EFFECTIVENESS OF OUTGROWER SCHEME AMONG CASSAVA FARMERS IN SOUTHWESTERN NIGERIA

BY

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CERTIFICATION

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DEDICATION

This work is dedicated to

God, my Father,

Jesus Christ, my Lord, and

The Holy Spirit, my Guide.

To the family God graciously gave me

Cecilia Solape Oyelami my loving wife and our God-given children:

David, Praise and Israel, Olawale OYELAMI

And

To my late father (Mr. Oyelami David)

who pioneered the vision to ensure I am educated in life.

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Benjamin Olusegun Abegunde,
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ABSTRACT

Nigeria is the world's largest cassava producer, but most of the smallholderproducers recurrently face product glut. Outgrower scheme is often deployed to serve as a link between producers and users of agricultural commodities and a platform to address associated market problems. Studies on effectiveness of outgrower scheme for cassava enterprise in Nigeria are scanty. Hence, effectiveness of Cassava OutgrowerScheme (COS) in Southwestern Nigeria was assessed.

A three-stage sampling procedure was used.Ogun, Ondo and OyoStates were purposively selected based on pre-dominance of cassava user-companies.Seven major user-companies: from Ogun (5), from Ondo (1) and from Oyo (1) were purposively selected. One hundred and sixty six farmers from user-companies' outgrower clusters, 83 non-outgrowersand 55 discontinued ougrowerswere randomlyselected. Interview schedule was used to elicit information on respondents' personal and farming characteristics, cassava operational and market structure, constraints faced in COS, perception about COS, conformity to COS agreements and participation in COS, benefits derived, non-outgrowers' access to production services and effectiveness of COS (guaranteed market, access to farm input, extension service). Indices of participation (low, 0.0-8.9; high, 9.0-18.0), perception (unfavourable, 50.0-77.7; favourable, 77.8-95.0) and effectiveness (low, 1.00-1.54; high, 1.55-2.00) of COS were generated. Data were analysed using descriptive statistics,Pearson Product Moment Correlation, ANOVA and Logit regression at $\alpha_{0.05}$.

Outgrowers and non-outgrowerswere aged 47.5±10.4and 48.9±14.1 years, respectively. Most outgrowers (93.3%) and non-outgrowers (97.2%) were married with cassava yield of 19.9±3.8and 18.6±3.4tonnes/ha, respectively. Most outgrowers (75.6%) and non-outgrowers (81.7%) were male. User-companies had policies and defined operational structure guiding COS,while various modes of cassava market existed in the study area aside user-companies' outlets. Under-pricing during glut (1.8±0.4), unilateral decision by user-companies(1.8±0.6) and breach of agreements from both parties (1.7±0.6)weremajor constraints faced by COS.Outgrowers (61.6%)had high level of participation in COSand most (65.2%) had favourable perception towards COS. Benefits derived includedstable market (0.9±0.1), exposure to improved technologies (0.8±0.5) and higher access toagri-support services (0.7±0.5).However, most (64.8%) non-outgrowers had low access to agri-support services. Outgrowers had higher access to all parameters of effectiveness such as land preparation (1.8±1.8), input provision (0.4±0.5), production services (0.2±0.3), financial support (0.5±0.2), extension service (0.7±0.5), harvest and post-harvest support (0.7±0.9), guaranteed market (0.8±0.4) and linkages (0.7±0.4) compared to 1.2±2.1, 0.2±0.4, 0.1±0.3, 0.1±0.4, 0.6±0.5, 0.2±0.4, 0.5±0.5 and 0.4±0.4, respectively for non-outgrowers.Discontinuance in the scheme was caused by poor concern for outgrowers and field workers' dishonesty. Conformity of user-companies (r=0.649) andoutgrowers'perception (r=0.674) positively correlated with effectiveness of COS. Respondents' sex (β=4.094), ready market (β=4.823) and increased income (β=3.645) had significant relationships with likelihood to participate in COS, while COS effectiveness rating was influenced by extension provision (β=0.98), guaranteed market (β=0.251), input access (β=0.308), perceived change in productivity (β=0.249) and conformity to scheme agreements (β=0.107).

Cassava outgrowerschemewas effective in Southwestern Nigeria. The effectiveness of cassava outgrower scheme was enhanced byextension provision, guaranteed market, input access, perceived change in productivity and conformity to scheme agreements.

Keywords: Cassava outgrower scheme, Cassava user-companies, Guaranteed market.
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PLATES

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Outgrower scheme entails a forward agreementthat specifies obligations of farmers and buyers aspartners in business, it stipulates farmers' (sellers') obligations to supply produce according to specified volume and quality, and the buyers' (processors'/traders') obligations to provide production services such as inputs, finance, extension, training, transports and logistics while also off-taking the produce and makingpayments as agreed upon (Will, 2013). Hence, according to Katharina and Denise (2010), outgrower scheme is defined as binding arrangements through which a firm ensures her supply of agricultural produce from an individual or groups of farmers. It facilitates a specially designed trade agreement between producers, processors and traders leading to a vertical integration of the agricultural value chain.

On many occasions, outgrower scheme is referred to as contract farming, and with effective management, it can develop market and facilitatetechnology transfer,all to the advantage of both the contracting company and the farming houehold. This model has been extensively used to boost the production, marketability and profitability of several crops. For example, in Kenya, the South Nyanza Sugar Company (SONY) used this scheme to outsource for sugar cane. The Hindustan Lever Company in India used it to meet her demand of a tomato variety used for tomato paste. For decades now in Nigeria, the British American Tobacco Company has been using this model to service her raw material need of tobacco produce. Eaton and Shepherd (2001) even made particular reference to the case of an outgrower scheme arrangement for cassava in Thailand.

With the current rise in market liberalisation, globalisation and expanding agribusiness, smallholder farmers stand the risk of being crowded out of the market. Across most developing countries, small scale farmersoftenfind it difficult to cope as large scale farms through economy of scale become increasingly promoted for profitable operations. An aftermath of this is the increasing rural-urban population drift being witnessed almost everywhere, especially in developing nations. Effortsfrom various interventions to address this trend has oftenemphasised the creation of 'income generating' activities for rural people.

Unfortunately, there is relatively little evidence that such efforts have produced the desired result, essentially because appropriate market linkages are hardly in place. Rural farmers and small-scale entrepreneurs lack both reliable and cost-efficient support services such as extension advice, mechanisation services, improved seeds, fertilizers, credit, guaranteed and profitable markets for their outputs.

Well organisedoutgrower scheme however, can provide such linkages, and could offer an important platform by which smaller producers can farm in a commercial manner. Similarly, it offers investors a guaranteed and reliable source of raw material supply both in quantity and quality (Eaton and Shepherd, 2001). Other countries like Thailand (the highest exporter of cassