of farming operations. Note that the materials supplied by the company to the farmers are at cost (BATIAL makes no profit from such supply). The farmers produce tobacco, cure it and present to BATIAL for sale. Purchase is made based on agreed grades and prices. There is no price variation after agreement is signed. The farmer is guaranteed a reasonable level of return on his investment.

The farmers were allowed to actively participate in the negotiations leading to an agreement of a particular price for their product at the end of the production season. For this purpose, the farmers organized themselves into the Nigerian Independent Tobacco Growers Association (NITGA). Key officers of this association opened discussions with BATIAL. Later representatives of growers in each village go to BATIAL in Isheyin to discuss. According to a top official of BATIAL in Isheyin, "Sometimes, negotiations can stall operations. But now farmers are becoming more understanding. There is competition from imports. Unending price increase is therefore not the answer to increased profitability; rather the answer lies in increased productivity. Currently, the average yield is about 1.4 tons/ha instead 1.6-1.8 tons/ha. The range is between 1.35-2.5 tons/ha. The 2008 negotiation resulted in 3% increase over the 2007 price". The price trend is presented in Table 2.9.

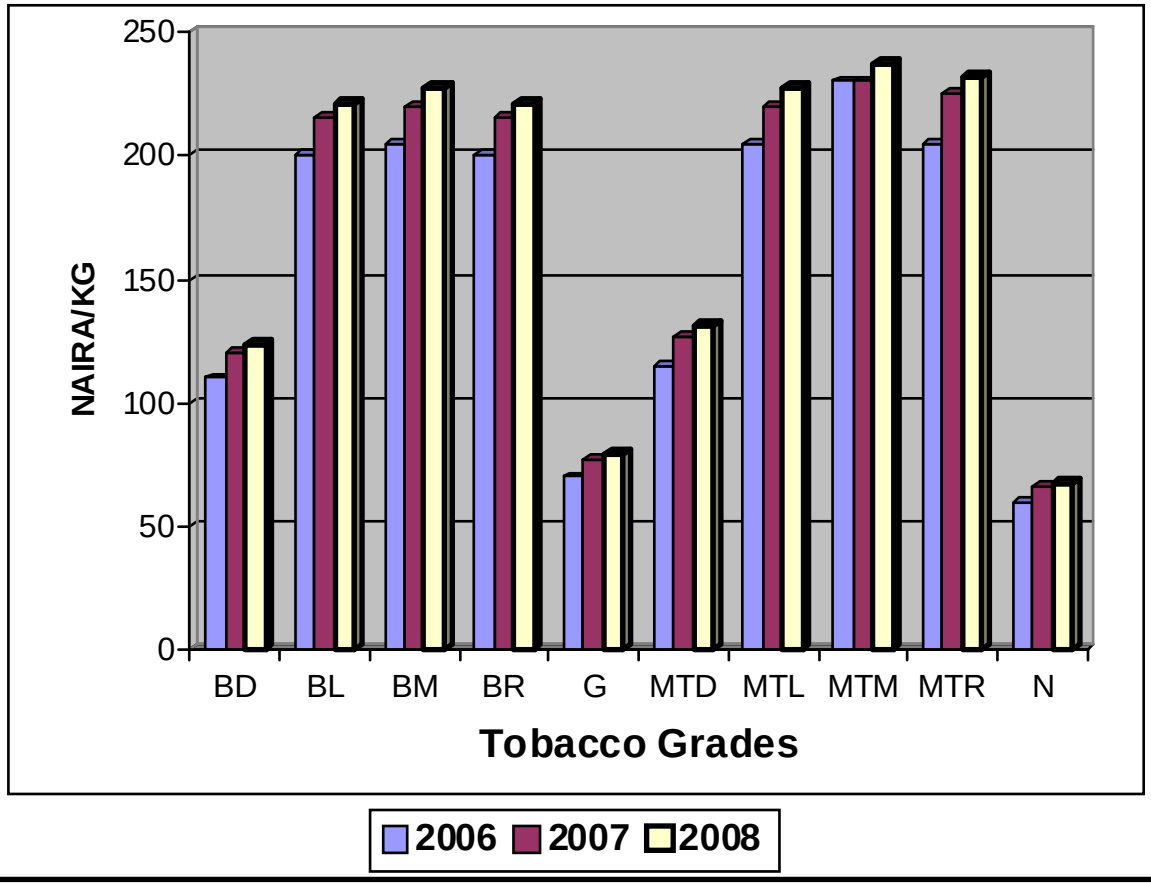
Table 2.9: Trends in Tobacco Prices in Nigeria (₦/Kg), 2006-2008

GRADES	DESCRIPTION	2006	2007	2008
BD	Bottom Dark	110	120	123.6
BL	Bottom Lemon	200	215	221.45
BM	Bottom Mature	205	220	226.6
BR	Bottom Ripe	200	215	221.45
G	Green	70	77	79.31
MTD	Middle to Top Dark	115	127	130.81
MTL	Middle to Top Lemon	205	220	226.6
MTM	Middle to Top Mature	230	230	236.9
MTR	Middle to Top Ripe	205	225	231.75
N	Non-descript	60	66	67.98
TM	Top Mature	250		

The available grades can be classified into three price categories – low, medium and high. The highest number of grades (BL, BM, BR, MTL, MTM, MTR) are in the high price category whereas two each are in the medium price category (BD and MTD) and low price category (G and N) (see Fig. 8). Between 2006 and 2008, the price increase associated with tobacco in the high price category seemed to be the most pronounced compared to the other categories. For instance, for tobacco in grade MTR, the price increased from ₦205 in 2006 to ₦232 in 2008 compared to an increase from ₦110 to

₦124 for BD and from ₦60 to ₦68 for tobacco in grade N during the same period. Thus, if a farmer performs so well on the basis of quality and meet the specifications in the high price category there is the tendency for such a farmer to be among those who would benefit most from the tobacco price increases between 2006 and 2008.

Figure 8: Trends in Tobacco Prices in Nigeria, By Grades



Major Risks and Risk Sharing Mechanisms

The major risk faced by BATIAL is the risk inherent in committing huge funds in providing credit to tobacco farmers. If there is crop failure or any misfortune that prevents repayment of the loan, the financial loss will be colossal. In the light of the foregoing, the following measures have been adopted to serve as incentives to engender high recovery rate and sustained farmers' interest in the programme.

Commission on total sales, baling bonus and incentive for early operations

The average price paid to farmers consists of 10% commission on total sales, baling bonus and incentive bonus for early commencement of operation. The incentive ranges from ₦1.5 per kg to ₦3.0/kg. For the first month of operation and bringing products forward for sale, the bonus is ₦3.0 kg this declines to ₦1.5/kg as the buying season progresses. These four components of the average price were being computed for

individual farmers in the past. In 2007, however, it was decided that the components should be collapsed and the average price paid to each farmer without any distinction on the basis of each of the components. This is because the process was found to be too laborious, time consuming and expensive. This collapse does not change the average price agreed with the farmer; but this is what is being erroneously interpreted as the cessation of the incentive policy. Indeed, not all the farmers are entitled to the incentive bonus. Only those who enter the market early enough will benefit. Encouraging them to enter the market early enough also implies they have to be very timely at every stage of the production cycle; and timeliness also implies increased productivity. The productivity gain is even far more rewarding to each farmer than the incentive bonus.

Zero interest rate on loans. BATIAL does not charge interest rate for the credit extended to the contract farmers (both cash and in-kind credit). Loan repayment comes from the tobacco proceeds and whatever is left is paid to the farmers through their bank accounts.

Productivity Award
Annually between 2004 and 2006, BATIAL organized farmers' productivity award ceremony during which three best farmers were rewarded in each of the five tobacco growing areas while the star price was awarded to the overall best farmer. The criteria for the selection of award winners are total production, yield and average price (which is an indicator of quality) and number of trees planted by the farmer.

Support for sustainable tobacco production
In the 1990s BATIAL established wood lots to ensure sustainable tobacco production and renewability of the natural environment in which tobacco production takes place. Specifically, in 1990 a tree plantation of 710 ha was established along Isheyin Okeho road, while in 1992 another plantation of about 450 ha was established along Shaki-Ogboro road. The plantations consist of gmelina and eucalyptus species. Moreover, each farmer is expected to plant a minimum of 100 trees for a period of between 8 and 10 years in order for him to be self-sufficient in firewood required for curing tobacco and in order to protect the natural environment.

The analysis of the governance structures reflect some variations and peculiarities which require some elucidation. The crops with a fairly long history of export trade (which are referred to here as export crops – cotton and ginger- witness the operation of Licensed Buying Agents (LBAs) whereas they are absent in the case of other crops. The involvement of the state is also uneven among the five crops. These variations can be understood within the context of the economic, political and social environment which has conditioned the production and marketing of the crops over the last two decades. The economic antecedent is particularly important. Prior to the inception of the Structural Adjustment Programme (SAP) in Nigeria, the marketing of agricultural commodities was handled by various Commodity Boards; notable among which were the Cotton and Grains Boards. A major economic policy at the inception of SAP in 1986 was the abolition of all the six Commodity Boards. Engagement of LBAs in the purchase of commodities (especially export commodities such as cotton) from farmers was a key aspect of the activities of the Boards. The liberalization of commodity export under SAP led to the involvement of agribusiness firms in the export trade which was before then monopolized by Commodity Boards. It is therefore, not surprising that Olam found the LBAs useful in procuring export commodities such as cotton and ginger when the company entered the export trade in the mid-1990s ostensibly on account of their experience and social networks already established with cotton and ginger producers in the northern part of the country. The involvement of LBAs in cotton and ginger contract farming arrangements can therefore, be seen as an evolution of institutional linkage in commodity marketing system in which LBAs have been found to have played a critical role in the history of cotton production and marketing in the study area.

Of the remaining crops, rice and soybean are food crops which have not at any time in the past witnessed an organized involvement of LBAs with policy support and regulation that can be compared to export commodities during the Commodity Board era. The dissolution of the Commodity Boards in Nigeria is tantamount to 'throwing away the baby with the bath water'. In the absence of the Boards, farmers continue to be shielded from the world market and remain unprotected in the face of frequent shocks arising from "normal sources" and from the operations of the market. Little wonder therefore, that the vigorous efforts on export promotion in the country have had little or no effect on poverty alleviation despite the market reforms. The Boards were hurriedly dismantled in the wake of the SAP without any thought of how their various functions would continue to be performed or what would have been the best strategy of transforming them into an effective instrument for managing volatile commodity markets and for ensuring favourable income growth for farmers. Of course, the protagonists of the Commodity Board dissolution at that time were not concerned about poverty reduction. With time, producer associations began to spring up to fill the gap created by the absence of Commodity Boards and in the absence of credible alternatives. The Rice Farmers Association of Nigerian (RIFAN) and National Cotton Producers Association of Nigeria (NACOTAN) are among the growers association working in the country to protect the interest of their members in the face of unfavourable policy actions and exploitative tendencies of exporters.

Perhaps there is no other crop production system in which activities of growers' association is expected to be more important than that of tobacco. Unlike the remaining crops all tobacco growers in the country operate under a contract farming arrangement. The value chain in the case of tobacco is far more developed in the country compared to the other crops in the sense that production of the tobacco leaf, processing and manufacture into various brands of cigarette for export take place within the country. In other words whereas other commodities are still being imported as raw materials for industries in other countries, the final export product from the tobacco industry is cigarette. The agribusiness firm involved in the tobacco contract farming designed their contractual relationships directly with farmers to have a win-win situation in which the tobacco growers are exposed to an assured market and alternative means of livelihood. The involvement of tobacco growers association is a way of ensuring transparency and compliance with the terms of the contract. Besides, the emergence of growers association as in the case of Tobacco seems to be filling a void or responding to market imperfections. The market is monopsonistic. BATIAL is the only buyer of tobacco leaf. The growers association therefore, is to strengthen the position of the producers in negotiating the payment of a fair price by the company

The uneven involvement of the state derives from the policy thrust of the government to encourage the private sector to be the leader as far as business and economic activities in the country are concerned while the state is to provide the enabling environment and play the role of a facilitator. It is in this regard that the limited involvement of the state in the cotton contract farming scheme should be understood and the entry of an agribusiness firm like Olam into the cotton industry after several years of abolishing the Cotton Board can be regarded as a welcome development. The involvement of the government in the rice contract seems to be greater than that of cotton on account of the food security stance of the government and the need to ensure increased production of rice while the import bill is considerably reduced. Nonetheless, government's involvement is limited to the facilitation of the provision of financial support and supply of fertilizer to enhance the productivity of the rice enterprises and overall success of the scheme. The involvement of the stage agency OYSADEP in the soybean contract derives from the need to enhance adoption of soybean technology in the study area, sustain farmers' interest and enhance the level of productivity and profitability. The agency provided agronomic advice to the smallholders and evaluated advice given to growers by the agribusiness firm over a number of years. OYSADEP acted as an intermediary between smallholders and agribusiness firms in negotiating contracts and facilitating

arrangements in contract soybean production. Its role also included contract evaluation, discussion with smallholders, liaison with the agribusiness firm, technical assistance and helping with purchases of farm inputs. It also provided links to credit sources and was actively involved in making and receiving payments.

The lack of involvement of the government in the tobacco contract farming scheme is also understandable. The world-wide campaign against smoking and operations of cigarette manufacturers is taken very seriously in Nigeria. As the campaign is being vigorously pursued in the country, government seems not to be willing to be involved in the promotion of tobacco production. The activity is therefore, left in the hands of private entrepreneurs whose operations can go on in line with the provisions of the law.

3 COMMODITY MARKET STRUCTURE AND PERFORMANCE OF CONTRACT FARMING

3.1 Structure of the Market for the Selected Commodities

3.1.1 Cotton Market Structure

The economic importance of cotton in many developing countries is significant especially in terms of its contribution to household income and national revenue. It contributed between 30 and 44 percent to total merchandize exports in 5 West African cotton-producing countries (Benin, Burkina Faso, Chad, Mali, Togo) during 1998-99. According to Baffes (2004), the corresponding figures for Uzbekistan, Tajikistan, and Turkmenistan were 32, 15, and 12 percent, respectively. Cotton's contribution to the GDP of these countries has been substantial, ranging between 3.6 percent (Turkmenistan) and 8.2 percent (Tajikistan). In Africa, cotton is typically a smallholder crop, it is grown in rain-fed land and the use of purchased inputs such as chemicals and fertilizers is minimal. The United Nations Food and Agriculture Organization (FAO) estimated that about 100 million rural households were involved in cotton production worldwide in 2001. Among the countries in which cotton is an important contributor to rural livelihoods are China, India, and Pakistan—where 45, 10, and 7 million rural households, respectively were engaged in cotton production. In Africa cotton producing countries, including Nigeria, Benin, Togo, Mali, and Zimbabwe, the number of rural households depending on cotton totaled 6 million. The cotton market has been exposed to considerable market interventions - subsidization in the US, EU, and China and taxation in Africa and Central Asia. In 2002, support to the cotton sector by major players reached almost $6 billion, more than one quarter of the global value of production (Baffes, 2004).

About 33 percent of cotton production is traded internationally. The four dominant cotton exporters—the United States, Uzbekistan, Francophone Africa, and Australia - account for more than two-thirds of world exports. Four major producers—China, India, Pakistan, and Turkey—import cotton to supply their textile industries. However, the eight largest importers account for more than half of world cotton imports. The four East Asian textile producers—Indonesia, Thailand, Taiwan, and Korea—accounted for 22 percent of world cotton imports in 2002, compared to just 3 percent in 1960. Real cotton prices have declined over the last two centuries, although with temporary spikes. The reasons for the long-term decline are similar to those characterizing most primary commodities: on the supply side reduced production costs due to technological improvements and on the demand side stagnant per capita consumption and competition from synthetic products. Reductions in the costs of production have been associated primarily with a doubling of yields, from 300 kilograms per hectare in the early 1960s to surpass 600 kilograms per hectare in 2000. The phenomenal growth in yield has been aided primarily by the introduction of improved varieties, expansion of irrigation and use of chemical fertilizers. Additional diffusion of GM varieties and precision farming, introduced during the 1990s, are expected to further reduce the costs of production (Baffes, 2004).

In Africa, while cotton production has been increasing steadily, just as export of the commodity has maintained an upward trend. However, due to the low level of development of the textile industry especially in West Africa, the level of consumption has been very low and there has been virtually no import. The consumption pattern of cotton is primarily determined by the size of the textile industries of the dominant cotton consumers. China, the leading textile producer, absorbed more than one-quarter of global cotton output during the late 1990s. Other major textile producers (and hence major cotton consumers) are India, Turkey, and the United States, which together with China account for three-quarters of global cotton consumption. Several East Asian countries have emerged recently as important cotton consumers. For example, Indonesia, Korea, Taiwan, and Thailand, which together consumed only 130,000 tons in 1960 (1.2 percent of global consumption), absorbed 1.5 million tons in 2002 (7.2

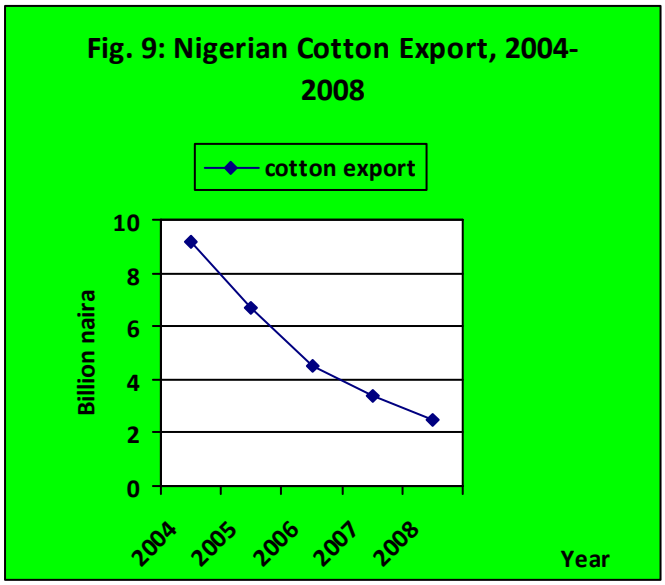
percent of global consumption). Between 1960 and 2000, cotton demand has grown at the same rate as population (1.8 percent per annum) implying that per capita cotton consumption has remained stagnant. By contrast, consumption of chemical fibers has increased consistently over the last four decades, causing cotton's share in total fiber consumption to decline from 60 percent in 1960 to less than 40 percent in 2000 (Baffes, 2004).

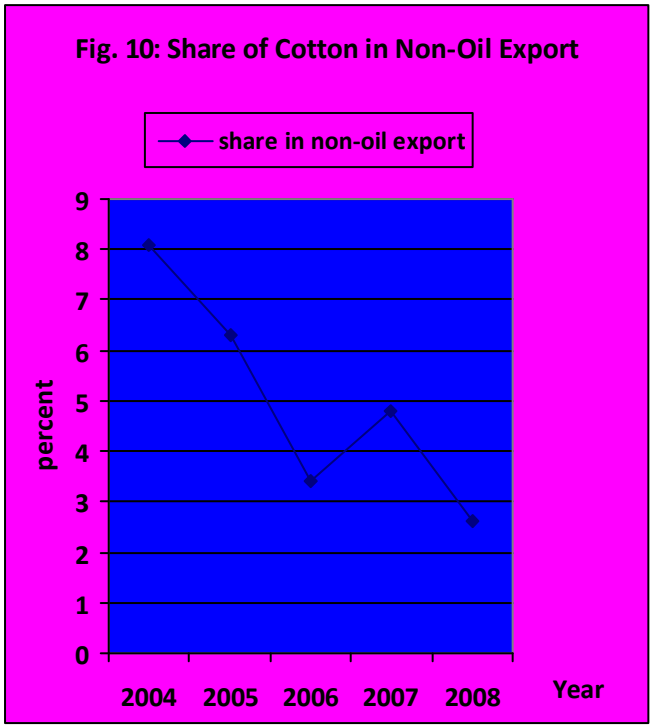
Nigerian Cotton Market Structure

Cotton is one of the most important export crops in Nigeria. It is widely cultivated in the country especially in the North-West Zone (Katsina, Kano, Jigawa, Kaduna, Kebbi, Sokoto and Zamfara States), North-East (Borno, Yobe, Bauchi, Adamawa and Taraba States), North-Central Zone (Plateau, Nasarawa, Kogi, Niger, Kwara, Benue), South-West Zone (Oyo, Ogun, Ondo States) and South-South Zone (Edo State). Not less than 250,000 farmers are involved in cotton production in the country. Since abolition of the Cotton Board in 1986 and the deregulated of the market as part of the Structural Adjustment Programme at that time, operations in the cotton market has been following the dictates of the forces of supply and demand. The price of cotton is determined in an open market between buyers and sellers. The marketing channel brings cotton farmers into active bargaining with various categories of middlemen. Farmers sell seed cotton to sub-agents in remote villages who sell to agents in nearby villages who in turn sell to Licensed Buying Agents (LBAs) in the towns. The LBAs sometimes go down to the interior and buy directly from the farmers. Unlike in the case of food crops, access to market is not much of a problem for the farmers. According to the farmers:

"Buyers are always available. There are many LBAs that come to us to buy cotton. We don't need to carry cotton to the market. Besides, cotton prices have been increasing steadily for the past several years and we are satisfied about the price movement".

The LBAs are major suppliers to ginneries which are located mainly in the NW. Cotton from the ginneries is supplied to textile mills or sold in the export market. There are over forty textile mills in the country and a similar number of ginneries, which compete for this cotton. Consumption of cotton lint by textile industry in Nigeria is about 100,000 tonnes plus or minus 15 percent. Textile mills are therefore forced to import about 15,000 tons of cotton in order to cover the shortfall in local supply and for certain specific requirement for finer yarns such as 30-40's, which is not grown locally. It is therefore clear that the local supply is not enough to meet the demand. Against a total demand of about 80,000 MT of lint per annum (240,000 MT seed cotton) by the textile mills, the total production of lint has been less, thus resulting in a gap between demand and supply. It is expected that this gap will widen further as the steps taken by the government to revive the textile industry may lead to increase in capacity utilization, thus resulting in higher demand for cotton. Export of Nigerian cotton resumed in 1989 after about ten years of absence in the international market. Available data indicate that the trend of cotton export has been on the decline in recent years (Fig. 9).





The share of cotton in non-oil exports has also followed a declining trend (Fig. 10). Prices of cotton in the international market have been unstable but high. This was because of increased demand from cotton consuming countries like China, which had an adverse weather and an increase in consumption and export. China's textile industry has urged the government to double cotton imports in 2004 to help the industry to recover from shortage (RMRDC,2004).

Nigeria has also been involved in cotton seed import as production and marketing activities faced more severe constraints in recent times than hitherto has been the case; while export has been on the decline. Available data from the National Bureau of Statistics (NBS) indicate that the value of cotton seed export as at 2002 when the Federal Government introduced the Presidential Initiatives on Agriculture (PIA) programme which emphasized export expansion, stood at ₦11.10 million and since then there has been no official record of exports. As regards imports of cotton seeds, the value increased from ₦6.43 million in 2002 to ₦10.55 million (or by 64 percent) in 2004.

3.1.2 Structure of the Ginger Market

Ginger has various uses depending on the state of processing and purpose. Ginger oil and oleoresin are extracted from dried ginger. Ginger contains about two per cent essential oil. The oil is extracted and distilled from rhizomes for various uses in confectionery, perfumery, beverages and pharmaceuticals. Dried ginger is used predominantly for flavouring coffee especially in the Middle East. It contains medicinal qualities and it is also used to calm nausea and aids digestion. Dried ginger is used in many different cooking methods. It is an important spice in Asia, the Caribbean and African cooking. The total world market estimate for dried ginger where Nigeria is part of the top three major suppliers is $15m with an annual growth rate of three per cent. Nigeria's world market share of dried split ginger is put at an average of 20 per cent exporting ginger to various countries in the world. Traditional export markets include the United Kingdom, Germany, Spain, Netherlands, France, United States of America, Russia, Saudi Arabia among others. Other major exporting countries are China, India, Jamaica and Sierra Leone.

Found in almost all the local markets across the country, ginger is commonly used as spice. It is also being consumed for healing and relief effect. Ginger is used in the production of baked products like gingerbread, ginger biscuits, ginger cookies and drinks like ginger tea, ginger beer, ginger ale, etc. Nigeria produces an average of 40,000 metric tonnes of fresh weight ginger per annum. Out of this production, an average of 10 per cent is locally consumed as fresh ginger, while 90 per cent is dried and 20 per cent of this is consumed locally for various uses while the remaining is exported. Nigerian ginger is highly valued in international markets for its aroma, pungency and high oil and oleoresin content. Most of the dried ginger that are available for international trade are simply sun dried over a few days, but artificial drying is also used in areas lacking a defined dry season to coincide with the harvest. The rhizome is dried to between 10 and 12 per cent moisture content. Dried ginger is usually presented in a split or sliced form. Splitting is said to be preferred to slicing, as slicing loses more flavour, but the sliced are easier to grind and this is the predominant form of dried ginger currently in the market.

Ginger is traded in three basic forms, which include green, pickled or preserved and dried. The dried ginger is usually sold in split form. No bleaching is carried out and the colour is yellow. The Nigerian flavour is more pungent and has lemony tone than ginger from places like China and India. Ginger is an important Nigerian export crop. In 1999, it was estimated that around 5,000 to 6,000 metric tonnes of dried split ginger was exported from Nigerian to various destinations. Between ₦150,000 and ₦170,000, an individual can procure one ton of powdered ginger for export, while dry ginger will cost between ₦120,000 and ₦130,000 per tonne.

3.1.3 Rice Market Structure

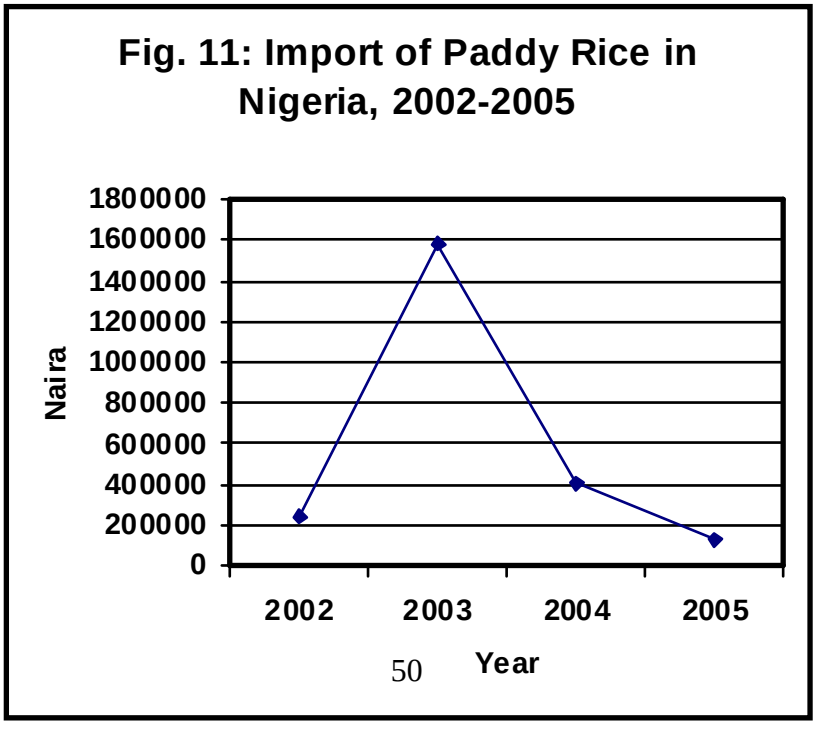
Rice is a major food crop in the world. It is being consumed by more than half of the world population. Available data indicate that world output has witnessed some decline for the recent past. Production of milled rice in the world totaled 409.2 million tonnes in 1999 but declined to 384.4 million tonnes in 2002 (USDA, 2002). The top five producers then were China, India, Indonesia, Bangladesh and Vietnam. The international rice market accounts for only about 5-6 percent of global output despite the expansion of trade. Unlike other bulk commodities, the rice market is segmented into a number of different varieties and qualities, each with strong consumer loyalty. The major rice exporters are Thailand, Vietnam, China, USA, India and Pakistan. A significant disincentive in the market has been the downward trend of prices over the years. According to Vorley (2005) real world rice prices averaged $860 per tonne from 1950 to 1964, dropping to under $300 by the late 1990s and hovering slightly under $200 in the early 2000s; though higher quality (basmati) rice from Pakistan still attracts up to $370 per tonne. Since June 2001, India has been the lowest-priced source of rice, and more

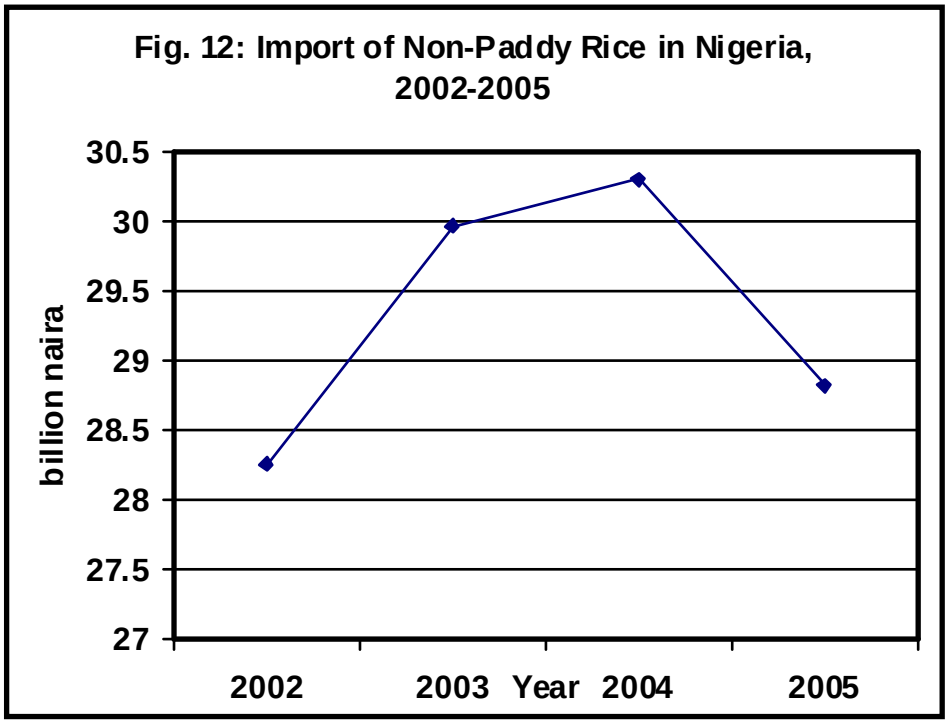
recently, of higher quality regular milled white rice. With intense competition among producers and exporters with suppressed demand and low prices, farmers face much difficulty in making a living out of rice farming.

Nigerian Rice Market Structure

The rice market situation in Nigeria is complex. The country is a major consumer and importer with low level of domestic production. Nigeria is the largest rice producer in the West African sub-region and has in recent times assumed the status of the largest importer of rice in the world. By 1999 production of paddy rice stood at about 3.2 million tonnes but declined to about 2.38 million tonnes in 2004. The demand for rice in Nigeria has been soaring over the years. The increasing demand has been triggered by a combination of factors. The high rate of urbanization, rising population growth, as well as changes in family income an occupational structures have affected the demand for rice. As women enter the work force, the opportunity cost of their time increases and convenience foods such as rice, which can be prepared quickly, rise in importance. Similarly, as men work at greater distances from their homes in the urban setting, more meals are consumed away from home and rice is often the preferred meal. These trends have meant that rice is no longer a luxury food but has become a major source of calories for all strata of the urban population. However, evidence suggests that domestic production capacity is far below the national requirements for rice (Wudiri and Fatoba, 1992; and Ladebo, 1999). The annual demand for rice in the country is estimated at 5 million tones of milled rice, while production level is 3 million tonnes resulting in a deficit of 2 million tonnes.

Over the years the country had resorted to imports to bridge this deficit. For instance in 1999, the value of rice imports was US$259 million and this increased to US$655 million in 2001 and US$756 in 2002. Between 1990 and 2002, Nigeria imported 5,132,616 tons of rice valued at US$1,883,553 million (Ezedinma, 2005). Recent data on rice import show that both paddy and non-paddy rice are being imported into the country. Import of paddy rice rose sharply between 2002 and 2003, from ₦242,000 to ₦1,583,689 but declined precipitously thereafter reaching an all time low of ₦128,442 in 2005 (see Fig. 11). Import of non-paddy rice consisting of husked (brown) rice, broken rice and milled rice increased steadily from about ₦28.3 billion in 2002 to ₦30.3 billion in 2004. Although it declined somewhat in 2005 (Fig. 12), the level of import was higher than it was in 2002 despite the determination of the government to increase domestic production and reduce import under the Presidential Initiative on Agriculture introduced in 2002.





3.1.4 Soybean Market Structure

World Market Structure

The production of soybean as a commercial crop has been going on from time immemorial in temperate ecologies, first in northern Asia and in more recent years in North America and countries of the Southern Cone of Latin America. The remarkable success of this crop in temperate zones is well known to all, but there is also a very important potential role for soybean in many cropping systems of the tropics and subtropics, where often the farms are mostly small and with little mechanization. Access to local markets appears to be the main constraint in many developing countries in the tropics and sub-tropics where local soybean production could improve farmer incomes and the sustainability of the production system. Often soybean is imported into countries by the local vegetable oil and feed industries and as a consequence no demand for the crop is felt in the farming community. Where good market links from processors to local farmers have been made, as in Nigeria and especially in India, the farmers generally respond and the crop finds a good home in diverse cereal and root crop based production systems. (Thoenes, 2004).

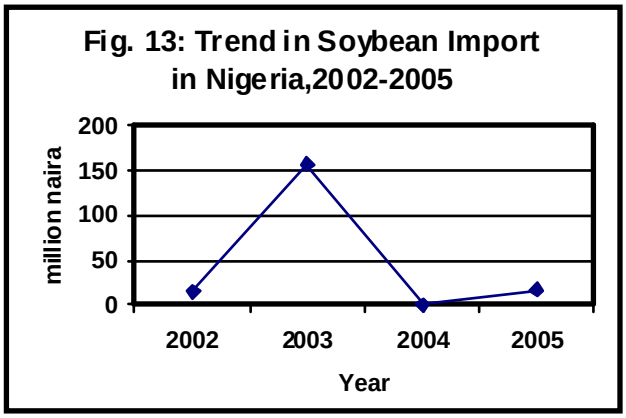
Evidence suggests that soybean contributes significantly to the total value added by the agricultural sector in the major producing countries and particularly so in Brazil, Argentina, Paraguay and the USA. In these countries, soybeans and its two main sub-products also occupy an important position in export earnings from agriculture as well as in terms of total merchandise exports. A few other countries, notably India and China, are also involved in exports (mainly soymeal) but these play a more limited role and are subject to considerable year-to-year variation. Among the group of undernourished countries, apart from India, Bolivia is the only country that derives significant income from export of soybean and derived products. A significant feature of the soybean economy is that considerable value addition occurs at the downstream stages of the production and processing chain. On-farm storage of soybean plays a minor role and small-scale processing and marketing at local level is only relevant in those - statistically less important - areas where soybeans are directly consumed as food. At the global level, the bulk of soybeans produced is stored and shipped in bulk to large-scale industrial units for further processing into oil and meal. Within the soy complex, beans

account for about half of the total value of trade; the shares of soymeal and soyoil are 35 and 15 percent respectively, while that of soyfoods is negligible. Soyoil occupies a dominant position in global vegetable oil trade both in volume and value terms. However, over the years, palm oil has become a major competitor, and the two oils directly compete for market share, based on their relative price. Soymeal, on the other hand, as a high value ingredient for compound feed, occupies a leading position in global feedstuffs trade. The key producing countries export a combination of beans and their two subproducts (soyoil and soymeal), depending on the requirements of the market and domestic policies. A main feature of the market is the high level of concentration, with five countries (two developed and three developing) accounting for over 90% of the market. The main competitors on the export market are USA, Brazil and Argentina. Soybean output and exports from Brazil and Argentina have grown phenomenally; both countries share approximately 30 percent of the soybean export market. Brazilian soybean output in 2000/02 stood at 45 million tonnes while Argentina's output increased to 29.5 million tonnes (Vorley, 2005). A large number of countries are involved in the importation of soybeans and/or products for domestic consumption and, in some cases, for re-exportation purposes. Depending on domestic demand, which is also determined by the structure of the local processing industry, countries import either the raw material, soybeans, or directly soyoil and/or soymeal. In recent years, a number of importing countries have shifted from the importation of soyoil or meal to purchases of beans, which reflects efforts to promote processing - and thus value addition - at the domestic level.

Nigerian Soybean Market Structure

Soybean has significant economic and nutritional importance and it is in high demand in Nigeria. Economically soybean cake and oil are of great importance to the country. The cake/meal serves as feeding stuff (protein concentrates) to livestock while oil is consumed locally and used in the manufacture of skin lotions, margarine, salad oil, drying oil, etc. By 2003, the industrial demand for soybeans was about 634,000 metric tonnes compared with a supply level of 386,853 metric tonnes. Considering the use of soybean for boosting the protein and mineral content of local diets such as soymeal, dadawa, soy ogi, soya egusi and others in addition to the industrial use, the level of demand in the country has still not been met (RMRDC, 2004).

Nigerian soybean has been reported to be one of the best quality soybeans in the world. Its quality is said to compare favourably with 'yellow gold', the United State of America's variety. Soya-bean gained export status in 1943 when a tonne of soybean was exported from Nigeria. The exported quantity rose to 26,000 in 1962/63 and ever since, the export market has not expanded as expected. The major international buyers are the countries in the West African sub-region: Niger Republic, Chad etc, whose climatic conditions do not favour the cultivation of soybeans. Other consuming countries are Netherlands, United Kingdom, Turkey, France and Poland. Although Nigerian soybeans is exported and is utilized by other nations in their industries, it was observed that there was no sufficient documented evidence of this transaction. Soybeans as a crop does not seem to enjoy an organized trade, the business is rather left in the hands of actors who run it based on their whims and caprices. Since the documented records of commercial transactions are not available, it becomes difficult to reliably determine the quantity of soybeans exported or imported into the country. The available import data between 2002 and 2005 show a haphazard trend. As shown in Figure 13, soybean import rose sharply from ₦15.23 million in 2002 to ₦157.58 million in 2003. There was no official record of import in 2004; but by 2005, about 78 tonnes of soybean valued at ₦17.21 million were imported into the country.



3.1.5 Structure of the Tobacco Market

Tobacco is grown in over 125 countries, on over 4 million hectares of land, a third of which is in China alone. The global tobacco crop is worth approximately US$20 billion, a small fraction of the total amount generated from the sale of manufactured tobacco products. Tobacco is grown on less than one percent of the world's agricultural land, and on a wide variety of soils and climates. Since the 1960s, the bulk of production has moved from the Americas to Africa and Asia: land devoted to tobacco growing has been halved in the USA, Canada and Mexico, but has almost doubled in China, Malawi and United Republic of Tanzania. The production of tobacco leaves has more than doubled since the 1960s, totalling nearly 7 million metric tons in 2000. The greater use of fertilisers and pesticides, as well as the increased mechanisation, that have produced these higher yields are environmentally damaging. The problem does not end with growing tobacco: the processes used in curing tobacco leaves cause massive deforestation. There are millions of tobacco farmers worldwide.

Tobacco trade is big business, for both the raw material (tobacco leaves) and the finished product (manufactured cigarettes). Brazil is the largest exporter of tobacco leaf, and the Russian Federation and the USA are the largest importers. Some countries that grow tobacco, such as the USA, also import foreign tobacco as well as exporting their own tobacco leaves. Interestingly, the USA exports approximately the same amount of tobacco that it imports. Because US tobacco is popular globally, and tends to be more expensive than tobacco from other countries, the value of US tobacco leaf exports are about double that of the same quantity of imports. Manufactured cigarettes are also traded globally. Again, the USA is the largest exporter of manufactured cigarettes, accounting for nearly 20 percent of the world total. Japan is the largest importer of cigarettes. According to government reports, 846 billion cigarettes were exported, but only 619 billion were reported to be imported. Statistics such as these provide a sense of the size of the cigarette smuggling problem. China is quietly emerging as a significant cigarette exporter, increasing from virtually no exports in 1980 to over 20 billion cigarettes exported in 2001, worth about US$320 million. In 2005 the value of China's export trade in cigarettes is predicted to be US$600 million.

A recent report indicates that the tobacco industry predicts the direction of expansion and contraction in tobacco consumption in the next few years. The increases in consumption lie principally in the developing nations, while consumption in the industrialised countries will be static or in decline. In all the countries surveyed, the biggest growth between 1998 and 2008 is expected to be in Zimbabwe, followed by Côte d'Ivoire, Brazil, Morocco, Venezuela, Pakistan, United Republic of Tanzania and Bangladesh. The greatest decline is expected in New Zealand, followed by the UK, South Africa, Hong Kong, Australia, Singapore and Finland. In Africa, only the South African market is expected to decrease. In the Americas, growth in Latin America is expected to

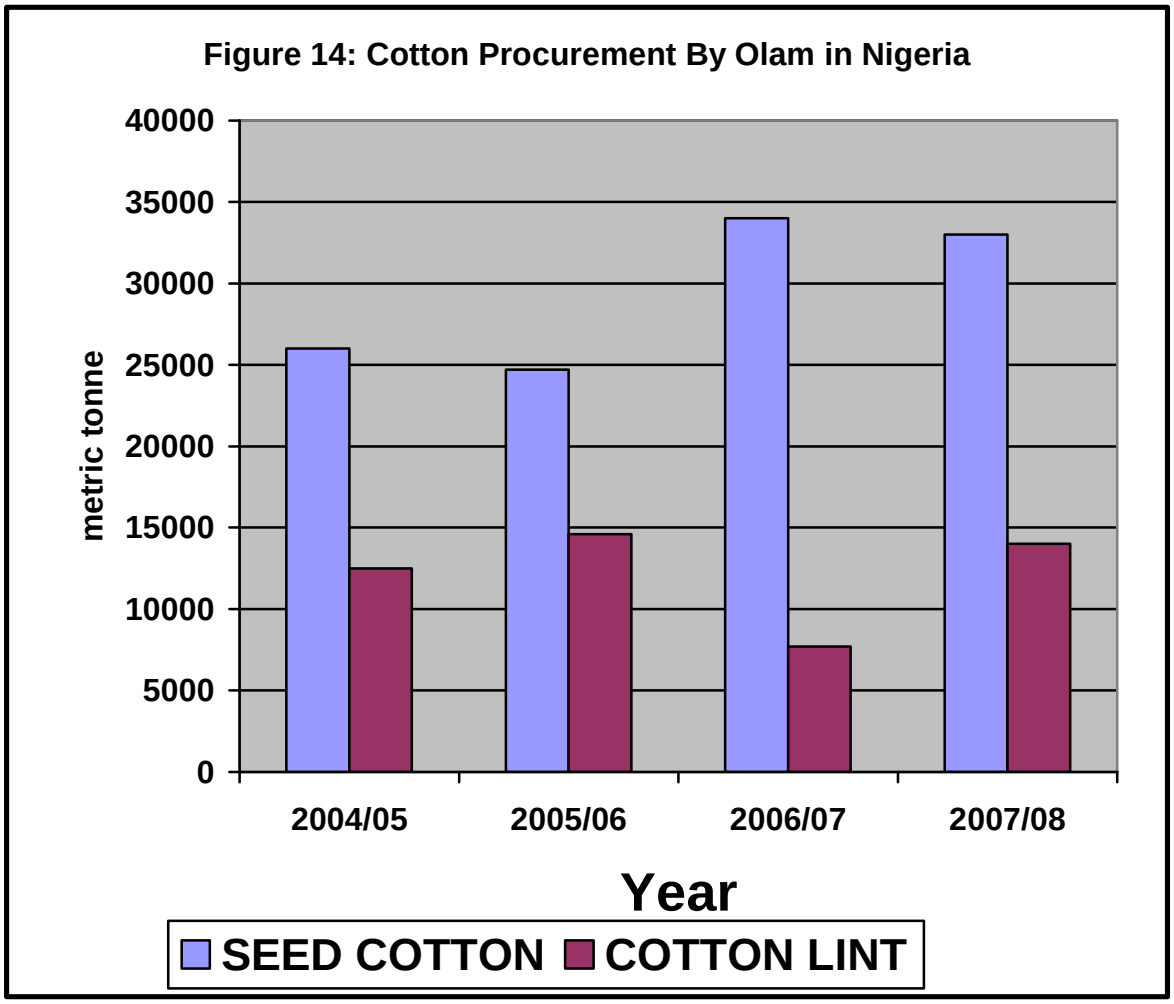
compensate for declines in the USA and Canada, with the greatest increases in Brazil, Venezuela, Mexico, Peru, Chile and Uruguay. In Europe, the forecast is mixed, with increases in some markets and decreases in others. The biggest increase is expected in Norway, and the greatest decline in the UK. In the Middle East region, the highest growth is expected for Morocco, followed by Pakistan and Tunisia. No country in this region is expected to experience a decline in consumption. In South East Asia, Bangladesh will see the highest growth, followed by Thailand, while consumption remains static in India. In the Western Pacific, Vietnam tops the growth charts, while New Zealand, Hong Kong, Australia and Singapore show the greatest decline.

Globally there are four types of commercial tobacco: Flue cured Virginia (FCV), Air cured (AC), Fire cured (FC), Sun cured (SC). In the past FCV and AC were grown in Nigeria, but presently efforts are concentrated on the production of only FCV based on market demand. The variety of FCV grown in Nigeria is K326. The British American Tobacco (BAT) company is the major sponsor of tobacco production in Nigeria. Currently, BAT still imports tobacco especially FCV. The Nigerian FCV cures up into a single quality group whereas the tobacco that is grown in other countries (Uganda, Brazil, Zimbabwe, India, Bangladesh) stays longer in the field tends to cure out into more than one quality group. This characteristic is desirable since the making of a particular type of cigarette requires leaf blending. The cigarette brands produced by BAT in Nigeria are Rothmans, Benson & Hedges, Dunhill, Pallmall, London Kingsize, Royal Standard, Consulate, Players Gold Leaf, Excel, Three Rings and Sweet Menthol.

3.2 Performance of Contract Farming

3.2.1 Performance of Cotton Contract Farming

The assigned responsibility of farmers participating in the cotton contracting farming (CCF) is the production of cotton and transportation to Olam's dump for sale. On the part of Olam, the provision of cotton extension and marketing services is mandatory. Cotton dumps are also provided where farmers bring their cotton to sell to Olam and receive immediate payment. The dumps are located in Malumfashi, Funtua, Gombe and Gusau. As shown in Figure 14, the purchases of seed cotton by Olam has increased substantially since the inception of the CCF in 2006.



3.2.1.1 SWOT Analysis of Cotton CF

The cotton CF has its strengths and weaknesses although it is generally considered a desirable approach for boosting performance of the cotton industry in Nigeria. The strengths manifest in terms of increased cotton production, improved quality of cotton that is capable of meeting international standards and improved knowledge of farmers about modern techniques of cotton production. If the government continues with the Export Expansion Grant scheme, it will provide an opportunity for more firms to invest in cotton processing and export and to employ the CF model to ensure continuous supply of cotton to the processing plants.

There are three areas of weakness namely; lack of government encouragement, weak enforcement of agreement with LBAs and unimpressive loan repayment record. All agreements signed with cotton LBAs cannot be enforced. Speedy trial in courts is required to remedy the situation. About 15-20 cases have been pending in the courts for between one and four years; and so far only one of the cases involving the LBAs has been resolved. The greatest threat is the heavy initial investment required for financing the credit scheme necessary for admitting a large number of farmers into the contract farming system.

3.2.1.2 Main Constraints

The main constraints identified by both the contract and non-contract farmers as well as Olam are as follows.

Production Constraints

- Climatic fluctuations. Since agriculture in Nigeria is mostly rain-fed, timely arrival of rain is critical. Farmers often decide against the cultivation of cotton due to late arrival of rain. The arrival of rain is as important as its cessation in maximizing yield. If rain continues beyond a particular time, it may lead to drastic reduction in output.
- Farmers tend to reduce the area cultivated in reaction to poor prices and unfavourable market dynamics
- Inadequate and untimely supply of modern inputs
- Unavailability of funds at critical times also affects production.
- The National Cotton Association of Nigeria (NACOTAN) and other relevant bodies are not effective as far as the governance of the cotton industry is concerned. NACOTAN has not been providing effective support to cotton producers.
- Farmers don't pay back their loans on time. Majority of them pay about 4 months after harvest instead of immediately after harvest. Some pay back in cash. Farmers attribute their inability to pay at the right time to high cost of production. In order to have higher profit margins farmers tend to wait until the products begin to attract high prices (about 4-6 months after harvest) before they start to repay their loans. There are farmers who default willfully.

Processing Constraints

- Equipment are generally not easily available locally, and when available, they are usually expensive and inefficient and their parts wear down very fast
- Public power supply is very unreliable forcing the processors to depend on the expensive alternative of using power generators in the face of ever escalating cost of fuel for the generators
- Lack of credit facilities for processing enterprises

Marketing Constraints

- Absence of institutional arrangement for commodity grading and quality control
- Unattractive prices of products remain a serious problem
- High transportation cost arising from high and rising fuel prices and poor state of access roads
- Due to poor access to market information, buyers often exploit the farmers by offering low prices
- Inadequate credit facilities for commodity marketing
- Lack of control over product adulteration. Farmers are fond of adulterating their products by adding water and other foreign bodies (such as stones, sand, etc). The seed cotton absorb water and increase in weight. To ensure that the water added is retained for a reasonable length of time, farmers always prefer to use polypropylene bags for packing their produce. This tends to worsen the problem of polypropylene contamination in which strands of various colours from the bags reduce the quality of cotton lint. The use of jute bags may be a solution to this form of contamination, but the bags are expensive and may increase marketing cost.

- All agreements signed with the LBAs cannot be enforced and it has not been possible to have speedy trials in the law courts. According to an official of Olam, "out of about 15-20 cases we have in the courts within the last 4 years, only one has been resolved. An LBA can hold about 5000 tonnes and raise price arbitrarily. They also engage in the unwholesome practice of adulterating their seed cotton. Thus, since 2000, Olam started to purchase seed cotton from sub-agents and directly from farmers. However, the LBAs still have higher rates of commission than the sub-agents based on their level of investment operational costs. Moreover, when we give advance funds to them for the supply of seed cotton, they hoard the cotton, create artificial scarcity and argue for an offer of higher prices; thus holding the company to ransom. They may even force us to take bad quality arguing that they could not have access to better quality products. As from October 2007 to date (May 2008) LBAs are

owing about ₦70 million being advance funds for which they failed to supply the required cotton".

3.2.1.3 Benefits of the Cotton Contract Farming

The cotton CF has yielded some benefits to both the contractees (farmers) and the contractor (Olam). The farmers seem to be happy about Olam's intervention in establishing the CF scheme. During the focus group discussion with some of the farmers this view was expressed as follows.

"I was introduced to Olam by LBA. Since 2006, we have been selling seed cotton to Olam. Part of the money has been used to buy cattle. Olam gave us seed to buy. In 2006 we also pesticide from Olam at the rate of ₦6500 per carton (of 10 litres). Some people bought as much as 25 litres… Myself alone I plant up to 1.5 MT of cotton and work with about 10 of my children, I sometimes harvest about 20-30 MT of seed cotton from my farm and usually sell to LBA….I am happy that today again (May 15th, 2008) Olam has started selling seed to us. We request for credit in kind from Olam to enable us have access to seeds, pesticides and fertilizer and we shall repay after harvest, but Olam has not responded favourably. They say they want to consider animal traction credit instead."

Olam has been reluctant to introduce credit in-kind in view of the need to minimize the risk of default. However, the Assistant Village Head claimed that farmers will repay if given the opportunity. According to him, "There is assurance that we community leaders will serve as guarantors and will repay Olam if there is any case of default by our colleagues; and the defaulters if any, will repay us later".

Table 3.1: Benefits of Cotton CF

	Benefits to Farmers	**Benefits to Processing Firm**
1.	Direct supply of inputs such as seeds, fertilizers, herbicides, plant protection chemicals and spraying equipments to the farmers at market prices	Direct buying centres for the processing facility which may eventually lead to the abolition of buying agents.
2.	Technical support to farmers on specific problems for better crop management	Better quality of produce
3.	Training sessions (extension services) for farmer groups	Effective partnership (cooperation and goodwill) among farming community, government agencies and Olam.
4.	Use of proper site-specific package of practices for cotton cultivation	Assured source of required raw materials
5.	Improved productivity and profitability	
6.	Assured market for farmers' produce at prevailing market prices	

Source: Author's compilation

The farmers and Olam consider their partnership as beneficial in various ways (Table 3.1). The scheme has helped the farmers to overcome some of their marketing constraints while Olam is benefiting from improved quality of seed cotton and regularity of supply.

3.2.2 Performance of Ginger Contract Farming

The linkage between Olam and ginger farmers since 2006 has been pronounced in the area of support to ginger farmers through the provision of marketing and extension services in Jabba and Kachia local government areas of Kaduna State. Olam usually

organized two training sessions for the farmers annually between 2006 and 2007 – one for ginger cultivation and the other for post-harvest handling techniques. This was done in collaboration with the National Root Crops Research Institute (NRCRI) Umudike, Nigerian Export Promotion Council (NEPC) and Kaduna ADP. Also, the firm developed and distributed modern package of practices (POP) to the farmers for improved productivity. Altogether 750 farmers cultivating about 1000 ha are participating in the programme. In March 2007 Farmers' Day was organized for ginger farmers in Kwoi. This is in addition to the five model farms which were established as demonstration plots in Kwoi and Kachia as part of the capacity building process. Olam teaches the farmers to produce ginger of good quality and buy the ginger from them for export purposes. Olam exports ginger to India, Holland, Germany, Russia and Saudi Arabia.

Basically, the ginger CF is a market-specification contract under which a direct linkage between the farmer and Olam has been established along with quality linked payment system based on actual weights of product. Once farmers/agents bring their ginger to Olam's premises, the firm conducts quality check. If the quality is okay, weighing is done and the farm is paid same day on the basis of the weight recorded. If the quality is defective, the defects are picked and after sorting out the good quality ginger, weighing is done and payment is made. The ginger purchased by Olam is packaged in standard bag of 40 kg and must meet the quality specifications presented in Table 3.2. Hitherto the arrangement does not include supply of inputs to ginger farmers by Olam. The transformation of the contract to a resource-providing one is under consideration but no conclusions have been reached.

Table 3.2: Ginger Quality Specifications

	Quality Parameters	Standard (%)
1	Mould content	0
2	Insect Damage	0
3	Unsplit Ginger	< 0.5
4	Ginger Root	< 0.5
5	Sandy Ginger	0
6	Admixture	< 0.5
7	Moisture Content	< 8
8	Stone, animal matters, vegetable matters, metal pieces, polyfibre etc. content	0

Source: Olam's Office, Kwoi in Kaduna State

The responsibility of farmers under the contract is to produce ginger, dry, pack in polybags and transport to Olam's warehouse in Kwoi for sale. To facilitate the process, Olam provides the following incentives.

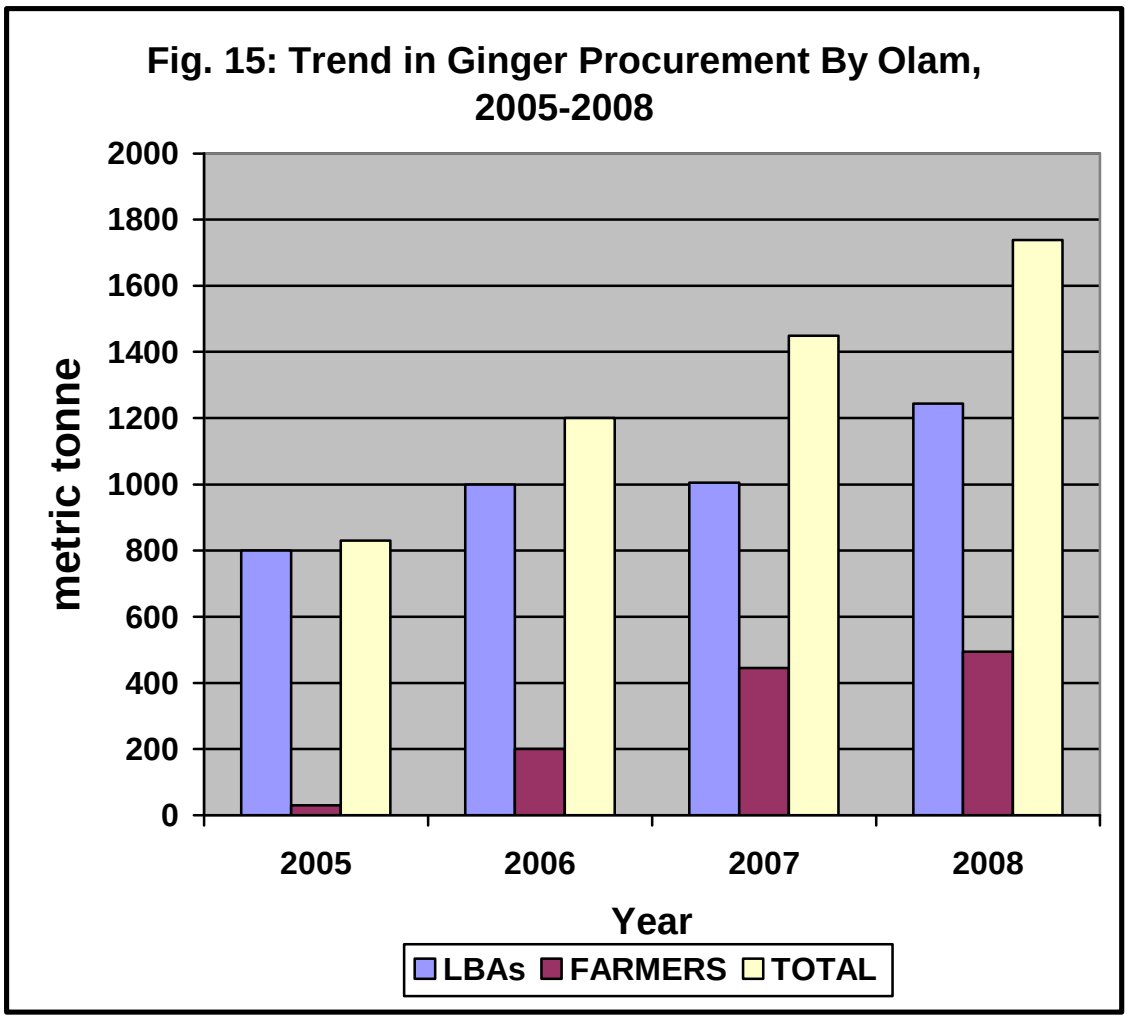
(i) The ginger price paid by Olam to the farmers is higher than what obtains in the local markets. For instance in 2008, the local market price ranges between ₦52.5/kg and ₦55.0/kg while Olam is paying ₦65/Kg. Olam's price is higher because it is buying good quality ginger and it is a way of encouraging farmers to bring good quality ginger to Olam.

(ii) Olam offers cash reward of ₦1000 per metric tonne of good quality ginger to group leaders who ensures the supply of up to 4 metric tones of ginger in a year.

(iii) The bags for the packaging of clean ginger purchased from farmers which normally costs ₦40 each, are provided free by Olam and this brings a relief of ₦1000 per metric tonne to participating farmers.

With such incentives it has been possible to elicit much higher growth in the quantity of ginger supplied by participating farmers compared to what was obtained from the licenced buying agents (LBAs) (see Fig. 15). The quantity of ginger procured from the LBAs increased from 1000 MT in 2006 to 1244 MT in 2008 (or by 24.4 percent) whereas

the increase is from 200 MT to 494 MT (or 147 percent) in the case of the participating farmers.



3.2.2.1 SWOT Analysis of Ginger CF

The linkage between Olam and ginger farmers as expected, has some advantages. However, these advantages have not been explored due to some weaknesses in the system. The main strengths are (i) Olam has been able to obtain good quality ginger from farmers, (ii) in view of the fact that marketing transactions are on 'cash and carry' basis, the local farmers seem not to any risk arising from their participation in the programme, (iii) there has been a reduction in the sharp practices of middlemen and in the number of middlemen participating in the ginger market.

Weaknesses. The following weaknesses have been identified.
(i) Some farmers are skeptical of Olam's intention. The level of trust is still very low. Farmers are afraid of using scale to measure their output believing that it is an attempt to cheat them. This derives from the fact that farmers are not used to weights and measures and the possibility of scales being faulty and subject to manipulation. To allay their fears and strengthen their confidence, Olam has acquired digital scales which are now being used for measuring farmers output.

(ii) Farmers believe they will not be able to cope with the quality parameters specified by Olam. This belief is reflected in the low response of farmers in selling their ginger to

Olam. If other buyers (Hausa merchants) can buy without quality discrimination, they wonder why Olam is very strict in setting and enforcing quality parameters.

(iii) Farmers expect Olam to give input credit which is not part of the arrangement now. Thus, they query the rationale for selling to Olam if they will not be assisted to obtain modern inputs which they badly need.

(iv) Only nearby farmers sell regularly to Olam. There is inadequate response from farmers in distant locations. Such farmers are not responding as expected due to transportation problems (bad roads and high cost).

(v) Although the price offered by Olam is ostensibly higher than prices in local markets, it does not reflect differences in transportation cost incurred by farmers in different locations. Farmers in locations that are far away have therefore, been complaining about the uniform prices of ginger. Invariably, Olam's insistence on quality as virtually the sole determinant of price has not gone down well with some farmers.

Opportunities
(i) Farmers are assured of guaranteed market outlet. According to one of the farmers, this is a major factor in participating in the programme.

"I prefer Olam to the open market because for good quality ginger, Olam pays higher price. One is sure that any quantity that is brought to Olam will be purchased. Whereas in local market there will always be unsold quantity which the farmer has to bring back home".

(ii) Farmers get higher price than what obtains in local markets

(iii) Farmers are encouraged by incentives provided by Olam. This is evidenced by the following responses from focus group discussions among the participating farmers.

"Olam taught us about the 2 different types of ginger (black and yellow) and how to distinguish between them in the market. The yellow one is more marketable. "

"Olam motivates farmers through training seminars. We had three in 2007. They provided transport for the farmers from their LGAs to Kwoi to attend the training sessions. Olam also sponsored 6 group leaders to Makurdi for training on rice farming. They train us how we can clean our ginger so that it can reach the standard of international market".

"Every year, group leaders are given bonus (₦1000/MT) based on their performance in ensuring that farmers supply gingers to Olam. Last year (2007), I was able to collect ₦11,000 bonus".

Threats
A major threat is the unfavourable reaction from middlemen who perceive Olam as a competitor in the ginger market. They sometimes misinform farmers and spread rumours to discourage them from patronizing the firm. The middlemen feel their own source of livelihood is being threatened by the presence of Olam in the market even at the grassroots level. For instance, farmers are registered free of charge (with number, code and identity card) but some intending farmers are being misinformed that they need to pay before they can be registered.

3.2.2.2 Main Constraints

In spite of its advantages, ginger contract farming is faced with many hurdles. Considerable efforts will be required to further develop the system and encourage farmers to derive the expected benefits. In spite of the strengths and opportunities, there seems to be some structural and fundamental impediments which have to be addressed. These include:

a) Nuisance of middlemen: Sometimes farmers have brought good quality ginger to the market but middlemen mix the ginger purchased to earn more money.
b) Generally low price of ginger
c) There are no good dry grounds on the farm, so farmers have to pack the ginger from the farm to their homes in search of drying slabs. Where the distance from the farm to the village is too long, farmers have no other option than to use available space in the farm for drying purpose. This often leads to the production of low quality ginger which attracts lower prices.
d) Rejection of ginger by Olam. It is common for Olam to reject ginger brought to its premises for sale on account of low quality. "Like now I bring 10 bags. They pick 7 and reject 3. I feel the pain. I am not happy at all. Olam says it has sand and they don't want black ginger. They want only ginger with white surface. I will carry the rejected bags to Kwoi market. I hope Hausawa from Kano, Sokoto, Lafia or Gombe can come and buy. They will use it for *Yaji*".
e) Inaccurate Measurement. Sometimes the weighing of the bags of ginger brought to Olam's office is not accurate. Instead of 40kg it can be 41kg or 41.5kg or more. This has prompted the company to acquire digital weights which they claim is likely to provide more accurate measurement; implying that the inaccuracies are not intentional.
f) Non-participation of farmers in price determination. Farmers are not involved in the pricing of ginger. On the basis of market analysis, Olam announces the prevailing prices to farmers; and farmers will consider whether or not to sell at such prices. "For instance, within a period of barely two months (December 2007 and January 2008) prices were brought down precipitously on a persistent basis from ₦73 to ₦71, ₦70, ₦69, ₦65 and ₦63/kg. At ₦63/kg farmers said no and took back their ginger. After one week of imbroglio, Olam agreed to pay ₦65/kg. Then we continued to sell to them. They said the decline was from world market. But we never go to world market so we don't know whether it is true or not. All we know is that we cannot produce at a loss" I think this is why some farmers in our area don't' feel like bringing their ginger to Olam instead they take it to Kwoi market. Only three of us bring our ginger here. I continue to sell to Olam because of my belief that sometimes you gain sometimes you lose; but Olam is always there to buy".

3.2.2.3 Benefits of the Ginger Contract Farming

Effects on Farmers

(i) production of ginger of improved quality
(ii) improved yield
(iii) access to better product price
(iv) avoidance of middlemen exploitation since farmers can sell ginger directly to Olam

Moreover, one important reason for the farmers' involvement in the ginger marketing contract is to ensure further injection or re-investment of capital into agriculture. There is no guarantee that LBAs will invest their profits in agriculture. Olam extends advances to the LBAs who usually provide collaterals such as motor cycles, vehicles, landed property and household electronic equipment. As middlemen, the LBAs buy ginger from the markets and directly from farmers. Although LBAs' participation may enhance non-farm employment opportunities and help diversify the rural economy, there is no

assurance that there will be no out-flow of capital from the rural to the urban sector through the activities and investment interests of the LBAs. Furthermore, the price paid by LBAs to the farmers is much lower than what Olam pays if it buys directly from the farmers. For example, whereas LBAs pay between ₦2,000 and ₦2,200 per bag of dry clean ginger, Olam on the other hand, pays ₦2,600 per bag. This is in addition to the benefits farmers derive from Olam in terms of attendance of training sessions on planting and post-harvest handling of ginger.

Effects on Firms
(i) Improvement in ginger quality
(ii) Better international market access
(iii) Increased earnings from ginger enterprise
(iv) Less complicated marketing chain

3.2.3 Performance of the Rice Contract Farming

The responsibilities and obligations of both parties to the contract are specified in the contract agreement. In the agreement, the responsibility for the enforcement of contract terms is placed on group leaders who are themselves monitored by coordinators and occasionally by the project manager. Basically, the farmers are to produce rice using the inputs supplied by Olam (as in-kind credit), comply with the farm management practices and ensure prompt repayment of loans through sale of the paddy produced to Olam. On the other hand, Olam is to deliver the required inputs to the farmers at the right time and buy back the paddy after harvest. To this end, Olam usually provides the following services.

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Model Farms. Olam established model farms to produce good quality seeds for distribution to the farmers and to serve as demonstration plots during field days for the training of farmers. The training programme includes the green stage training otherwise known as the in-season training and the brown stage training during which farmers are taught Good Agricultural Practices. At the green stage, cultivation practices such as land preparation, planting, weeding and plant protection measures are taught. At the brown stage attention is focused on pre-and post harvest practices, bird scaring and proper harvesting methods. There is Training of Trainers workshop for the group leaders who are to embark on training of farmers in addition to the Field Days organized for the farmers. Olam deals with two long grain rice varieties namely FARO 44 and FARO 52. These compete favourably with imported rice. Basically the proportion of admixture for paddy must be below 10%. Between 2005 and 2007 Olam established six model farms annually while the area covered increased from 22 ha in 2005 to 250 ha in 2007.

Buy-Back Incentives: Olam provides bags and tractors for transportation and some money for bagging, stitching and security. The group leaders report to coordinators collect tractor and go to the villages carry the produce and bring to Olam's in Makurdi. Thereafter the paddy goes for milling. They are finally package into 5kg, 10kg, 25kg and 50kg bags. Olam provides the following incentives to the farmers to facilitate the marketing transactions.
(i) 10 empty bags per MT at no cost, (ii) ₦650/MT towards loading and delivery expenses and (iii) bear the cost of transportation of the paddy from farmers' villages to the mill –about ₦4000/MT. Moreover, payment is made in full within 24 hours of receipt of paddy at the mill. If the bags weigh more than 100 kg, there is additional proportional payment for the excess quantity.

Insurance Facilities
Olam ensures that the out-growers farms were insured with NAIC in 2007. The premium paid is 3% of total cost of cultivation for the 6000 ha. Cost of production was estimated at ₦55,000 per ha. The crop cycle is from May to December but the actual gestation period is from 90 to 120 days for the FARO 44 and 52 varieties. In the case of any

damage during the production year, compensation is limited to the proportional cost incurred up to that particular stage in the production process. There were reports of flood damage from 140 rice farmers in 2007. A sum of ₦4.7 million has been obtained by Olam as compensation from NAIC. This will be paid to the affected farmers after the buy-back exercise is over around May 2008. If farmers default in their loan repayment the claim amount due to the farmers concerned can be used to partly offset the loans.

In general, Olam continues to improve on its performance in terms of expansion in the participation of farmers in the rice CF programme. As shown in Table 3.3, the number of participants rose from 1000 in 2005 to 5175 in 2007 while the value of inputs supplied rose from ₦11.5 million to ₦140 million during the period. The yields obtained both on the model farm and on farmers' farms have been fluctuating. Average yield on the farmers' farms has reached only about 50 percent of the yield from the model farms implying that Olam has to step up its extension services to bridge the yield gap.

Table 3.3: Trend in Farmers' Participation in Rice CF

	2005	**2006**	**2007**
Model Farms			
-Number	6	6	6
-Land Area Covered (Ha)	22	95	250
-Yield (MT/KG)	4.32	6.51	5.80
Contract Farming			
-Farmers (no.)	1000	2560	5175
-Land Area Covered (Ha)	1200	3095	5713
-Yield (MT/KG)	2.5	3.25	3.0
-Training Sessions (no.)	2	17	17
-Recovery of Inputs (₦m)	11.5	62.25	140
-Paddy procured (MT)	2004	8700	10,000
-Input recovery rate (%)	17.42	36.57	44.56

Source: Olam Office (Agro-Millers), Makurdi, Benue State, Nigeria

3.2.3.1 SWOT Analysis of Rice CF

The results of the field investigations including in-depth interviews and FGDs indicate that both parties to the contract are willing to work for its successful implementation. As indicated below, the strengths seem to outweigh the weaknesses although there is still room for improvement.

STRENGTHS	***WEAKNESSES***
▪ guarantee sustainable supply of raw materials ▪ win-win situation. It is seen as cooperation between two willing partners ▪ boost the rural economy and promote pro-poor growth.	▪ low level of agricultural mechanization ▪ use of crude implements
OPPORTUNITIES	***THREATS***
▪ Farmers are very much interested. There is very good rapport between Olam and the farmers through regular meetings (at least once a week) and training programmes. ▪ Farmers derive economic and social benefits from the contract engagement ▪ Olam is operating a rice mill taken up on lease from the government of Benue State in 2005. The lease agreement was for an initial period of two years which expired in 2007. The agreement has now been renewed for a period of 10 years with the proviso that the conditions will be reviewed after the first 5 years. With this opportunity of a long-term access to the rice processing plant, Olam is currently working on an investment of $1.5 million to provide a new processing line. This will enable the firm to realize its long term profit objectives in the rice industry.	▪ Huge financial risk in terms of the amount of funding required and loan recovery.

3.2.3.2 Main Constraints

In spite of the interest of the rice farmers in the CF scheme, they are faced with the following constraints.

Production Constraints

- Unavailability of tractor for farm operations such as ploughing, harrowing and planting.
- The seeds supplied have some impure varieties (referred to by farmers as off type). When the rice is fully grown on the field mixed varieties are observed by some farmers.
- With application of chemicals farmers increase farm size although hand weeding is still carried out to remove stubborn weeds. This requires labour input which is scarce and expensive. In the absence of credit it has been difficult to finance larger farm size as desired.
- Reliance on manual harvesting in a situation where mechanization should have been ideal
- Inadequate and untimely supply of modern inputs
- Unavailability of funds at critical times also affects production.
- Loan repayment performance is low. Whereas some farmers are delinquent others are outright defaulters. Total group loan for the 2007 production year was ₦2.4 million. As at April 2008, however, only ₦1.0 million has been recovered. The farmers claimed that they could not meet their repayment obligations due to inadequate rainfall (especially the cessation of rainfall in June/July of 2007) and flooding (that followed when rainfall resumed later in the year) which badly affected their yield.

Processing Constraints
- Lack of credit facilities for processing enterprises

Marketing Constraints
- Unattractive prices of products
- High transportation cost arising from high and rising fuel prices and poor state of access roads
- Inadequate credit facilities for commodity marketing
- Poor storage facilities
- Lack of control over product adulteration

3.2.3.3 Benefits of the Rice Contract Farming

Effects on Farmers
General standard of living of the farmers has improved. Farmers now buy motor bikes, pick-ups or cars and renovate their houses. Some have also decided to marry the second or third wife. Some farmers cooperatives are already making requests for the purchase of tractors. The focus group discussions with farmers in Agasha – one of the rice producing villages – revealed specific ways in which some farmers have benefited from the rice contract scheme. One of the farmers narrated the benefits derived as follows: "the knowledge which I acquire from the training Olam gave to us (outgrowers) help me better. I know how to plant rice, keep records, apply fertilizer to my farm and carry out bonding around my farm to conserve water". According to another farmer, "I know when to harvest my rice and how to keep it so that termites will not destroy it. I now know the difference between seed and grain. Researchers that produce seeds are different from farmers that produce grains.....production on my farm has increased…..before it was difficult to sell in open market but now sale is easy for me – no transport cost, buying of empty bags……yield is higher than before and income is also higher".

The group leader summarized the benefits derived as follows: "I am able to purchase UME forms for 2 of my daughters, 2 buildings are now under construction, 2 children in nursery school and 2 in secondary school. I don't owe school fees. My first daughter finished from Coner Stone Nursery & Primary School. I was able to pay her school fees as she moved to Government College Aliade. I bought VCD and I have a potable TV set". The participation of the farmers has actually changed their consumption pattern and with a clear tendency to alleviate poverty in the community. According to a female participant, "I pay my children's school fees in the secondary school in Makurdi. My husband is old. I am now sinking a deep well in our compound to supply water for domestic use, all from the proceeds from my rice farm". Another farmer proudly asserted that his participation has been very helpful. According to him, "from the proceeds of my 3 ha rice farm, I build a 4 bed-room bungalow and I maintain 2 children in secondary school (SS1) at the Christ the Kings College. I am paying for another 3 children in the Nursery/Primary school".

Effects on the Agribusiness Firm (Olam). The benefits derived by Olam include the following.
- guarantee sustainable supply of raw materials. Especially good quality and long grain paddy for milling
- Sense of fulfillment in terms of the commitment of Olam to its Corporate Social Responsibility policy. The firm expects government to design policies favourable to its operations it is therefore, desirable for Olam to reciprocate since one good turn deserves another. The firm itself has a policy not to exploit the citizens but to empower and enhance their standard of living.

According to Olam, there seems to be little or no direct economic gains to the firm in the short term. But after the 3rd or 4th year of operation, it is certain that more profit will be made and whatever losses that might have been made will be recouped. At that time the

expected premium quality of rice should have been obtained. Hopefully, the participating farmers will also be making more profit.

3.2.4 Performance of the Soybean Contract Farming

The soybean CF is a market-specification contract which places emphasis on the quality and price of soybean sold to the processing company. The quality specified by NESTLE are, (i) mature grains, (ii) grains devoid of stones and impurities, (iii) colour of grains (must be milky), (iv) medium to big size grains and (v) dry grains. Between 2004 and 2006 it has been possible for the farmers to comply with the price and quality specifications both of which followed an increasing trend as shown in Table 3.4.

Table 3.4: Trend in Quantity and Price of Soybean Supplied to NESTLE

Year	Quantity of Soybean Supplied (MT)	Soybean Price (₦/Tonne)
2004	25.15	54,000
2005	42.20	57,000
2006	45.20	65,000
2007	-	70,000

Source: OYSADEP Office, Shaki, Oyo State, Nigeria.

Way back in 2002, some soybean consignments supplied to NESTLE were found to be of low quality and became mouldy soon after delivery at the factory. They had to be recalled, reprocessed and re-supplied. Another unpleasant experience reported under the contract was the role of intermediary to be played by UNAAB. The representative of the institution (AMREC) contacted OYSADEP requesting for information on the price, quantity and quality of soybeans produced under the UNAAB/NESTLE soybean production project. The participating farmers frowned at the undue elongation of the marketing channel which was to be brought about by the involvement of UNAAB and agreed as follows:

(i) They did not recognize any staff from UNAAB and would therefore, not transact any business with the institution.
(ii) They were comfortable with the role of OYSADEP as at that time regarding the sale of soybean to NESTLE directly and such an arrangement should be allowed to stand.
(iii) They would not make their soybean available to UNAAB (an organization they know little or nothing about); but rather supply to OYSADEP which they have known for about two decades. Moreover, OYSADEP further claimed that UNAAB seemed not to know that soybean grain could not be sold at the same price as soybean seed.
(iv) Soybean grain would be sold at ₦70,000 per tonne to NESTLE for the 2007 production year while soybean seed was offered at ₦75,000 per tonne.

3.2.4.1 SWOT Analysis of the Soybean CF

The main strengths of the soybean CF under the resource-providing model of SLABMARK are threefold: (i) it guarantees sustainable supply of raw materials to the participating firm, (ii) it is a win-win situation; as both the firm and the participating farmers tend to derive desired benefits. It is seen as cooperation between two willing partners and (iii) it has a potential to contribute to pro-poor growth as many farmers are motivated and mobilized to increase production and benefit from readily available market. The main threats are the huge financial risk in terms of the amount of funding required and the possibility of poor loan repayment which may likely jeopardize the sustainability of the programme.

3.2.4.2 Main Constraints

The farmers seemed not to be satisfied with the market-specification contract arguing that unless the company could solve some of the problems facing them, they would seek alternative marketing channels. The major problems identified by the farmers are as follows.

Production Constraints
- Very low fertility of the soil. The level of availability of critical nutrients such as phosphates, nitrogen, potassium, boron is extremely low in some areas
- There is inadequate finance for tractorization and maintenance of farm
- Available fertilizer is grossly deficient in essential micronutrients
- Ignorance of improved production methods among the farmers
- Untimely release of loans resulting in delayed farm operations
- Inadequate and untimely supply of modern inputs

Processing Constraints
- Equipment are generally not easily available locally, and when available, they are usually expensive and inefficient and their parts wear down very fast
- Public power supply is very unreliable forcing the processors to depend on the expensive alternative of using power generators in the face of ever escalating cost of fuel for the generators
- Lack of credit facilities for processing enterprises
- Lack of shellers for shelling soybean which has limited the area of land under cultivation

Marketing Constraints
- Unattractive prices of products remain a serious problem
- High transportation cost arising from high and rising fuel prices. Besides, the distance involved in moving produce by farmers from the farm to OYSADEP sales point ranges between 10 and 30 km. This requires time and substantial transportation cost which the farmers could not afford
- Inadequate credit facilities for commodity marketing
- Poor storage facilities
- Poor roads and unreliable transport system prevent timely delivery of products in profitable markets
- Unofficial payments to security agents and other government functionaries for goods in transit
- Limited marketing outlet
- When soybean was sold to NESTLE, it usually took about three months before farmers were finally paid.

In the light of the foregoing, farmers seem to prefer a resource-providing contract with adequate supply of input and finance and which will guarantee product marketing with affordable transactions costs. By comparison, the intervention of SLABMARK covers all the four problem areas identified. The firm gave out loans of ₦40,000 per farmer for the cultivation of one hectare of soybean. Cheques were paid into the account of the Apex Cooperative Society in a commercial bank in Shaki. It was later distributed through the chairmen of the cooperative societies to individual farmers. For the 2008 production season, 100 farmers were covered and this makes the total loan to be ₦4.0 million. Moreover, SLABMARK provided the cooperative with 500 kg of foundation seed for the purpose of multiplication. The seed was distributed among four seed out-growers within the group at 125 kg per farmer. After multiplication, the firm was to buy the product from the out-growers at the prevailing market price. This will enable the firm to expand the production of soybean in the following cropping season by supplying good quality seed to the contract farmers. Moreover, SLABMARK immediately embarked on the supply

of two soybean shellers that can process 5 tonnes of soybean per day at a total cost of ₦830,000. An advance of ₦600,000 was paid to a local fabricator in Shaki to produce the shellers which were to be supplied by the end of August, 2008. When completed, the shellers are to be stationed in OYSADEP from where they will be deployed to farmers' shelling points as the need arises. All the soybeans produced under the scheme are to be purchased by SLABMARK at the prevailing market price. The farmers have shown considerable interest in the arrangement and are willing contribute to its success by complying with all the provisions of the contract. The obligations of the farmers under the contract are as follows.

- produce soybean (must cultivate at least one hectare of soybean).
- comply with OYSADEP guidelines regarding soybean production
- sell the soybean produced to SLABMARK
- repay the loans through sales of produce to SLABMARK at harvest at prevailing prices
- introduce intending soybean producers to SLABMARK who will be prepared to sell their output to the firm.

3.2.4.3 Benefits of the Soybean Contract Farming

Initially farmers were happy for finding market outlet for their product. Indeed, market outlets are now expanding and farmers are even happier. They receive higher income and their ability to repay loans was enhanced. Nestle benefited in terms of regular supply of soybean of the preferred quality to maintain the required rate of capacity utilization in the factory.

3.2.5 Performance of the Tobacco Contract Farming

The tobacco contract farming involves an agreement signed between the British American Tobacco Isheyin Agronomy Limited (BATIAL) and individual farmers. The agreement is renewed annually. The agreement provides for the duration of the contract, obligations of BATIAL as well as the remuneration and obligations of farmers. The quantity of tobacco to be purchased from the farmer and the period of sale are specified in the agreement. The purchase price for the tobacco leaves sold under the agreement is indicated in a price list issued by BATIAL in consultation with the farmer. Payment is to be made at the end of every month during the buying season (usually between July and November). The obligations of the farmers under the contract are as follows.

- Produce and sell to BATIAL only good quality flue/air cured tobacco of the quantity and at the grades specified by BATIAL, and comply with all the instructions given by BATIAL in relation to the production and delivery of the tobacco. About 4 years ago BATIAL specified 19 grades of tobacco. In 2007, the grades were reduced to 10 and by 2008 they were further reduced to 6 in order to reduce complexity and in line with the uses to which tobacco is to be put.
- Provide adequate curing facilities for the tobacco leaves which conform to the specifications advised by BATIAL.
- Provide adequate facilities for dry tobacco leaf storage and for grading an handling the tobacco leaves.
- Plant and maintain a minimum of 100 stands a year of the varieties of tree seedlings approved by BATIAL.
- Use any loan advanced to him by BATIAL strictly for the purpose for which it was advanced and allow deductions by BATIAL of such amount equivalent to the loan from sums due to the farmer from the sale of the tobacco leaves to BATIAL provided that any portion of the loan which cannot be offset by deductions aforesaid shall be repaid in cash to BATIAL.

In its own part BATIAL, as far as practicable, will provide technical support and some of the necessary inputs to the farmer on lease-purchase basis, subject to the farmer's

demonstrated ability to deliver good quality tobacco leaves. The firm is also to provide cash advances if required and as it may determine. All inputs provided by BATIAL shall remain the property of the firm until the cost of such input has been offset by the farmer. Specifically, BATIAL provides inputs as in-kind loan, tractor for ploughing, re-ploughing, ridging and re-ridging and cash advance for firewood used for curing. BATIAL pay for fetching the firewood and supply same to all farmers. BATIAL has its own woodlot from where firewood for curing could be obtained and supplied to farmers. The firm also supplies tree seedlings (100-300) per farmer each year for the establishment of woodlots.

To enforce the terms of the contract, BATIAL employed 8 extension agents (EAs) who reside in the localities of the farmers and are involved in the registration of farmers and monitoring of farming activities. The EAs monitor from nursery operations up to harvesting and sales. For the purpose of purchasing farmers' products, BATIAL has 5 buying stores in (Igboho, Ago Are, Out, Komu and Idi Ago) the operation area where farmers send their tobacco for the company to buy. The stores are either company-owned or rented for marketing purposes. Stores are located in Okaka, Ago Are and Otu to supply materials after requests have been made by the farmers. Farmers often sign for the consignment received.

3.2.5.1 SWOT Analysis of Tobacco CF

The SWOT analysis in the case of tobacco is rather imperative in view of the massive campaign against smoking in Nigeria. As indicated below, the tobacco processing company BATIAL is providing desirable incentives to engender a win-win situation in the tobacco contract farming arrangement. As indicated below, there are strengths and opportunities for the arrangement to thrive but the threats are growing. As the farmers are having a feeling that their means of livelihood is threatened through the enlightenment campaign against smoking, they seem to become more sensitive to any action of BATIAL which tends to detract from the incentives being provided. Such sensitivity has led to a misunderstanding of the recent policy change regarding the payment of bonus to the farmers. According to the farmers,

> "Since 2000 BATIAL usually paid 10% of our total sales to us as a form of bonus at the end of the year. In 2007, this was stopped. We have appealed to BATIAL to resume this payment to no avail".

STRENGTHS	***WEAKNESSES***
▪ guarantee sustainable supply of raw materials ▪ win-win situation. It is seen as cooperation between two willing partners ▪ boost the rural economy and promote pro-poor growth.	▪ The participating farmers are aging; and getting a new generation of farmers may be difficult. According to the farmes, "Elders are more in this farming business and it is strenuous. Not many youths are interested. We don't encourage our children. We want them to be educated too so that they can work in high places. They must not suffer like we did." ▪ low level of agricultural mechanization. ▪ Frequent agitation for price increase. According to some farmers, "the work is tedious – from nursery, to planting on the field, harvesting, shringing, curing, sorting, grading and bailing. (60 kg = 1 bail). So we need increase in price of tobacco."
OPPORTUNITIES	***THREATS***
▪ BATIAL now recognizes the farmers as a group and appoint a leader within a cluster to ensure that they don't default. ▪ Farmers derive economic and social benefits from the contract engagement. According to some farmers, "part of BATIAL's social responsibility is the award of scholarships to farmers' children in higher institutions. We want the policy to be extended to us."	▪ Huge financial risk in terms of the amount of funding required and loan recovery. ▪ Initial capital requirement has been huge. BATIAL financed tobacco production for a period of between January and June only to await repayment as from August till November of the same year. The arrangement requires an extraordinary amount of trust. ▪ Public campaign against smoking. The farmers themselves are apprehensive. "In this Oke Ogun area there are no industries. The only company we rely on for our own livelihood is BATIAL. Now we are hearing that cigarette production is being threatened. We are hearing this in the radio. So please help us appeal to them to protect our source of income".

Farmers understood the payment as bonus, but the firm argued it is a kind of balance of the payment due to them for the tobacco purchased. During the purchase of tobacco leaves, 90% of the total amount due would be paid immediately while the balance of 10% would be paid at the end of the year. This practice had to be stopped by the company following a general policy against it by the management. This explanation has not gone down well with the farmers and they remain unconvinced. BATIAL explained that the average price paid to farmers consists of 10% commission on total sales, bailing bonus and incentive bonus for early commencement of operation. The incentive ranges from ₦1.5 per kg to ₦3.0/kg. For the first month of operation and bringing products forward for sale, the bonus is ₦3.0/kg but this declines to ₦1.5/kg as the buying season progresses. These components of the average price were being computed for individual farmers in the past. In 2007, however, it was decided that the components should be collapsed and the average price paid to each farmer without any distinction on the basis of each of the components. This is because the process of breaking down payments according to the various components was found to be too laborious, time consuming and expensive. The aggregation collapse does not change the average price agreed with the farmer; but this is what is being erroneously interpreted as the cessation of the incentive policy. Moreover, not all the farmers are entitled to the incentive bonus. Only those who enter the market early enough will benefit. There is need therefore, for BATIAL to encourage the farmers to enter the market early enough implying that they have to be very timely at every stage of the production cycle and timeliness also implies increased

productivity. Indeed, the productivity gain is even far more rewarding to each farmer than the incentive bonus.

3.2.5.2 Main Constraints

-Ban on cigarette smoking "In this Oke Ogun there is no single industry. The only thing we rely on for our livelihood is BATIAL and tobacco production. Now we are hearing that cigarette production is being threatened. Radio is making this announcement every time. How do we tackle this frustration?.

-"The work is very tedious and the price is not adequately remunerative. Right from the nursery to planting on the field, harvesting, transportation to curing sites, curing itself, sorting, grading and baling the activities are energy sapping. The price is not right. We are just managing."

3.2.5.3 Benefits of the Tobacco Contract Farming

The farmers found their participation in tobacco contracts quite beneficial. According to them, farm supplies are brought by BATIAL and delivered to the doorstep of farmers. Cash advance (loan) is delivered to the bank account of each farmer in the location of his choice that is nearest to him and this has tended to enhance access to credit. Farmers have been buying cars, tractors and have been building houses of their own. The focus group discussions with the farmers reveal benefits in the following key areas.

- Diversification of production activities
  "We also plant maize and yam. The income realized from tobacco is what we invest on planting these other crops".

- General improvement in standard of living
  "I was an operator before in the lumbering business and I know the difficulties I used to encounter. With this tobacco farming, money to educate my children, house to live in and feeding of my family have been accomplished without much headache".

- Satisfaction with agribusiness progress
  "Other farmers in this neighbourhood look unto me with envy. I have a pick-up truck which I purchased from the money I realized from tobacco farming. This has assisted me a lot in my farm business especially, in the haulage of fuelwood for curing and household use, and in conveying other crops to the market for sale…..I joined the outgrowers scheme of BATIAL in 2007 because I can observe the progress being made by farmers already in the scheme and I hope I too, will make progress".

- Improved housing condition
  "I am putting up a building in Isheyin. I started in 2006 and hope to finish in 2008"

- Progress in education of children
  "My children are in the polytechnic through returns from this tobacco work"

The agribusiness firm continues to register farmers for the tobacco contract scheme on an annual basis to sustain the regularity of supply of high quality raw material to its factory. The scheme has guaranteed sustainable supply of raw material since its inception. This is a major benefit.

4 IMPACT AND PRO-POOR IMPLICATIONS OF THE INSTITUTIONAL LINKAGES

In determining the impact of the institutional linkages a comparative analysis of the production activities of contract and non-contract farmers is carried out. The indicators for the purpose of the comparison include yield of each crop, unit cost of production, level of investment, gross margins, net returns and farm-gate prices. The hypothesis is that contract farmers will perform better than their non-contract counterparts in respect of each of these indicators. The impact is compared among the target crops (food and non-food) and necessary implications drawn for policy purposes. The assessment of the impact of CF begins with a comparison of some key characteristics of the farmers with respect to their productivity and profitability and a number of socio-demographic factors which determine their participation in contract farming. The impact of CF on farm income is analysed through appropriate econometric techniques in respect of cotton, ginger, rice and soybean. Tobacco is not included in the comparative analysis since unlike the other crops, all tobacco farmers are contract farmers.

4.1 Impact and Pro-Poor Implications of the Cotton Contract Farming

The analysis of impact focuses on changes in per capita income of cotton contract farming households compared to their non-contract counterparts and the extent to which CF account for the differences in income between the two groups of cotton farmers. The analysis begins with a comparison of some socio-demographic determinants of income as well as productivity and profitability differences between the contract and non-contract farmers.

4.1.1 Comparison of Socio-Demographic Factors Affecting Cotton Contract Farming

Four socio-demographic variables are considered important in CF arrangements. They are age of household head, education, household size and farming experience. The average age of non-contract farmers is 37.38 years compared to 41.36 years for the contract farmers. The non-contract farmers have an average of 6.9 years of schooling compared to 6.12 years for the contract farmers. There is statistically significant difference in these variables between the two groups of farmers. The non-contract farmers are younger but more educated than the contract farmers. The difference in household size and farming experience between the two groups is found not to be statistically significant (Table 4.1).

Table 4.1 Comparison of Socio-Demographic Variables Among Cotton Farmers in Nigeria

Variables	Non-Contract Cotton Farmers	Cotton Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Age of Head (years)	37.38	41.36	39.37	-3.13	0.00***
Education of Head (years)	6.9	6.12	6.51	2.60	0.01***
Household size (persons)	6.08	5.74	5.91	1.22	0.22
Farming experience (years)	22.42	23.06	22.74	-0.49	0.62

Source: Author's computation
Note: ***significant @ one percent level

4.1.2 Utilization of Input by Cotton Farmers

The cotton farmers are generally small-scale producers using simple technologies and employing labour on temporary basis to complement family labour. They use simple farm implements such as hoe, cutlass, matchet and ridgers. The value of these implements is significantly higher for the cotton contract farmers than their non-contract counterparts (Table 4.2). The land cultivated to cotton is also higher for contract farmers (2.36 ha) than non-contract farmers (2.20 ha) although the difference is not statistically significant. There is significance difference between the two groups of farmers in the use of labour. The contract farmers relied more on hired labour compared to the non-contract farmers whereas the use of family labour is higher among the non-contract farmers.

Table 4.2 Comparison of Input Utilization Among Cotton Farmers in Nigeria

	Non-Contract Cotton Farmers	Cotton Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Farm size (Ha)	4.34	8.74	6.54	-5.65	0.00***
Cotton land (Ha)	2.20	2.36	2.28	-0.66	0.51
Value of hoe (₦)	2353	4004	3178	-4.13	0.00***
Value of matchet (₦)	0	1243	621	-7.18	0.00***
Value of axe (₦)	141	967	554	-5.84	0.00***
Value of ridger (₦)	0	98	49	-9.04	0.00***
Mandayprep (days)	1	11.6	6.3	-6.86	0.00***
Mandayplant (days)	2.84	22.86	12.85	-11.18	0.00***
Mandayweed (days)	6.02	21.4	13.71	-8.82	0.00***
Mandayfert (days)	2.02	9.14	5.58	-7.82	0.00***
Mandaychem (days)	2.64	14.28	8.46	-6.07	0.00***
Mandayharvest (days)	3.48	0	1.74	7.92	0.00***
Famlabchem (days)	4.24	1	2.62	8.94	0.00***
Hired labour (days)	18	79.28	48.64	-9.60	0.00***
Family labour (days)	4.24	2.1	2.62	8.94	0.00***
Cotton family labour (days)	2.38	1.4	1.39	6.53	0.00***
Cotton hired labour (days)	10.43	28.35	19.39	-7.38	0.00***

Source: Author's computation
Note: ***significant @ one percent level

4.1.3 Cost and Productivity Differences in Cotton Production

Cotton yield is low among the farmers; being 1,666 Kg for the contract farmers and 1722 Kg for the non-contract farmers. There is no statistically significant difference in cotton yield between the two groups of farmers. Productivity of hired labour is significantly higher for non-contract farmers than for contract farmers. As shown in Table 4.3, however, production cost is significantly higher among the non-contract farmers than the contract farmers. Production cost is about twice as high for non-contract cotton farmers compared to the contract farmers.

Table 4.3 Comparison of Productivity Among Cotton Farmers in Nigeria

	Non-Contract Cotton Farmers	Cotton Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Hired labour productivity (₦)	29625	7385	18505	5.82	0.00***
Family labour productivity (₦)	227032	566640	396836	-4.79	0.00***
Cotton yield (Kg/Ha)	1722	1666	1694	0.15	0.87
Family labour productivity - cotton farm (₦)	247813	683213	465513	-3.05	0.00***
Hired labour productivity - cotton farm (₦)	22360	7282	14821	5.39	0.00***
Cotton production cost (₦/Kg)	25.87	12.58	19.23	5.20	0.00***
Cotton production cost (₦/Ha)	34121	16807	25464	3.94	0.00***

Source: Author's computation
Note: ***significant @ one percent level

4.1.4 Comparison of Cotton Enterprise Profitability

In terms of both gross margin and net profit, cotton enterprise is profitable in the study area; although the profit level is low. As shown in Table 4.4, the gross margin and net profit for contract farmers are higher than that of the non-contract farmers. The difference in profitability between the two groups of farmers is, however, not statistically significant.

Table 4.4 Comparison of Profitability Among Cotton Farmers in Nigeria

	Non-Contract Cotton Farmers	Cotton Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Cotton price (₦/Kg)	61	40	50	29.44	0.00***
Value of output (₦)	447,070	566,640	506,855	-1.69	0.09*
Variable cost (₦)	104,055	140,395	122,225	-2.16	0.03**
Gross margin (₦)	343,015	426,245	384,630	-1.33	0.18
Fixed cost (₦)	4,145	4,661	4,403	-0.91	0.36
Net profit (₦)	338,869	421,583	380,226	-1.32	0.18
Income per capita (₦)	61,063	75,079	68,071	-1.22	0.22
Value of cotton (₦)	169,370	184,320	176,845	-0.56	0.57
Variable cost for cotton (₦)	56,016	48,220	52,118	1.01	0.31
Cotton gross margin per farm (₦)	137,674	141,113	139,394	-0.17	0.86
Fixed cost for cotton (₦)	2,410	1,719	2065	2.09	0.03**
Cotton net profit per farm(₦)	135,263	139,393	137,328	-0.20	0.83
Cotton income per capita (₦)	22,990	24,965	23,977	-0.62	0.53
Cotton gross margin ₦/Kg	60.38	35.48	47.93	4.17	0.00***
Cotton gross margin ₦/Ha	82,299	46,892	64,595	2.79	0.00***
Cotton net profit ₦/Kg	59.13	34.96	47.05	4.01	0.00***
Cotton net profit ₦/Ha	80,828	46,277	63,553	2.73	0.00***

Source: Author's computation
Note: ***significant @ one percent level, **significant @ five percent level,
*significant @ ten percent level

4.1.5 Results of Econometric Analysis of Participation in Cotton CF and Its Impact on Income

The econometric analysis seeks to examine the differences in the characteristics and the determinants of participation in cotton contract farming as well as the impact of participation on income. First, a probit model is estimated to determine the key characteristics that influence participation in contract farming. The explanatory variables in the model are age of head of household, household size, education of head of household, crop mix, farm size and land available for cotton production. The results show that the model is able to correctly predict which farmers will have contracts in 74% of the cases in the sample (Table 4.5). With the exception of age, all the variables included in the model are strong predictors of participation in the cotton contract scheme. Farmers with smaller household size, less education and limited land available for cotton cultivation are more likely to participate in contract farming. Actual farm size and diversity of crop mix are significantly positively related to the probability of contracting. The marginal effects of these variables are shown in Table 4.6.

Table 4.5 Probit Model of Participation in Cotton Contract Farming
Dependent Variable: Contract Participation Dummy (Conpart)

Variable	Coefficient	S.E.	P[|Z|>z]
Age of head	0.016	0.025	0.53
Household size	-0.245**	0.125	0.05
Education of head	-0.360***	0.142	0.01
Crop mix	0.546**	0.237	0.02
Farm size	0.567***	0.166	0.00
Land available	-0.384***	0.125	0.00
Constant	2.244	1.598	0.16
Log likelihood = -45.23 LR chi2(6) = 48.15 Prob > chi2 = 0.00 Number of obs = 100			

% Correct predictions = 74%

Actual	Predicted		Total
	Contract	Non-contract	
Contract	37	13	50
Non-contract	13	37	50
Total	50	50	100

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level

Table 4.6 Marginal Effects of the Variables in the Cotton CF Probit Model

Variable	Coefficient	S.E.	P[|Z|>z]
Age of head	0.006	0.010	0.53
Household size	-0.097**	0.049	0.05
Education of head	-0.143***	0.057	0.01
Crop mix	0.217***	0.094	0.02
Farm size	0.226***	0.066	0.00
Land available	-0.153***	0.049	0.00

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level

The impact of participation in cotton contract farming is examined in a regression of per capita income as a function of the various household characteristics and a dummy variable ('conpart') representing contract farmers. The results show that per capita income is significantly affected by household size, farm size and participation in the contract farming scheme (Table 4.7). The coefficient on the 'conpart' variable is negative and implies that contracting decreases per capita income by ₦7,476 which is equivalent to 11% of the average income of cotton producers. It is important to stress, however, that an improvement in analytical technique (as we shall see shortly) contradicts this result.

In order to correct for the effects of selection bias the econometric analysis is extended beyond OLS regression. Thus, instead of estimating the per capita income using OLS model, the Heckman selection-correction model also known as treatment effects model is used. The model involves two equations- the selection equation which estimates the probability of participating in contract production and the outcome equation which estimates per capita income as a function of the household characteristics, the contract dummy variable and the inverse Mills ration (IMR). The IMR calculated from the selection equation, adjusts the outcome equation for selection bias associated with the fact that contract farmers and non-contract farmers may differ in unobservable characteristics (such as entrepreneurial skills and risk attitude). In the analysis, the maximum likelihood estimation technique is adopted; in which case all parameters are estimated simultaneously rather than the conventional Heckman two-step procedure. The results of the treatment effects model are presented in Table 4.8. The selection equation which predicts participation in a contract farming scheme gives results that are quite similar to those of the probit model in Table 4.5. However, the results of the outcome equation which predicts per capita income are quite different from those of the OLS model in Table 4.7. As shown in Table 4.8, the parameter 'athro' which is related to rho(□), the correlation between the error terms in the selection equation and the outcome equation is statistically significant implying that there is selection bias in the previous specification of the model. In the treatment effects model only two variables (farm size and 'conpart') are shown to be significant determinants of per capita income. Moreover, unlike in the OLS model, the sign of the 'conpart' dummy variable is positive; implying that participation in the cotton contract farming scheme has a significantly positive impact on per capita income. The results confirm that contracting raises per capita income by ₦13,328 which is equivalent to 20% of the average income of cotton producers.

Table 4.7 Regression Analysis (OLS) of Per Capita Income of Cotton Farmers
Dependent Variable: Household Income Per Capita

Variable	Coefficient	S.E.	P>|t|
Age of head	174	266	0.44
Household size	-2,786***	1,053	0.01
Education of head	-983	966	0.31
Crop mix	2,068	1,974	0.29
Farm size	5,574***	966	0.00
Conpart	-7,476**	3,214	0.02
Constant	24,072*	13,456	0.07
F(6, 93) = 7.32 Prob > F = 0.00 Adj R-squared = 0.27 Number of obs = 100			

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level
*significant @ ten percent level

Table 4.8 Treatment Effects Model of Per Capita Income of Cotton Farmers

Variable **Selection Equation** **Dependent Variable: Conpart**	Coefficient	S.E.	P[|Z|>z]
Age of head	0.019	0.025	0.44
Household size	-0.205*	0.113	0.07
Education of head	-0.294***	0.115	0.01
Crop mix	0.547***	0.210	0.00
Farm size	0.406***	0.137	0.00
Land available	-0.218**	0.103	0.03
Constant	0.853	1.365	0.53
Outcome Equation **Dependent Variable: Per Capita Income**			
Age of head	-61	264	0.81
Household size	-992	1,246	0.42
Education of head	779	1,146	0.49
Crop mix	-536	2,318	0.82
Farm size	3,830***	1,144	0.00
Conpart	13,328***	4,613	0.00
Constant	12,147	15,705	0.44
ath(rho)	-1.444***	0.366	0.00
Log likelihood = -45.23 LR chi2(6) = 48.15 Prob > chi2 = 0.00 LR test of independent equations: (rho=0) Chi2(1) = 10.91 Prob > Chi2 = 0.001 Number of obs = 100			

Source: Author's computation

Note: ***significant @ one percent level
**significant @ five percent level
*significant @ ten percent level

4.2 Impact and Pro-Poor Implications of the Ginger Contract Farming

The analysis of impact focuses on changes in per capita income of ginger contract farming households compared to their non-contract counterparts and the extent to which CF account for the differences in income between the two groups of ginger farmers. The analysis begins with a comparison of some socio-demographic determinants of income as well as productivity and profitability differences between the contract and non-contract farmers.

4.2.1 Comparison of Socio-Demographic Factors Affecting Ginger Contract Farming

Four socio-demographic variables are considered important in CF arrangements. They are age of household head, education, household size and farming experience. With the exception of education, these variables differ significantly between the contract and non-contract ginger farmers (Table 4.9). The average age of non-contract farmers is 43.84 years compared to 38.72 years for the contract farmers. The non-contract farmers have an average of 10.38 years of schooling compared to 10.9 years for the contract farmers. The non-contract farmers are older, more experienced with larger household size than the contract farmers.

Table 4.9 Comparison of Socio-Demographic Variables Among Ginger Farmers in Nigeria

Variables	Non-Contract Ginger Farmers	Ginger Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Age of Head (years)	43.84	38.72	41.28	2.40	0.01***
Education of Head (years)	10.38	10.9	10.64	-0.53	0.59
Household size (persons)	6.54	4.86	5.7	5.43	0.00***
Farming experience (years)	21.52	17.7	19.61	1.71	0.08*

Source: Author's computation
Note: ***significant @ one percent level
*significant @ ten percent level

4.2.2 Utilization of Input by Ginger Farmers

Ginger production is characterized by use of simple farm implements such as hoe, cutlass, matchet, axe, knife and head pan. The value of these implements is not significantly different between the contract and non-contract farmers with the exception of hoe and head pan (Table 4.10). The land cultivated to ginger is significantly higher for contract farmers (2.62 ha) than non-contract farmers (2.08 ha). The non-contract ginger farmers use more of both family and hired labour than the contract farmers. The difference between the two groups of farmers in the use of labour is however, not statistically significant.

Table 4.10 Comparison of Input Utilization Among Ginger Farmers in Nigeria

	Non-Contract Ginger Farmers	Ginger Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Farm size (Ha)	2	3	2.63	-2.10	0.03**
Ginger land (Ha)	2	3	2.35	-2.46	0.01***
Value of hoe (₦)	2275	5267	3771	-2.08	0.03**
Value of cutlass (₦)	984	1255	1119	-0.66	0.50
Value of matchet (₦)	238	155	196	0.61	0.54
Value of axe (₦)	340	374	357	-0.12	0.90
Value of knife (₦)	948	563	755	0.69	0.48
Value of headpan (₦)	0	1106	553	-1.67	0.09*
Mandayprep (days)	39	16	28	2.34	0.02**
Mandayplant (days)	13	14	13	-0.25	0.80
Mandayweed (days)	17	20	18	-0.94	0.34
Mandayfert (days)	4	8	6	-1.70	0.09*
Mandaychem (days)	5	5	5	0.09	0.92
Mandayharvest (days)	6	18	12	-5.58	0.00***
Famlabbush (days)	14	13	13	0.28	0.77
Famlabland (days)	12	15	13	-0.83	0.40
Famlabplant (days)	15	13	14	0.63	0.52
Famlabweed (days)	27	15	21	2.82	0.00***
Famlabfert (days)	3	3	3	0.37	0.71
Famlabchem (days)	3	3	3	-0.19	0.84
Famlabharvest (days)	0	15	7	-9.74	0.00***
Hired labour (days)	86	83	85	0.23	0.81
Family labour (days)	76	78	77	-0.12	0.89
Ginger family labour (days)	57	54	55	0.32	0.74
Ginger hired labour (days)	69	66	68	0.29	0.76

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level
*significant @ ten percent level

4.2.3 Costs and Productivity Differences in Ginger Production

The yield of ginger is rather low among the farmers; being 4,410 Kg for the contract farmers and 3,484 Kg for the non-contract farmers. Nonetheless, ginger yield for the contract farmers is significantly higher than that of the non-contract farmers (Table 4.11). Productivity of hired labour is significantly higher for non-contract farmers than for contract farmers whereas the reverse is the case in respect of family labour. There is significant difference in production cost between the two groups of farmers. In general, the non-contract farmers incur higher production cost than their non-contract counterparts.

Table 4.11 Comparison of Productivity Among Ginger Farmers in Nigeria

	Non-Contract Ginger Farmers	Ginger Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Hired labour productivity (₦)	63058	12975	38017	2.48	0.01***
Family labour productivity (₦)	7323	11998	9661	-3.09	0.00***
Ginger yield (Kg/Ha)	3484	4410	3947	-2.85	0.00***
Family labour productivity - ginger farm (₦)	7839	15082	11460	-3.93	0.00***
Hired labour productivity - ginger farm (₦)	71658	17653	44656	2.28	0.02**
Ginger production cost ₦/Kg	15.44	9.58	12.52	3.06	0.00***
Ginger production cost ₦/Ha	45391	40200	42795	0.88	0.37

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level

4.2.4 Comparison of Ginger Enterprise Profitability

Ginger enterprise in the study area is profitable in terms of both gross margin and net profit. As shown in Table 4.12, the gross margin and net profit for contract farmers are higher than that of the non-contract farmers. The difference in profitability between the two groups of farmers is statistically significant.

Table 4.12 Comparison of Profitability Among Ginger Farmers in Nigeria

	Non-Contract Ginger Farmers	Ginger Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Ginger price ₦/Kg	54.86	77.56	66.21	-6.72	0.00***
Value of output (₦)	332,386	657,290	494,838	-8.21	0.00***
Variable cost (₦)	73,467	91,068	82,268	-1.29	0.19
Gross margin (₦)	258,918	566,221	412,569	-7.85	0.00***
Fixed cost (₦)	4,785	8,722	6,753	-1.82	0.07*
Net profit (₦)	254,133	557,498	405,816	-7.68	0.00***
Income per capita (₦)	42,767	121,398	82,082	-9.23	0.00***
Value of ginger (₦)	269,239	579,025	424,132	-8.86	0.00***
Variable cost for ginger (₦)	60,813	63,115	61,964	-0.25	0.79
Ginger gross margin per farm(₦)	196,982	449,628	323,305	-6.36	0.00***
Fixed cost ginger production (₦)	3,879	6,618	5,249	-1.52	0.13
Ginger net profit per farm (₦)	193,103	443,009	318,056	-6.26	0.00***
Ginger income per capita (₦)	33,417	93,374	63,395	-7.41	0.00***
Ginger gross margin ₦/kg	41.29	57.54	49.41	-3.09	0.00***
Ginger gross margin ₦/ha	135,726	249,545	192,635	-4.91	0.00***
Ginger net profit ₦/kg	40.19	56.53	48.36	-3.17	0.00***
Ginger net profit ₦/ha	133,108	244,446	188,777	-4.88	0.00***

Source: Author's computation

Note: ***significant @ one percent level

*significant @ ten percent level

4.2.5 Results of Econometric Analysis of Participation in Ginger CF and Its Impact on Income

The econometric analysis seeks to examine the differences in the characteristics and the determinants of participation in ginger contract farming as well as the impact of participation on income following a three-step analytical procedure. First, a probit model is estimated to determine the key characteristics that influence participation in contract farming. The explanatory variables in the model are age of head of household, household size, education of head of household, farm size and land available for ginger production. The results show that the model is able to correctly predict which farmers will have contracts in 79% of the cases in the sample. As shown in Table 4.13, education and farm size are not significantly related to the probability of contracting in ginger production. The significant predictors of participation in ginger contract farming are age, household size and availability of land. The marginal effects of these variables are shown in Table 4.14.

Table 4.13 Probit Model of Participation in Ginger Contract Farming
Dependent Variable: Contract Participation Dummy (Conpart)

Variable	Coefficient	S.E.	P[|Z|>z]
Age of head	-0.035**	0.016	0.03
Household size	-0.552***	0.125	0.00
Education of head	-0.045	0.034	0.19
Farm size	0.196	0.207	0.34
Land available	0.388**	0.166	0.02
Constant	3.727***	1.153	0.00
Log likelihood = -47.73 LR chi2(5) = 43.15 Prob > chi2 = 0.00 Number of obs = 100			

% Correct predictions = 79%

Actual	Predicted		Total
	Contract	Non-contract	
Contract	41	9	50
Non-contract	12	38	50
Total	53	47	100

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level

Table 4.14 Marginal Effects of the Variables in the Ginger CF Probit Model

Variable	Coefficient	S.E.	P[|Z|>z]
Age of head	-0.014**	0.006	0.03**
Household size	-0.219***	0.049	0.00***
Education of head	-0.018	0.013	0.18
Farm size	0.078	0.082	0.34
Land available	0.154**	0.066	0.02**

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level

The impact of participation in ginger contract farming is examined in a regression of per capita income as a function of the various household characteristics and a dummy variable ('conpart') representing contract farmers. Table 4.15 presents the estimation results which show that the model explains about 51% of the variation in per capita income across the sample. The results show that per capita income is significantly affected by age, household size, farm size and participation in the contract farming scheme. As shown in Table 4.15, the coefficient on the 'conpart' variable is positive and highly significant; implying that contracting raises per capita income by ₦39,656 which is equivalent to 48% of the average income of ginger producers.

In order to correct for the effects of selection bias the econometric analysis is extended beyond OLS regression. Thus, instead of estimating the per capita income using OLS model, the Heckman selection-correction model also known as treatment effects model is used. The model involves two equations- the selection equation which estimates the probability of participating in contract production and the outcome equation which estimates per capita income as a function of the household characteristics, the contract dummy variable and the inverse Mills ration (IMR). The IMR calculated from the selection equation, adjusts the outcome equation for selection bias associated with the fact that

contract farmers and non-contract farmers may differ in unobservable characteristics (such as entrepreneurial skills and risk attitude). In the analysis, the maximum likelihood estimation technique is adopted; in which case all parameters are estimated simultaneously rather than the conventional Heckman two-step procedure. The results of the treatment effects model are presented in Table 4.16. The selection equation which predicts participation in the ginger contract farming scheme gives results that are quite similar to those of the probit model in Table 4.13. Also, the results of the outcome equation which predicts per capita income are quite similar to those of the OLS model in Table 4.15. The coefficient of the 'conpart' (dummy) variable in the treatment effects model (40,116) is only a little bit higher than the dummy coefficient in the OLS model (39,656). As shown in Table 4.16, the parameter 'athro' which is related to rho(□), the correlation between the error terms in the selection equation and the outcome equation is not statistically significant implying that there is no selection bias in the previous specification of the model. The absence of selection bias cannot be assumed away *ab initio*, as experience with cotton contract in the previous analysis has shown. Thus, it is important to be reassured that both versions of the model yield similar results in this case – that the effect of contracting on per capita income is positive and statistically significant.

Table 4.15 Regression Analysis (OLS) of Per Capita Income of Ginger Farmers
Dependent Variable: Household Income Per Capita

Variable	Coefficient	S.E.	P>|t|
Age of head	-681.93*	365.43	0.06
Household size	-5,515.40**	2,321.74	0.02
Education of head	234.31	807.73	0.77
Farm size	22,086.76***	4,543.14	0.00
Conpart	39,655.96***	8,335.63	0.00
Constant	61,171.46**	26,418.52	0.02
F(5, 94) = 21.56 Prob > F = 0.00 Adj R-squared = 0.51 Number of obs = 100			

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level
*significant @ ten percent level

Table 4.16 Treatment Effects Model of Per Capita Income of Ginger Farmers

Variable **Selection Equation** **Dependent Variable: Conpart**	Coefficient	S.E.	P[|Z|>z]
Age of head	-0.035**	0.016	0.03
Household size	-0.553***	0.134	0.00
Education of head	-0.045	0.034	0.19
Farm size	0.197	0.208	0.34
Land available	0.387**	0.168	0.02
Constant	3.735***	1.207	0.00
Outcome Equation **Dependent Variable: Per Capita Income**			
Age of head	-678.54*	383.18	0.07
Household size	-5,456.49*	3,389.31	0.10
Education of head	237.9757	798.89	0.77
Farm size	22,034.69***	4,942.05	0.00
Conpart	40,116.5*	21,401.57	0.06
Constant	60,519.48	37,984.33	0.11
ath(rho)	-0.008	0.385	0.98
Log likelihood = -1233.44 LR chi2(9) = 74.44 Prob > chi2 = 0.00 LR test of independent equations: (rho=0) Chi2(1) = 0.00 Prob > chi2 = 0.98 Number of obs = 100			

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level
*significant @ ten percent level

4.3 Impact and Pro-Poor Implications of the Rice Contract Farming

The analysis of impact focuses on changes in per capita income of rice contract farming households compared to their non-contract counterparts and the extent to which CF account for the differences in income between the two groups of rice farmers. The analysis begins with a comparison of some socio-demographic determinants of income as well as productivity and profitability differences between the contract and non-contract rice farmers.

4.3.1 Comparison of Socio-Demographic Factors Affecting Rice Contract Farming

Four socio-demographic variables are considered important in rice CF arrangements. They are age of household head, education, household size and farming experience. Rice contract farmers are older, more educated, have more farming experience and smaller household size than their non-contract counterparts. As shown in Table 4.17, there is no statistically significant difference in all the four variables between the two groups of farmers with the exception of age of household head. The average age of rice contract farmers is 40.46 years compared to 34.9 years for the non-contract farmers.

Table 4.17 Comparison of Socio-Demographic Variables Among Rice Farmers in Nigeria

Variables	Non-Contract Rice Farmers	Rice Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Age of Head (years)	34.9	40.46	37.68	-4.11	0.00***
Education of Head (years)	8.00	8.72	8.36	-1.00	0.32
Household size (persons)	5.8	5.56	5.68	0.64	0.52
Farming experience (years)	12.26	13.62	12.94	-0.93	0.35

Source: Author's computation
Note: ***significant @ one percent level

4.3.2 Utilization of Input By Rice Farmers

Rice production among the sample farmers is characterized by use of simple farm implements such as hoe, cutlass, matchet, axe and sickle. There is statistically significant difference in the value of these implements between the contract and non-contract farmers with the exception of cutlass (Table 4.18). The land cultivated to rice is higher for non-contract farmers (2.32 ha) than contract farmers (1.92 ha); although the difference is not statistically significant. There is no statistically significant difference in the use of family labour between the two groups of farmers. However, the use of hired labour by the rice contract farmers is significantly higher than that of their non-contract counterparts.

4.3.3 Cost and Productivity Differences in Rice Production

The difference in rice yield between the contract and non-contract farmers is statistically significant. Rice yield for the contract farmers (2,651 kg) is significantly higher than that of the non-contract farmers (1,898 kg). Productivity of hired labour is significantly higher for non-contract farmers than for contract farmers; but there is no statistically significant difference in the use of family labour between the two groups of farmers (Table 4.19). There is significant difference in production cost between the two groups of farmers. In general, the contract farmers incur higher production cost than their non-contract counterparts.

4.3.4 Comparison of Rice Enterprise Profitability

Profitability of the rice enterprise is measured in terms of gross margin (operating profit) and net profit. Judging by these indicators, both the contract and non-contract rice farmers operate profitably. The profit levels realized by the contract farmers are much higher than that of their non-contract counterpart (Table 4.20). The difference in profitability between the two groups of farmers however, seems not to be significant in statistical sense.

Table 4.18 Comparison of Input Utilization Among Rice Farmers in Nigeria

	Non-Contract Rice Farmers	Rice Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Farm size (Ha)	6.24	1.70	3.97	2.39	0.01***
Rice land (Ha)	2.32	1.92	2.12	0.68	0.49
Value of hoe (₦)	2491	4370	3430	-1.23	0.22
Value of small hoe (₦)	835	3446	2140	-2.19	0.03**
Value of cutlass (₦)	853	1143	997	-0.66	0.50
Value of matchet (₦)	83	575	329	-2.28	0.02**
Value of axe (₦)	77.83	254.69	166	-2.70	0.00***
Value of sickle (₦)	445	4183	2314	-5.76	0.00***
Mandayprep (days)	2.8	10.3	6.55	-3.03	0.00***
Mandayplant (days)	2.76	12.02	7.39	-3.65	0.00***
Mandayweed (days)	9.46	25.14	17.3	-2.69	0.00***
Mandayfert (days)	0.26	0.92	0.59	-2.14	0.03**
Mandaychem (days)	0.7	1.44	1.07	-1.36	0.17
Mandayharvest (days)	14.88	19.66	17.27	-0.83	0.40
Famlabbush (days)	6.6	5.68	6.14	0.42	0.66
Famlabland (days)	7.08	8.54	7.81	-0.57	0.56
Famlabplant (days)	10.62	8.44	9.53	0.68	0.49
Famlabweed (days)	8.48	6.90	7.69	0.58	0.56
Famlabfert (days)	1.46	2.44	1.95	-2.39	0.01***
Famlabchem (days)	1.22	1.58	1.40	-1.57	0.11
Famlabharvest (days)	9.14	10.08	9.61	-0.24	0.80
Hired labour (days)	30.86	69.48	50.17	-3.01	0.00***
Family labour (days)	44.6	43.66	44.13	0.08	0.92
Rice family labour (days)	23.70	32.27	27.99	-1.11	0.26
Rice hired labour (days)	19.71	53.67	36.69	-3.19	0.00***

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level

Table 4.19 Comparison of Productivity Among Rice Farmers in Nigeria

	Non-Contract Rice Farmers	Rice Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Hired labour productivity (₦)	102,776	34,742	68,759	5.21	0.00***
Family labour productivity (₦)	11,241	10,348	10,794	0.46	0.64
Rice yield (Kg/Ha)	1,898	2,651	2,274	-1.64	0.10*
Family labour productivity - rice farm (₦)	32,453	12,710	22,582	1.29	0.19
Hired labour productivity - rice farm (₦)	220,777	43,913	132,345	2.07	0.04**
Rice production cost (₦/Kg)	7.86	18.06	12.86	-5.95	0.00***
Rice production cost (₦/Ha)	15,090	36,716	25,903	-5.81	0.00***

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level
*significant @ ten percent level

Table 4.20 Comparison of Profitability Among Rice Farmers in Nigeria

	Non-Contract Rice Farmers	Rice Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Rice price N/kg					
Value of output (₦)	154,664	136,925	145,794	0.85	0.39
Variable cost (₦)	28,198	39,598	33,898	-4.02	0.00***
Gross margin (₦)	126,466	97,327	111,896	1.43	0.15
Fixed cost (₦)	4,785	13,972	9,378	-3.22	0.00***
Net profit (₦)	121,680	83,354	102,517	1.91	0.05**
Income per capita(₦)	24,714	21,069	22,892	0.70	0.48
Value of rice (₦)	92,570	123,107	107,838	-1.55	0.12
Variable cost for rice (₦)	14,511	30,724	22,618	-5.60	0.00***
Rice gross margin per farm (₦)	58,039	78,779	68,409	-1.08	0.28
Fixed cost for rice production (₦)	3,050	11,349	7,200	-3.57	0.00***
Rice net profit per farm (₦)	54,988	67,429	61,208	-0.66	0.50
Rice income per capita (₦)	11,180	16,558	13,869	-1.19	0.23
Rice gross margin (₦/kg)	27.44	22.07	24.76	2.30	0.02**
Rice gross margin (₦/ha)	50,204	69,589	59,897	-1.03	0.30
Rice net profit (₦/kg)	26.09	17.93	22.01	3.49	0.00***
Rice net profit (₦/ha)	47,262	59982	53,622	-0.69	0.48

Source: Author's computation

Note: ***significant @ one percent level
**significant @ five percent level
*significant @ ten percent level

4.3.5 Results of Econometric Analysis of Participation in Rice CF and Its Impact on Income

The econometric analysis seeks to examine the differences in the characteristics and the determinants of participation in rice contract farming as well as the impact of participation on income following a three-step analytical procedure. First, a probit model is estimated to determine the key characteristics that influence participation in rice contract farming. The explanatory variables in the model are age of head of household, household size, education of head of household, farm size, crop mix and land available for rice production. The results show that the model is able to correctly predict which farmers will have contracts in 78% of the cases in the sample. As shown in Table 4.21, household size, education of head of household, farm size and crop mix are not significantly related to the probability of contracting in rice production. The significant predictors of participation in rice contract farming are age and availability of land. The marginal effects of these variables are shown in Table 4.22.

Table 4.21 Probit Model of Participation in Rice Contract Farming
Dependent Variable: Contract Participation Dummy (Conpart)

Variable	Coefficient	S.E.	P[|Z|>z]
Age of head	0.086***	0.024	0.00
Household size	-0.088	0.086	0.30
Education of head	0.010	0.044	0.81
Crop mix	0.243	0.154	0.11
Farm size	0.375	0.368	0.30
Land available	-0.895***	0.212	0.00
Constant	-2.020*	1.234	0.10
Log likelihood = -46.16 LR chi2(6) = 46.30 Prob > chi2 = 0.00 Number of obs = 100			

% Correct predictions = 78%

Actual	Predicted		Total
	Contract	Non-contract	
Contract	40	10	50
Non-contract	12	38	50
Total	52	48	100

Source: Author's computation
Note: ***significant @ one percent level
*significant @ ten percent level

Table 4.22 Marginal Effects of the Variables in the Rice CF Probit Model

Variable	Coefficient	S.E.	P[|Z|>z]
Age of head	0.008	0.006	0.19
Household size	-0.009	0.009	0.33
Education of head	0.001	0.004	0.82
Crop mix	0.024	0.018	0.17
Farm size	0.038	0.036	0.28
Land available	-0.091**	0.045	0.04

Source: Author's computation
Note: **significant @ five percent level

The impact of participation in rice contract farming is examined in a regression of per capita income as a function of the various household characteristics and a dummy variable ('conpart') representing contract farmers. Table 4.23 presents the estimation results which show that per capita income of rice farmers is not significantly affected by age of head of household, education of head of household, farm size, crop mix and land available for rice production. The coefficient on the 'conpart' variable is positive but not statistically significant; implying that contracting has no significant impact on per capita income of rice producers. This result is possibly due to the effects of selection bias.

In order to correct for the effects of selection bias another variant of econometric analysis is applied. Thus, instead of estimating the per capita income using OLS model, the Heckman selection-correction model also known as treatment effects model is used. The model involves two equations- the selection equation which estimates the probability of participating in contract production and the outcome equation which estimates per capita income as a function of the household characteristics, the contract dummy variable and the inverse Mills ratio (IMR). The IMR calculated from the selection

equation, adjusts the outcome equation for selection bias associated with the fact that rice contract farmers and non-contract farmers may differ in unobservable characteristics (such as entrepreneurial skills and risk attitude). In the analysis, the maximum likelihood estimation technique is adopted; in which case all parameters are estimated simultaneously rather than the conventional Heckman two-step procedure. The results of the treatment effects model are presented in Table 4.24.

The selection equation which predicts participation in the rice contract farming scheme gives results that are different from those of the probit model in Table 4.21. According to the probit model, the significant predictors of participation in rice contract farming are age and availability of land. On the basis of the selection equation in the treatment effects model, however, the predictors are age, crop mix and availability of land. Indeed, as shown in Table 4.24, the parameter 'athro' which is related to rho(□), the correlation between the error terms in the selection equation and the outcome equation is statistically significant implying that there is selection bias in the previous specification of the model. Evidently, the results of the outcome equation which predicts per capita income are diametrically different from those of the OLS model in Table 4.23. In the OLS model, household size is the only significant determinant of per capita income. In the treatment effects model, however, the estimated outcome equation shows that household size, crop mix and the 'conpart' dummy are significant variables. The coefficient of the 'conpart' variable contrary to the OLS model is positive and statistically significant; implying that the impact of contracting of rice production on per capita income is positive and statistically significant. The results confirm that contracting raises per capita income by ₦13,957 which is equivalent to 61% of the average income of rice producers across the sample.

Table 4.23 Regression Analysis (OLS) of Per Capita Income of Rice Farmers
Dependent Variable: Household Income Per Capita

Variable	Coefficient	S.E.	P>|t|
Age of head	348.61	364.26	0.34
Household size	-2,792.72**	1,199.68	0.02
Education of head	142.75	643.00	0.82
Crop mix	3,089.51	2,041.80	0.13
Farm size	4,000.79	5,345.29	0.45
Conpart	3,062.41	4,843.87	0.52
Constant	1,086.828	17,066.68	0.94
F(6, 93) = 2.16 Prob > F = 0.05 Adj R-squared = 0.06 Number of obs = 100			

Source: Author's computation
Note: **significant @ five percent level

Table 4.24 Treatment Effects Model of Per Capita Income of Rice Farmers

Variable **Selection Equation** **Dependent Variable: Conpart**	Coefficient	S.E.	P[|Z|>z]
Age of head	0.085***	0.024	0.00
Household size	-0.098	0.086	0.25
Education of head	0.001	0.045	0.98
Crop mix	0.274*	0.149	0.06
Farm size	0.468	0.375	0.21
Land available	-0.982***	0.203	0.00
Constant	-1.855	1.234	0.13
Outcome Equation **Dependent Variable: Per Capita Income**			
Age of head	16.10	378.34	0.96
Household size	-2,769.12**	1,188.00	0.02
Education of head	-127.84	643.47	0.84
Crop mix	3,259.67*	2,022.73	0.10
Farm size	5,463.71	5,316.92	0.30
Conpart	13,957.30**	6,082.39	0.02
Constant	8,126.24	17,072.12	0.63
ath(rho)	-0.43***	0.16	0.00
LR test of independent equations: (rho=0) Chi2(1) = 5.05 Prob > Chi2 = 0.02 Number of obs = 100			

Source: Author's computation

Note: ***significant @ one percent level
**significant @ five percent level
*significant @ ten percent level

4.4 Impact and Pro-Poor Implications of the Soybean Contract Farming

The analysis of impact focuses on changes in per capita income of soybean contract farming households compared to their non-contract counterparts and the extent to which CF account for the differences in income between the two groups of soybean farmers. The analysis begins with a comparison of some socio-demographic determinants of income as well as productivity and profitability differences between the contract and non-contract soybean farmers.

4.4.1 Comparison of Socio-Demographic Factors Affecting Soybean Contract Farming

Four socio-demographic variables are considered important in soybean CF arrangements. They are age of household head, education, household size and farming experience. There is no statistically significant difference in the level of education of farmers in the contract and non-contract groups. The years of schooling are 9.56 and 9.96 respectively. Other characteristics of the farmers differ significantly between the two groups in statistical sense. The average age of soybean contract farmers is 54.53 years compared to 50.0 years for the non-contract farmers. The household size averaged 4.40 compared to 5.03 for non-contract farmers; while their farming experience averaged 28.63 compared to 20.73 in the case of the non-contract farmers. The soybean contract farmers are older, more experienced and have smaller household size than their non-contract counterparts (Table 4.25).

Table 4.25 Comparison of Socio-Demographic Variables Among Soybean Farmers in Nigeria

Variables	Non-Contract Soybean Farmers	Soybean Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Age of Head (years)	50.00	54.53	52.26	-1.97	0.05**
Education of Head (years)	9.96	9.56	9.76	0.29	0.77
Household size (persons)	5.03	4.40	4.71	2.36	0.02**
Farming experience (years)	20.73	28.63	24.68	-3.53	0.00***

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level

4.4.2 Utilization of Input By Soybean Farmers

Soybean production among the sample farmers is characterized by use of simple farm implements such as hoe, cutlass, basket, axe and sprayer. There is statistically significant difference in the value of these implements between the contract and non-contract farmers with the exception of axe (Table 4.26). The land cultivated to soybean is higher for non-contract farmers (2.60 ha) than contract farmers (1.80 ha) and the difference is statistically significant. There is statistically significant difference in the use of labour (family and hired) between the two groups of farmers. Labour use by the soybean contract farmers is significantly higher than that of their non-contract counterparts.

Table 4.26 Comparison of Input Utilization Among Soybean Farmers in Nigeria

	Non-Contract Soybean Farmers	Soybean Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Farm size (Ha)	4.0	2.4	3.2	3.23	0.00***
Soybean land (Ha)	2.6	1.80	1.3	8.72	0.00***
Value of hoe (₦)	4,523	7,336	5,930	-2.47	0.01***
Value of cutlass (₦)	715	7,743	4,229	-4.06	0.00***
Value of axe (₦)	350	0	175	1.30	0.19
Value of basket (₦)	0	3,233	1,616	-2.65	0.10*
Value of sprayer (₦)	844	0	422	3.15	0.00***
Mandayprep (days)	2.53	7.73	5.15	-2.23	0.02**
Mandayplant (days)	7.66	14.2	10.93	-3.43	0.00***
Mandayweed (days)	14.2	17.26	15.73	-1.17	0.24
Mandayfert (days)	0	4.6	2.3	-3.34	0.00***
Mandaychem (days)	0	1.2	0.63	-4.53	0.00***
Mandayharvest (days)	0	11.4	5.7	-9.80	0.00***
Famlabbush (days)	3.2	11.26	7.2	-3.31	0.00***
Famlabland (days)	0.1	0	0.05	1.00	0.32
Famlabplant (days)	4.96	4.46	4.71	1.15	0.25
Famlabweed (days)	0	4.26	2.13	-33.79	0.00***
Famlabfert (days)	0	1.9	0.95	-21.65	0.00***
Famlabchem (days)	0.13	0	0.06	1.68	0.09*
Famlabharvest (days)	2.53	14.7	8.61	-7.39	0.00***
Hired labour (days)	24.4	56.56	40.48	-5.32	0.00***
Family labour (days)	11	36.53	23.7	-7.66	0.00***
Soybean family labour (days)	6.04	36.53	21.28	-12.43	0.00***
Soybean hired labour (days)	14.72	56.56	35.64	-7.36	0.00***

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level
*significant @ ten percent level

4.4.3 Cost and Productivity Differences in Soybean Production

Soybean yield is generally low among the sample farmers. There is no statistically significant difference in the yield (1,050 kg) of the soybean contract farmers and that (1,074 kg) of their non-contract counterparts. Productivity of labour (both family and hired) is significantly higher for non-contract soybean farmers than for contract farmers (Table 4.27). There is statistically significant difference in production cost between the two groups of farmers. In general, the contract farmers incur higher production cost than their non-contract counterparts.

Table 4.27 Comparison of Productivity Among Soybean Farmers in Nigeria

	Non-Contract Soybean Farmers	Soybean Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Hired labour productivity (₦)	17,965	5,189	11,577	6.47	0.00***
Family labour productivity (₦)	66,616	8,258	37,437	3.04	0.00***
Soybean yield (Kg/Ha)	1,074	1,050	1,062	0.23	0.81
Family labour productivity - soybean farm (₦)	70,923	5,373	38,148	2.80	0.00***
Hired labour productivity - soybean farm (₦)	17,046	3,115	10,080	5.40	0.00***
Soybean production cost ₦/Kg	18.44	39.41	28.93	-3.70	0.00***
Soybean production cost ₦/Ha	17,501	39,574	28,538	-4.10	0.00***

Source: Author's computation
Note: ***significant @ one percent level

4.4.4 Comparison of Soybean Enterprise Profitability

Profitability of the rice enterprise is measured in terms of gross margin (operating profit) and net profit. Judging by these indicators, both the contract and non-contract soybean farmers operate profitably. The profit levels realized by the contract farmers are much higher than that of their non-contract counterparts (Table 4.28). However, there is no statistically significant difference in profitability between the two groups of farmers.

Table 4.28 Comparison of Profitability Among Soybean Farmers in Nigeria

	Non-Contract Soybean Farmers	Soybean Contract Farmers	All Farmers	t-test of difference	
				t-statistic	Prob>|t|
Soybean price ₦/Kg	90	61	76	7.04	0.00***
Value of output (₦)	379,478	258,122	318,800	2.48	0.01***
Variable cost (₦)	44,839	46,660	45,749	-0.25	0.79
Gross margin (₦)	334,638	211,462	273,050	2.74	0.00***
Fixed cost (₦)	6,433	18,313	12,373	-3.58	0.00***
Net profit (₦)	328,205	193,148	260,676	2.96	0.00***
Income per capita (₦)	71,319	49,288	60,303	2.03	0.00***
Value of soya (₦)	180,416	165,188	172,802	0.44	0.66
Variable cost for soybean (₦)	26,690	46,660	36,675	-4.56	0.00***
Soybean gross margin per farm (₦)	180,414	211,461	195,938	-0.93	0.35
Fixed cost of soybean (₦)	3,647	18,313	10,980	-4.47	0.00***
Soybean net profit per farm (₦)	176,767	193,148	184,957	-0.47	0.63
Soybean income per capita (₦)	38,633	49,288	43,960	-1.40	0.16
Soybean gross margin ₦/Kg	102.11	90.12	96.12	102.11	0.19
Soybean gross margin ₦/Ha	101,138	94,912	98,025	0.51	0.61
Soybean net profit ₦/Kg	99.57	76.02	87.80	2.55	0.01***
Soybean net profit ₦/Ha	99,052	80,976	90,014	1.47	0.14

Source: Author's computation
Note: ***significant @ one percent level

4.4.5 Results of Econometric Analysis of Participation in Soybean CF and Its Impact on Income

The econometric analysis seeks to examine the differences in the characteristics and the determinants of participation in soybean contract farming as well as the impact of participation on income following a three-step analytical procedure. First, a probit model is estimated to determine the key characteristics that influence participation in soybean contract farming. The explanatory variables in the model are age of head of household, household size, education of head of household, farm size, and land available for soybean production. The results show that the model is able to correctly predict which farmers will have contracts in 72% of the cases in the sample. As shown in Table 4.29, education of household head and farm size are not significantly related to the probability of contracting in soybean production. The significant predictors of participation in soybean contract farming are age of household head, household size and availability of land. The marginal effects of these variables are shown in Table 4.30.

Table 4.29 Probit Model of Participation in Soybean Contract Farming
Dependent Variable: Contract Participation Dummy (Conpart)

Variable	Coefficient	S.E.	P[|Z|>z]
Age of head	0.038*	0.022	0.08
Household size	-0.309*	0.182	0.08
Education of head	-0.009	0.035	0.79
Farm size	0.237	0.150	0.11
Land available	-0.021*	0.011	0.06
Constant	-0.602	1.709	0.72
Log likelihood = -34.91 LR chi2(5) = 13.35 Prob > chi2 = 0.02 Number of obs = 60			

% Correct predictions = 72%

Actual	Predicted		Total
	Contract	Non-contract	
Contract	24	6	30
Non-contract	11	19	30
Total	35	25	60

Source: Author's computation
Note: *significant @ ten percent level

Table 4.30 Marginal Effects of the Variables in the Soybean CF Probit Model

Variable	Coefficient	S.E.	P[|Z|>z]
Age of head	0.015*	0.008	0.08
Household size	-0.123*	0.072	0.08
Education of head	-0.003	0.014	0.79
Farm size	0.094	0.060	0.11
Land available	-0.008*	0.004	0.06

Source: Author's computation
Note: *significant @ ten percent level

The impact of participation in soybean contract farming is examined in a regression of per capita income as a function of the various household characteristics and a dummy variable ('conpart') representing contract farmers. Table 4.31 presents the results of the model which explains about 56% of the variation in per capita income across the sample. The results show that per capita income of soybean farmers is not significantly affected by age and education of head of household. The coefficient on the 'conpart' variable is not statistically significant; implying that contracting has no significant impact on per capita income of soybean producers. This result is possibly due to the effects of selection bias.

In order to correct for the effects of selection bias the analytical technique is modified. Thus, instead of estimating the per capita income using OLS model, the Heckman selection-correction model also known as treatment effects model is used. The model involves two equations- the selection equation which estimates the probability of participating in contract production and the outcome equation which estimates per capita income as a function of the household characteristics, the contract dummy variable and the inverse Mills ratio (IMR). The IMR calculated from the selection equation, adjusts the outcome equation for selection bias associated with the fact that soybean contract farmers and non-contract farmers may differ in unobservable characteristics (such as entrepreneurial skills and risk attitude). In the analysis, the maximum likelihood estimation technique is adopted; in which case all parameters are estimated simultaneously rather than the conventional Heckman two-step procedure. The results of the treatment effects model are presented in Table 4.32.

The selection equation which predicts participation in the soybean contract farming scheme gives results that are different from those of the probit model in Table 4.30. Based on the probit model, the significant predictors of participation in soybean contract farming are age, household size and availability of land. On the basis of the selection equation in the treatment effects model, however, the predictors are only household size and farm size. Moreover, the results of the outcome equation which predicts per capita income are also different from those of the OLS model in Table 4.32. In the OLS model, household size and farm size are the only significant determinants of per capita income. In the treatment effects model, however, the estimated outcome equation shows that household size, farm size and the 'conpart' dummy are significant variables. The coefficient of the 'conpart' variable contrary to the OLS model is statistically significant; implying that the impact of contracting of soybean production on per capita income is negative and statistically significant. The results confirm that contracting reduces per capita income by ₦33,968 which is equivalent to 56% of the average income of soybean producers across the sample.

Table 4.31 Regression Analysis (OLS) of Per Capita Income of Soybean Farmers
Dependent Variable: Household Income Per Capita

Variable	Coefficient	S.E.	P>|t|
Age of head	-7.69	306.47	0.98
Household size	-9,984.47***	2,601.28	0.00
Education of head	797.31	522.17	0.13
Farm size	16,403.35***	2,091.75	0.00
Conpart	-2,422.94	5,481.28	0.66
Constant	49,067.16**	24,925.99	0.05
F(5, 54) = 16.07 Prob > F = 0.00 Adj R-squared = 0.56 Number of obs = 60			

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level

Table 4.32 Treatment Effects Model of Per Capita Income of Soybean Farmers

Variable **Selection Equation** **Dependent Variable: Conpart**	Coefficient	S.E.	P[|Z|>z]
Age of head	0.031	0.026	0.24
Household size	-0.271*	0.167	0.10*
Education of head	-0.0006	0.032	0.98
Farm size	0.256*	0.149	0.08*
Land available	-0.013	0.012	0.26
Constant	-0.771	1.609	0.63
Outcome Equation **Dependent Variable: Per Capita Income**			
Age of head	286.2875	402.56	0.47
Household size	-13,878.76***	3,785.64	0.00***
Education of head	761.14	629.52	0.22
Farm size	18,288.42***	2,721.94	0.00***
Conpart	-33,968.13*	18,419.46	0.06*
Constant	64,079.58**	31,130.43	0.04**
ath(rho)	1.229	0.862	0.15
Log likelihood = -709.06 LR chi2(9) = 67.06 Prob > Chi2 = 0.00 LR test of independent equations: (rho=0) Chi2(1) = 1.69 Prob > Chi2 = 0.19 Number of obs = 60			

Source: Author's computation
Note: ***significant @ one percent level
**significant @ five percent level
*significant @ ten percent level

4.5 Pro-Poor Implications of the Tobacco Contract Farming

It is important to reiterate the fact that tobacco contract farming (TCF) in comparison to other commodities included in this study (cotton, ginger, rice and soybean) is unique in the sense that there is no other group of farmers cultivating tobacco outside a contractual arrangement with an agribusiness (tobacco processing) firm in Nigeria. It is also a non-food commodity a characteristic shared only with cotton. Invariably, farmers' participation in TCF is supposed to be income-enhancing and a way of providing alternative employment opportunities for people in the rural community whose agro-ecology is conducive for tobacco cultivation. The earnings realized from participation in TCF over and above the returns from food crop enterprises, should place the participants in TCF in a vantage position to confront poverty at least from the income front. In what follows, we examine the socio-economic characteristics of the tobacco farmers including their production activities and profitability.

4.5.1 Socio-Demographic Characteristics of Tobacco Contract Farmers

Some socio-demographic characteristics which are found to be important determinants of income in respect of the other commodities are examined in the case of tobacco farmers. As shown in Table 4.33, those involved in tobacco CF have considerable farming experience with moderate household size and low level of education on the average.

Table 4.33 Socio-Demographic Variables Among Tobacco Farmers in Nigeria

Variables	Mean	Standard deviation	Min	Max
Age of Head (years)	48.36	11.24	28	71
Education of Head (years)	9.52	4.23	3	22
Household size (persons)	5.44	1.21	3	8
Farming experience (years)	20.2	13.60	3	55

Source: Author's computation

4.5.2 Utilization of Inputs by Tobacco Farmers

Farmers consider the production of tobacco a very strenuous activity especially in view of the various stages involved. Tobacco production begins from the nursery where attention has to be given to all the management practices to ensure proper development of the plants right from the tender age. From the nursery the plant is transplanted to the main field. The field operations also have to be carried out with a high degree of dexterity and timeliness to ensure that products of the desired quality are harvested. After harvesting the next stage is curing after which the cured tobacco are packaged in appropriate bales for transfer to the sales points where the grading and purchase by the contracting firm (BATIAL) will take place. Table 4.34 shows the array of inputs used by the farmers. The simple mechanical tools such as hoes and cutlasses are procured by the farmers themselves whereas fertilizer, pesticide and herbicide are supplied by BATIAL. The use of fertilizer and other chemical inputs by the farmers is more or less mandatory under the tobacco contract farming arrangement; not only to ensure that the specified quality is obtained but also to enable the farmers attain the expected level of yield that will guarantee profitability and fulfillment of their loan repayment obligations.

Table 4.34 Input Utilization in Tobacco Production in Nigeria

	Mean	Standard Deviation	Min	Max
Hoe (No.)	3.64	1.62	1	8
Cutlass (No.)	3.64	1.62	1	8
Axe (No.)	1.52	1.75	0	8
Barn (No.)	0.90	1.25	0	4
Fertilizer use per farm (kg)	1685.00	993.15	400	5000
Pesticide use per farm (litre)	2.08	1.21	1	6
Herbicide use per farm (litre)	4.30	4.49	0	20
Fertilizer use per hectare (Kg/ha)	518.07	181.67	181.82	1250
Pesticide use per hectare (litre/ha)	0.72	0.48	0.17	3
Herbicide use per hectare (litre/ha)	1.45	1.40	0	6

Source: Author's computation

4.5.3 Cost and Productivity Aspects of Tobacco Farming

The main cost components in the tobacco enterprise include cost of nursery establishment and maintenance, field preparation, planting and maintenance as well as cost of harvesting, curing, baling and selling and the cost of fixed assets such as hoe, cutlass, axe and barn (Table 4.35). Compared to other crops included in the study, tobacco production cost is the highest. Indeed, it is only in respect of tobacco that nursery cost is relevant. Nursery cost constitutes about 11 percent of production cost. In terms of productivity, there is still room for improvement among the farmers. The yield ranges between 560kg/ha and 3,067kg/ha with an average of 1,618kg/ha.

4.5.4 Tobacco Enterprise Profitability

Tobacco enterprise profitability is measured in terms of gross margin (operating profit) and net profit. Judging by these indicators, the farmers operate profitably and there is no question about the viability of the enterprises especially in view of the positive values of these indicators (Table 4.36). The level of profitability of tobacco enterprises seems to be higher than the other non-food commodity (cotton) and second only to that of ginger when compared to other crops included in the study. As shown in Table 4.37, gross margin per tobacco farm is more than double that of cotton farm and over four times as high as that of rice farm. Net profit also shows a similar pattern. On per kg basis, gross margin and net profit are better than that of cotton but rank third among the five crops (Table 4.38). The per capita income derived by the tobacco farmer is more than double that of a cotton farmer and ranks second among the five crops. Given the fact that tobacco farmers also cultivate food crops, their involvement in contract farming is a major source of alternative employment opportunity and economic empowerment which will no doubt have a positive implication for pro-poor growth in the rural sector where the farmers operate.

Table 4.35 Cost and Productivity in Tobacco Enterprises in Nigeria

	Mean	Standard deviation	Min	Max
Value of hoe (₦)	14,472	18,504	600	20,000
Value of cutlass (₦)	4,080	4,463	162	24,000
Value of axe (₦)	596	910	0	5,120
Value of barns (₦)	11,170	22,818	0	128,000
Nursery materials (₦)	12,828	8,692	2,908	39,326
Field materials (₦)	127,192	68,790	24,192	334,544
Field Tractorization (₦)	82,768	42,650	22,800	226,000
Harvesting materials (₦)	9,580	9,600	600	42,000
Curing materials (₦)	112,046	60,341	18,230	290,895
Nursery labour (₦)	41,084	29,593	3,900	123,000
Field labour (₦)	56,224	29,659	12,000	134,000
Harvesting labour (₦)	34,200	24,859	3,000	120,000
Curing labour (₦)	79,460	72,901	25,600	450,000
Selling Cost (₦)	13,986	8,509	2,860	44,000
Tobacco yield (Kg/Ha)	1,618	553	560	3,067
Tobacco production cost per farm (₦)	474,075	302,624	45,788	1,314,412
Tobacco production cost (₦/Kg)	98	51	32	239
Tobacco production cost (₦/Ha)	145,587	64,520	38,126	298,514

Source: Author's computation

Table 4.36 Profitability Among Tobacco Farmers in Nigeria

	Mean	Standard Deviation	Min	Max
Farm size (Ha)	3.40	2.16	1	11
Tobacco price (₦/kg)	213.6	142	165	220
Value of output (₦)	1,258,436	912,478	213,072	4,415,997
Variable cost (₦)	685,996.9	340,166	207,946	1,702,335
Gross margin (₦)	572,438	687,514	442,744	3,018,213
Fixed cost (₦)	30,319	33,959.47	2,480	166,750
Net profit (₦)	542,119	681,588	-449,544	2,968,053
Income per capita (₦)	101,901	129,678	-88,548	603,642
Value of Tobacco (₦)	1,119,637	842,585	213072	3,657,597
Variable cost for Tobacco (₦)	453,094	288,437	42,888	1,309,489
Tobacco gross margin per farm (₦)	340,316	427,039	-236130	1,813,507
Fixed cost for Tobacco production (₦)	20,981	28,770	1224	166,750
Tobacco net profit per farm (₦)	319,334	418,312	-239756	1,774,907
Tobacco income per capita (₦)	60,896	79,910	-47226	362,701
Tobacco gross margin (₦/kg)	48.65	51.04	-118	257
Tobacco gross margin (₦/ha)	86,678	83,345	-147581	319,101
Tobacco net profit (₦/kg)	44.46	51.51	-119	255
Tobacco net profit (₦/ha)	80,102.13	82,297.37	-149848	306411.6

Source: Author's computation

Table 4.37 Comparison of Contract Farming Enterprise Profitability in Nigeria

	Tobacco Contract Farming Enterprise	Cotton Contract Farming Enterprise	Rice Contract Farming Enterprise	Ginger Contract Farming Enterprise	Soybean Contract Farming Enterprise
Value of Output (₦)	1,119,637.00	184,320.00	123,107.00	579,025	165,188
Variable cost (₦)	453,094.20	48,220.00	30,724.00	63,115	46,660
Gross margin per farm (₦)	340,316.00	141,113.00	78,779.00	449,628	211,461
Fixed cost (₦)	20,981.41	1,719.00	11,349.00	6,618	18,313
Net profit per farm (₦)	319,334.60	139,393.00	67,429.00	443,009	193,148
Crop income per capita (₦)	60,896.19	24,965.00	16,558.00	93,374	49,288
Gross margin (₦/kg)	48.65	35.48	22.07	57.54	90.12
Gross margin (₦/ha)	86,678.56	46,892.00	69,589.00	249,545	94,912
Net profit (₦/kg)	44.46	34.96	17.93	56.53	76.02
Net profit (₦/ha)	80,102.13	46,277.00	59,982.00	244,446	80,976

Source: Author's computation

Table 4.38 Ranking of Profitability and Welfare in Contract Farming Households in Nigeria

INDICATORS	RANKS				
	Tobacco Contract Farming Enterprise	Cotton Contract Farming Enterprise	Rice Contract Farming Enterprise	Ginger Contract Farming Enterprise	Soybean Contract Farming Enterprise
Gross margin per farm (₦)	2	4	5	1	3
Net profit per farm (₦)	2	4	5	1	3
Crop income per capita (₦)	2	4	5	1	3
Gross margin (₦/kg)	3	4	5	2	1
Gross margin (₦/ha)	3	5	4	1	2
Net profit (₦/kg)	3	4	5	2	1
Net profit (₦/ha)	3	5	4	1	2

Source: Author's computation

The foregoing analysis reveals the positive impact of the contract farming schemes on per capita income with the exception of the soybean contract. Soybean farmers have always argued against the seemingly non-competitive pricing mechanism of their 'contractor' company. The observed finding may therefore, not be unconnected with the unremunerative prices paid for their products. It is also a reflection of the power being wielded by the company in the selection and negotiation of the terms of the contract; and this applies to all the contracting firms in general. Usually, there is no self-selection on the part of the participants in the contract farming arrangements. It is important to distinguish between selection by the agribusiness firm and self-selection because with self-selection smallholders with most to gain would be the ones most likely to enter contracts. In general, smaller more constrained enterprises that were not doing well in the spot market system would have strong incentives to negotiate contracts. Alternatively, if selection is by agribusiness firms, larger, less constrained smallholders with lower unit costs and less risk exposure could be the most attractive partners. In selecting and registering farmers for the contract the agribusiness firms pay particular attention to the previous farming experience of the smallholder, availability of potential land for the cultivation of the crop to be produced, current farm size and fertility of the farm and other socio-economic considerations such as level of indebtedness and membership of community associations. Such firms thereafter design mechanisms to minimize the risk of default.

It is important to stress that the market constraints faced by farmers in the study areas are common to the smallholders. The severe resource constraints in terms of lack of access to credit facilities, extension services and high yielding crop varieties as well as output market constraints in terms of low output prices, lack of storage and deficiencies in transportation infrastructure are the real motivations for the smallholders for signing up for the resource-providing contracts. Medium- and large-scale farmers who do not face these problems in the same proportion as the smallholders would have been better partners to the agribusiness firms. They can undertake more production hence overheads associated with the contract will be a smaller proportion of total costs. This means costs incurred by the firm for provision of extension information and farm visits, purchase of equipment and other capital outlays associated with establishment of farms will be lower per unit of contracted output. Moreover, large growers 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). Besides,

large growers are better able to manage quality, their produce is less likely to be pooled hence is more easily traced if quality problems occur and they can achieve economies of scale in audit and record keeping (Runsten, 1992). With these size advantages and lower contractual risks, such farms can afford to be paid lower prices than smaller farmers. Smallholders may not be in a position to cope with lower output prices than what actually prevails in spot markets. In Nigeria, smallholders are the main participants in contract farming. These are farmers considered to be in a helpless situation; and so when help comes their way in the form of contract farming, they find themselves lucky if they are selected by the agribusiness firms. It is therefore, not surprising that the contractual arrangements have had positive impact on per capita income of farming households in the case of majority of crops (cotton, ginger, rice and tobacco) included in this study.

4.6 Reasons for Success in the Contract Farming Schemes

4.6.1 Lack of barriers to exit

The success of contract farming schemes can be measured by whether they persist over time implying that both partners are satisfied with the arrangements. Although the crops involved in the contracts are arable and the production season falls within 12 calendar months, the contract farming operations have been on for more than one year in respect of each of the crops. Since the contracts are entered freely and there are no barriers to exit, then persistence of contractual arrangements over time is an indication that the parties to the contract believe they are better off and hence the contracts can be said to be successful. The only exception in this regard is the soybean contract. The pioneer farmers seemed not to be satisfied with the prices paid for their output and the lack of provision of storage and transportation facilities. In the case of tobacco about 80 percent of the farmers who started the contract farming scheme in 2003 continue to remain in the scheme while registration of new participants continues on an annual basis since then.

4.6.2 Positive impact on per capita incombe

Although if a contract continues over many production seasons, it is reasonable to consider it to be successful, such a definition of success may be too narrow. According to Glover (1990) it is important to move a step further and define success in terms of the continuing viability of the contract and its distributional effects. In this regard, the analysis of profitability of the enterprises (including net profit) for all the crops and the impact of the contract on per capita income in respect of cotton, ginger and rice are quite germane. Positive net profits which are significantly higher for contract farmers than their non-contract counterparts and the fact that their participation in contracts significantly increase the level of income point to the fact that the contracts are successful.

4.6.3 Farming experience

The smallholders included in the contracts are not new to the business of farming. All the contract farmers have had some experience in the production of the crops previously and this is a major qualification for their enlistment into the contract schemes. Entering the contract ensures access to market and seems to define progress in their economic activity rather than something new. Studies elsewhere have also confirmed the importance of previous experience as a major determinant of success in contract farming. According to Glover and Kusterer (1990), producers in Central and South America with previous experience in growing particular crops achieved good contract performance while other growers who lacked such experience, were not so successful. In Indonesia, a ginger contract was successful from an agronomic viewpoint because the

type of ginger required was a juvenile form of a type contractors had grown before. With regard to the tobacco contract in Nigeria, the Nigerian Tobacco Company (NTC) started the contract farming scheme about twenty years ago. Some of the farmers participating in the BATIAL scheme were actually inherited from the defunct NTC.

4.6.4 Strong demand for the product

The market environment is essential for the success of a contract. 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 contract abandonment and losses. With the large population of Nigeria and rapid urbanization, the demand for the commodities has been quite strong both for household consumption (e.g rice) and industrial use (e.g ginger and soybean).

5. Prevalence of Remunerative Prices

A favourable pricing regime is an important success factor as far as the CF schemes are concerned. This is particularly true in the case of rice and cotton. The prices of both paddy and milled rice have been rising steadily since 2005 implying that the farmers and Olam faced the right price signal for increased production over the years. The increase in the price of milled rice produced by Olam in recent times is even far more encouraging than the farm gate price of paddy. In the case of cotton, the rising prices of the commodities continue to be an incentive for both the farmers and the processing company (Olam) to continue their participation in the cotton CF.

6. Favourable exchange rate policy

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 favor contracting and unstable regimes place contracts at risk. The exchange rate of the naira has been quite stable over the last three years and this is an incentive for investment decisions.

By and large, the governance mechanisms do affect the success of the contracts with implications for poverty reduction, equity and growth. The contracts that are resource-providing (e.g. cotton, rice, soybean and tobacco) enhance farmers' access to productive inputs and credit facilities thus leading to increased productivity and profitability. And with the observed positive income effect, they have bright prospects for higher growth and poverty reduction. The issue of equity can be viewed in terms of whether or not there is discrimination against any category of farmers on the basis of their social or economic status as well as inclusiveness in critical decisions relating to the governance of the contract scheme. We found no bias whatsoever in terms of registering participants for the contract schemes. The participating farmers are of diverse age and educational attainment and in general they all fall within the category of small-scale farmers. All that is required is that the farmers should be interested in producing the crops, have previous experience, have access to land for the cultivation of the particular crops in areas where the company wants to operate and willing to comply with the terms of the agreement. Preferably, intending farmers must own the land and be physically present in the village where the crop is expected to be produced. However, one area where the agribusiness firms have domineering power is in terms of quality specification and in determining the prices that will be paid for particular product quality. This is true especially in respect of tobacco and rice. In the case of tobacco, there are multiple grades with price differentials. Farmers have difficulties in interpreting or understanding the grades (especially in view of their low level of education) and have to agree with the judgement of BATIAL officials in arriving at what their products will quality for in terms of grades

and prices. In point of fact, the company had to adjust the grade categories periodically to ensure that farmers derive optimum benefit from their participation in the scheme. For instance, in 2003 there were about 19 quality grades of tobacco. The number was reduced to 10 in 2007 and 6 in 2008 on account of the complexity in computing the payments due to individual farmers.

Moreover, the results of the profitability and impact analyses indicate that the governance structures have implications for the performance of CF in terms of its potential to promote growth and reduce poverty. As shown in Table 4.39, the profitability and welfare indicators reveal that the performance of the cotton and rice contract schemes is relatively lower than that of other crops. The ginger CF has the best performance. The varying levels of performance constitute a reflection of differences in governance structures among the three crops. For instance, the cotton CF is only resource-providing whereas that of ginger is only market-specification while the rice CF is both resource-providing and market specification. Without an assured competitive market, cotton farmers are at the mercy of LBAs who pay the farmers much less than what they deserve while the LBAs ensure that they reap considerable gains from their marketing transactions. The implication is that cotton farmers have to maintain direct linkage with Olam to ensure that their products have an assured market in which they are paid fair prices. The arrangement should involve the control of abuse of market power through the regulatory role of government. The lack of control of such power is responsible for the worst performance observed in the case of the rice CF despite the fact that the contract scheme has both resource-providing and market-specification components. The governance mechanisms put in place by Olam place much emphasis on the minimization of the risk of default and thus provides incentives to encourage farmers to sell their products and thus ensure full recovery of the loans advanced at the commencement of planting. In spite of the marketing incentives, the company found it difficult to achieve full recovery and to convince farmers to bring all their output to the company's factory for sale. The key issue here is the price being offered by Olam. Despite increases in the price from time to time, farmers discovered that the profit margin allowed remains unattractive. The company has to compete with imported rice which sometimes is being encouraged by government's food security policy. The problem of cheaper rice imports was exacerbated in 2008 by weak US dollar; and this has tended to limit the price increases which Olam could offer to the participating farmers. The government has a role to play in maintaining a stable and favourable policy environment to encourage domestic production and ensure that the small-scale rice producers derive the expected benefits from participating in contract farming schemes. The ginger farmers are offered market access and the quality specifications with the associated prices are well understood by the participants. Information about the international market price of ginger is also widely available to the farmers.

There is a general belief among the ginger farmers that the market-specification contract arrangement provided by Olam is a better alternative to what the LBAs offer. The price advantages associated with products of high quality is also well known and are being duly extended to qualified producers. This pattern should be sustained and should be applied even to CF arrangements with a combination of both resource-providing and market-specification contracts. Agribusiness firms must weigh the balance between transaction cost reduction and reduction in the price being offered to farmers for their products. If generous incentives are provided with the intention of minimizing contract default and unfair prices are offered to the farmers as their products are being purchased, it will be difficult to achieve full recovery of the credit granted to the farmers in advance of production activities and this may jeopardize the success of the scheme as farmers may tend to disengage or divert their products to spot markets.

5 SUMMARY, POLICY RECOMMENDATIONS AND CONCLUSIONS

This study has (i) examined the nature of institutional linkages between small-scale farmers and firms in the Nigerian agribusiness sector, (ii) analysed the impact of the institutional linkages with a view to ascertaining whether or not they are supportive of pro-poor growth; and (iii) determined the factors influencing the performance of contractual relationships between small-scale farmers and agribusiness firms in Nigeria. In what follows the main findings of the study are summarized and policy recommendations aimed at promoting farmers' access to the market and improving the performance of contract farming are proffered.

5.1 Main Findings

5.1.1 Performance and Impact of Cotton Contract Farming

The assigned responsibility of farmers participating in the cotton contracting farming (CCF) is the production of cotton and transportation to Olam's dump for sale. On the part of Olam, the provision of cotton extension and marketing services is mandatory. The cotton CF has its strengths and weaknesses although it is generally considered a desirable approach for boosting performance of the cotton industry in Nigeria. The strengths manifest in terms of increased cotton production, improved quality of cotton that is capable of meeting international standards and improved knowledge of farmers about modern techniques of cotton production. There are three areas of weakness namely; lack of government encouragement, weak enforcement of agreement with LBAs and unimpressive loan repayment record. The participating farmers have benefited in terms of receiving direct supply of inputs such as seeds, fertilizers, herbicides, plant protection chemicals and spraying equipment, extension services, assured market at prevailing prices as well as improved productivity and profitability.

In terms of both gross margin and net profit, cotton enterprise is profitable in the study area; although the profit level is low. The gross margin and net profit for contract farmers are higher than that of the non-contract farmers. The difference in profitability between the two groups of farmers is, however, not statistically significant. Farmers with smaller household size, less education and limited land available for cotton cultivation are more likely to participate in contract farming. Actual farm size and diversity of crop mix are significantly positively related to the probability of contracting. The results show that per capita income is significantly affected by household size, farm size and participation in the contract farming scheme. Participation in the cotton contract farming scheme has a significantly positive impact on per capita income. The results confirm that contracting raises per capita income by ₦13,328 which is equivalent to 20% of the average income of cotton producers.

5.1.2 Performance and Impact of Ginger Contract Farming

The institutional linkage in respect of ginger has been pronounced in the area of support to ginger farmers through the provision of marketing and extension services by Olam. Basically, the ginger CF is a market-specification contract under which a direct linkage between the farmer and Olam has been established along with quality linked payment system based on actual weights of product. The responsibility of farmers under the contract is to produce ginger, dry, pack in polybags and transport to Olam's warehouse for sale. The transformation of the contract to a resource-providing one is under consideration but no conclusions have been reached. The main strengths are (i) Olam has been able to obtain good quality ginger from farmers, (ii) in view of the fact that marketing transactions are on 'cash and carry' basis, the local farmers seem not to experience any risk arising from their participation in the programme, (iii) there has been a reduction in the sharp practices of middlemen and in the number of middlemen

participating in the ginger market. (iv) avoidance of middlemen exploitation since farmers can sell ginger directly to Olam.

The analysis of impact focuses on changes in per capita income of ginger contract farming households compared to their non-contract counterparts and the extent to which CF account for the differences in income between the two groups of ginger farmers. Ginger enterprise in the study area is profitable in terms of both gross margin and net profit. The gross margin and net profit for contract farmers are higher than that of the non-contract farmers. The difference in profitability between the two groups of farmers is statistically significant. The significant predictors of participation in ginger contract farming are age, household size and availability of land. The results show that per capita income is significantly affected by age, household size, farm size and participation in the contract farming scheme. The impact of contracting on per capita income is positive and statistically significant. Contracting raises per capita income by ₦39,656 which is equivalent to 48% of the average income of ginger producers.

5.1.3 Performance and Impact of the Rice Contract Farming

In the case of rice CF, the farmers are to produce rice using the inputs supplied by Olam (as in-kind credit), comply with the farm management practices and ensure prompt repayment of loans through sale of the paddy produced to Olam. On the other hand, Olam is to deliver the required inputs to the farmers at the right time and buy back the paddy after harvest. The strengths seem to outweigh the weaknesses although there is still room for improvement. The rice CF guarantees sustainable supply of raw materials, provides a boost to the rural economy and promote pro-poor growth. However, the rice industry is still beset with the problems of low level of mechanization and use of crude implements

The analysis of impact focuses on changes in per capita income of rice contract farming households compared to their non-contract counterparts and the extent to which CF account for the differences in income between the two groups of rice farmers. The analysis begins with a comparison of some socio-demographic determinants of income as well as productivity and profitability differences between the contract and non-contract rice farmers.

Profitability of the rice enterprise is measured in terms of gross margin (operating profit) and net profit. Judging by these indicators, both the contract and non-contract rice farmers operate profitably. The profit levels realized by the contract farmers are much higher than that of their non-contract counterpart. The difference in profitability between the two groups of farmers however, seems not to be significant in statistical sense. The impact of contracting of rice production on per capita income is positive and statistically significant. The results confirm that contracting raises per capita income by ₦13,957 which is equivalent to 61% of the average income of rice producers across the sample.

5.1.4 Performance and Impact of the Soybean Contract Farming

The soybean CF is a market-specification contract which places emphasis on the quality and price of soybean sold to the processing company. There is also the resource-providing model which (i) guarantees sustainable supply of raw materials to the participating firm, (ii) it is a win-win situation; as both the firm and the participating farmers tend to derive desired benefits. It is seen as cooperation between two willing partners and (iii) it has a potential to contribute to pro-poor growth as many farmers are motivated and mobilized to increase production and benefit from readily available market. Initially farmers were happy for finding market outlet for their product. Indeed, market outlets are now expanding and farmers are even happier. They receive higher income and their ability to repay loans was enhanced. The main threats are the huge

financial risk in terms of the amount of funding required and the possibility of poor loan repayment which may likely jeopardize the sustainability of the programme.
The analysis of impact focuses on changes in per capita income of soybean contract farming households compared to their non-contract counterparts and the extent to which CF account for the differences in income between the two groups of soybean farmers. Profitability of the rice enterprise is measured in terms of gross margin (operating profit) and net profit. Judging by these indicators, both the contract and non-contract soybean farmers operate profitably. The profit levels realized by the contract farmers are much higher than that of their non-contract counterparts. However, there is no statistically significant difference in profitability between the two groups of farmers. The impact of contracting of soybean production on per capita income is negative and statistically significant. The results confirm that contracting reduces per capita income by ₦33,968 which is equivalent to 56% of the average income of soybean producers across the sample.

5.1.5 Performance of the Tobacco Contract Farming

The tobacco contract farming is a resource-providing contract which involves an agreement signed between the British American Tobacco Isheyin Agronomy Limited (BATIAL) and individual farmers. The obligation of the farmers under the contract is to produce and sell to BATIAL only good quality flue/air cured tobacco of the quantity and at the grades specified by BATIAL, and comply with all the instructions given by BATIAL in relation to the production and delivery of the tobacco. In its own part BATIAL, as far as practicable, will provide technical support and some of the necessary inputs to the farmer on lease-purchase basis, subject to the farmer's demonstrated ability to deliver good quality tobacco leaves. The strengths of the tobacco CF lie in its ability to guarantee sustainable supply of raw materials, engender a win-win situation, boost the rural economy and promote pro-poor growth. The weaknesses in the system include the fact that the participating farmers are aging and the difficulty of getting a new generation of farmers, low level of mechanization and frequent agitation by farmers for increases in their product prices. The public campaign against smoking is even a major threat. Nevertheless, the CF has been beneficial to the participants in terms of satisfaction with the progress being made in their farm enterprises, general improvement in standard of living including progress in children education and improved housing condition.

5.2 Contract-Specific Recommendations

5.2.1 Suggestions for Improved Cotton Contract Farming

- The recycling of seeds as it is currently being done cannot lead to significant improvement in yield. Most of the cotton seeds in the market are contaminated; with seeds from the NE mixed up with those from NW. The seed varieties developed for the NE may not be suitable for the NW especially in view of the variations in the amount and distribution of rainfall and the drought resistant capability of such seeds. When they are mixed up, the result is lower yield. Currently, farmers in Funtua, Malumfashi, Gusau and Gombe plant SAMCOT 9 and 10. Whereas in Kontagora, Babana and Gwoza the farmers obtain their seeds from Cameroon and Benin Republic. Therefore, it will be necessary to make available certified improved seeds in adequate quantity by the government (Federal, State and Local) in conjunction with the National Agricultural Seed Council (NASC). Specifically, the NASC should obtain improved seed varieties from research institutes and distribute to their out-growers for multiplication. The government should provide adequate funds to the NASC to procure seed cotton from the outgrowers on a timely basis. The NASC should assemble seed cotton with proper storage and contract ginners to process them separately to avoid mix-up with other varieties in the market and thus maintain purity. NASC may sell the cotton lint in the open market and derive revenue for

further procurement and repeat of the purification process. The NASC can then package the seeds for sale to farmer in suitable locations across the cotton producing zones. This can bring about significant improvement in yield.

- Strict enforcement of quality control is required in order to reduce the problem of product adulteration.
- The granting of procurement advances to LBAs should be stopped forthwith; rather farmers should be empowered through appropriate loan support schemes.
- Cotton-related associations should be made more effective. For instance, decision making should be democratized, views of stakeholders should be sought and obtained as part of the decision making process. Interests of the various groups in the associations should be accommodated. For instance, in the case of National Cotton Association of Nigeria (NACOTAN) which has producers, ginners and exporters of cotton as members the interests of these members should be protected. Finally, there is need to encourage institutional/corporate membership.
- Government should legislate against the use of polypropylene bags for cotton packaging.
- Government should encourage the use of jute bags for bagging seed cotton while cotton lint should be packaged in clothe wrapper.
- There is need for the government to ensure that the suggestions and policy recommendations for improvement often provided by consultants are implemented effectively.
- Pricing of cotton should reflect quality differentials in products. In other words, the cotton of the highest grade should attract the highest prices.
- The government should ensure strict control of movement of seed cotton from one area to another; cotton from across the border moving to the Northwest should be ginned separately and should not be allowed to mix with other varieties. Also seed cotton that moves from Northeast to Northwest or vice versa should be ginned and processed separately without allowing mixture. This is because different varieties are planted in different zones. If the varieties are allowed to mix (e.g. SAMCOT 10 with 11), the resultant variety will have poor performance in terms of yield and other desirable characteristics.
- Government through extension agents, should sensitize and enlighten farmers on the use of weights and measures in cotton business to ensure standardization and avoid cheating and adulteration of products and to prevent discounting of the value of Nigerian cotton in the international market.

5.2.2 Suggestions for Improved Ginger Contract Farming

(i) Olam to have procurement vehicle to collect produce in designated ginger buying centres among the LGAs being covered.

(ii) Designate ginger buying centres centrally located among the producing villages. Group leaders can bring producte to Olam's premises in Kwoi and have transport cost reimbursed.

(iii) Olam should provide drying ground/slabs near the farms or in the alternative provide
big tarpaulin for each farmer (at reduced prices) for drying purposes in order to improve the quality of ginger.

(iv) Olam should engage in more enlightenment campaigns by organizing training sessions for farmers in ginger producing zones to promote the production of high quality ginger. By so doing, farmers who have not yet registered will be attracted and thus imbibe the idea of producing clean (and unadulterated) ginger.

(v) Olam should stop giving cash advances to LBAs to buy ginger in order to sanitize the ginger market. "The LBAs come to farmers to buy ginger and then supply Olam thereby disallowing farmers to reap desired benefits. Farmers who have not yet

registered are discouraged by LBAs from registering. Moreover, the LBAs connive with middlemen to lower the price of ginger in local markets".

> "The LBAs use the cash advance to control the ginger markets. For example, in 1997 a bag of ginger sold for ₦10,000. The same bag now in 2008 sells for ₦2,200. In 1999, the price was ₦5,000 and when the religious crisis in Kaduna started in 2001, the price dropped to ₦1,600 per bag. In 2004, the price rose to N4,000 per bag and since then the price has been declining. This is because, in 2005, the middlemen supplied low quality ginger which was exported and was not well received by the consumers. Since then, confidence in Kwoi ginger was being eroded in the international market leading to price declines".

(vi) To eliminate the middlemen and their unwholesome practices, Olam should bring the matter to the ethnic group leaders and traditional rulers in the ginger producing villages so that the bad practices will be exposed, discussed and nipped in the bud. This will be possible and effective since the community leaders and traditional rulers in the villages are themselves farmers who are likely to benefit from the elimination of the anti-competitive practices of the middlemen. When such meetings are convened, it should be necessary to ensure that representatives of Olam, ADP and extension agents in the area are in attendance. Through moral suasion, it should be possible at such meetings to prevail on the middlemen to desist from the adulteration of ginger, stop controlling ginger prices and abide by the ginger quality improvement techniques being taught by Olam.

(vii) There is need for Olam to do proper investigation of the background of those to be appointed LBAs. Currently about 50 percent of LBAs are performing below expectation. They have supplied far less than the quantity of ginger expected from them; and a lot of money remains outstanding. This is a major source of risk for Olam's ginger business in the NW. Unfortunately, even if Olam wants to obtain the amount due through litigation, the end is unlikely to justify the means. Specifically, Olam's investigation should cover issues such as (i) the maximum quantity of ginger the intending LBA has ever purchased, (ii) whether or not purchases were made in cashor on credit, (iii) the quantity of ginger the LBA can purchase using his own financial resources. It is on the basis of information on these points that Olam will be in a better position to determine the amount of cash advance that can be provided for a potential LBA. Currently, the LBAs appointed by Olam were previously operating as middlemen in the local ginger markets around Kwoi. Before their appointment, some of them had never handled the amount of money close to the advance provided by Olam. The management of such funds has therefore, been a problem and the tendency for diversion has been very high.

(viii) Reduction of Transportation Cost and Expansion of Supply Base. To increase its direct share of the ginger market and encourage farmers to have direct access Olam can designate some villages in the ginger producing zone as buying centres where farmers can take their ginger for sale. Olam can acquire and dispatch suitable number of procurement vehicles to transport ginger from such centres to the warehouse at the processing unit in Kwoi. Alternatively, group leaders can bring ginger deposited by their group members at such centrally located buying centres to the processing unit in Kwoi and have their transportation cost reimbursed by Olam. In this case there may be no need for Olam to acquire procurement vehicles.

5.2.3 Suggestions for Improved Rice Contract Farming

- There is need for some farmers to relocate their farms from deep swampy areas that are prone to flooding to shallow swampy areas.
- There is need for timeliness of input supply by Olam

- There is need for education of farmers on proper use of farm inputs (especially pesticides and herbicides) which have been misused by some farmers in the past leading to considerable loss of output.
- Farmers need to report problems identified to Olam on a timely basis.

5.2.4 Suggestions for Improved Soybean Contract Farming

- Decentralization of sales point from the headquarters of the contracting firm to zonal offices or sales points nearer to the farmers to minimize transportation cost.
- Payments for the commodities sold to the firm by farmers should be paid for promptly to motivate the farmers and sustain their interest in the scheme. In the past farmers experienced delays in payment up to three months.
- Contracting firm should provide financial support to the farmers in the form of credit in-kind to boost production and expand their earning potentials.

5.2.5 Suggestions for Improved Tobacco Contract Farming

- Remunerative pricing
- Reduction in quality grades for the purpose of pricing
- Corporate social responsibility (especially scholarship awards to farmers' children) of BATIAL to be more widely felt by participating farmers

5.3 General Policy Recommendations to Enhance CF Performance

(a) Involve agribusiness firms in input distribution
Government should provide incentives to encourage contract farming e. g. by using agribusiness firms involved in contracting farming scheme as channels for distribution of subsidized inputs directly to participating farmers.

(b) Promote training and capacity building
Agribusiness firms should use CF schemes as channels for extending training and capacity building opportunities to farmers. This is to enhance productivity, quality and loan repayment.

(c) Establish quality control units
The government at the state level should provide legislation setting up and empowering quality control units within the states ministries of agriculture. Well equipped laboratories where high standards will be set should also be provided.

(d) Ensure effective implementation of the Export Expansion Grant (EEG)
The EEG was recently reduced from 40% to only 5%. The delays in the payment of grants to qualified firms should be minimized. For instance, payments for 2006 to 2009 were made recently (by January 2010) by the Federal Government. Moreover, the implementation of the export expansion grant scheme and the relevant legislations should be reviewed to accommodate production incentives to ensure that not only the exporters but also the farmers derive some benefits. This will encourage farmers to participate in CF and indeed sustain their participation especially in respect of export commodities. The incentives have to be commodity specific and should be realistically determined through correct and reliable data on the number of producers of specific commodities, processors and exporters, area under cultivation, quantity produced and exported, production costs, domestic prices and other information relevant to the value chain of each commodity.

(e) Ensure quick dispensation of justice.
There is need for quick dispensation of justice in the law courts. This is especially important in respect of litigations concerning agricultural loan default and breach of contract.

(f) Promote commercial agriculture through appropriate contract farming models

High transaction costs in agribusiness operations and the generally high production cost in the country have had adverse consequences on profitability and competitiveness in the agricultural sector. The linkage between agribusiness firms and farmers at the local level through appropriate contract farming models is apt to serve as remedy if properly articulated and operated effectively. Governments both at Federal and State levels should promote contract farming in view of its commercial orientation and employment potentials especially in ensuring longer-term contractual production relationships. It guarantees linkages between smallholders and large scale producers and facilitates access to modern inputs and production credit. It is an important means of securing the participation of the private sector in agricultural financing in the country. It is currently being applied in respect of some food commodities such as rice, ginger and soybean. There is need to expand its application to other crops food crops and even tree crops such as cocoa, rubber, oil palm and cashew in various agro-ecological zones of the country. Contract farming is particularly recommended for achieving some of the objectives of the Commercial Agricultural Development Project (CADP) coming on stream in the country.

(g) Promote domestic production of fertilizer

The major problem in the fertilizer market is that the input is not available at the right time and government subsidy on it is being diverted to unintended beneficiaries and therefore, has no significant impact on the utilization of the input by small-scale farmers. The bottlenecks that are often encountered in terms of procurement and distribution can be solved by licensing more companies to import and discourage political patronage as a condition for marketing and distribution. Farmer associations and cooperatives should form the platform for the distribution of the commodity. However, domestic production of fertilizer is very important and governments' efforts should be directed towards establishment of small scale fertilizer plants across the country under appropriate Public-Private Partnership (PPP) arrangements. Small scale companies should be encouraged to invest in fertilizer production so as to meet domestic needs and generate surplus to feed ECOWAS region and thus generate foreign exchange earnings. Organic fertilizer production should also be encouraged by transforming wastes materials generated in industrial towns into manure. Government should depoliticize input distribution especially fertilizer to make the inputs accessible and impact of subsidy felt among farmers

(h) Overhaul the agricultural credit system to ensure farmers have increased access to production loans.

There is need to mainstream the flow of funds into the sector. Ad hoc funding arrangements that operate outside the financial system have to be redirected into appropriate financial institutions. Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) should be central to any funding arrangement and the bank should be restructured, recapitalized and depoliticized to take up its agricultural financing functions more effectively.

(i) Develop downstream agriculture through partnership with agribusiness firms

A major policy intervention is required in the development of downstream agriculture. Support is particularly required in this connection from development partners with regard to finance, technical expertise and appropriate technology. This is with a view to developing appropriate agricultural commercialization model that promotes heavy inflow of investment in the downstream sector in partnership with private agribusiness firms. Such intervention is to promote pro-poor growth especially in the rural sector and should be designed in such a way as to promote vertical integration in which proper linkage will be established between small farmers and agri-business enterprises to promote competitive operation at each stage of the agricultural value chain.

(j) Develop rural infrastructure
Maintaining physical access to markets, reducing transaction costs and ensuring appropriate production and consumption linkages depend on availability of physical infrastructure especially in the rural areas. Sustained development of rural road network is apt to engender striking returns in terms of output expansion, commodity exchange and poverty reduction. It is also important to ensure availability of the services such as rural electrification, rural water supply, rural telephony and other communication services.

5.4 Conclusions

Formal and informal institutional linkages involving agribusiness firms and smallholder farmers in Nigeria is moving towards a win-win situation as far as contract farming arrangements for cotton, ginger, rice, soybean and tobacco are concerned. Contract farming develops in response to the critical resource constraints faced by farmers, the need to raise the quality of the concerned commodities and address the technical difficulty associated with the production of some of the crops (e.g tobacco, rice and cotton), the business specialty and reputation of the contractors and the requirements of the export market. The small-scale farmers encounter severe constraints that limit their potential to increase productivity and income. They lack information about production methods and market opportunities, particularly for crops that they do not normally grow. Even with sufficient information about profitable investments, small farmers have low savings and often lack the necessary equity capital. Access to credit is limited by the lack of collateral and high interest rates demanded by formal and informal lenders. As part of the CF arrangements, agribusiness firms provide technical assistance, specialized inputs and credit both in kind and cash. With appropriate governance structures and improved risk management it has been possible to tackle these constraints simultaneously to a reasonable degree in Nigeria.

The need to raise quality of the concerned crops is also an important motivation for the development of CF in the country. Farm-level investments in human and physical capital, or specialized inputs are needed to raise quality. CF provides farmers the incentives and the means to make these specific investments especially in the case of tobacco, cotton, rice, ginger and soybean. Farmers may not enter into the production of technically difficult crops such as tobacco and rice, because they do not have the technical skills, the inputs and the credit needed. The contract allows the buyer to provide them on credit and to recover the cost of the inputs by deducting it from the payment to farmers after harvest. The companies involved are large-scale processors, exporters, or wholesalers that are preferred suppliers to some markets. With large capital-intensive processing plants they have the motivation to engage in contract with farmers because they need a steady and reliable flow of raw materials to maintain a high capacity-utilization rate. The type of destination market for some of the commodities is another motivating factor for the contract farming models. The export market for ginger, cotton, rice and tobacco are highly quality-sensitive. This provides the motivation for the companies (and exporters) to increase control over the production process through contract farming.

It is found that contract farming in respect of the various commodities is basically resource-providing and market specification in nature while operationally it is characterized by centralized and multi-partite models. The major benefits of contract farming to farmers are improvement in productivity and profitability, improved access to markets, better product quality and enhanced access to fixed assets. On the part of participating firms, the linkage has resulted in sustainable supply of raw materials of higher quality, better international market access and less complicated marketing chain. Nonetheless, there are a number of constraints on the performance of the contract farming system including high cost of transportation, anti- competitive practices of the middlemen especially in the case of ginger, product adulteration (in the case of cotton),

inadequate supply of modern inputs and poor culture of loan repayment among farmers. The observed institutional linkages are supportive of pro-poor growth. In general, the contract farming schemes are designed primarily for small-scale farmers; thus the problem of exclusion of this category of poor farmers from contracting does not exist in the country. The farmers are operating profitably and rising profitability over and above what is possible among non-contract farmers is a major driver towards improved welfare. To improve the situation there is need to involve ethnic group leaders and traditional rulers in resolving lingering conflicts, introduce training and capacity building incentives into the contract farming schemes to enhance productivity, product quality and loan repayment. Moreover, the government should sensitize and enlighten farmers on the use of weights and measures in agribusiness to ensure standardization and avoid cheating and adulteration of products; and the entire system must be guided by appropriate legislative framework. Such legislation should encourage agribusiness firms to initiate new contracts in various parts of the country, provide support to smallholders to make them operate profitably through payment of fair prices and ensure that the firms do not abuse their market power.

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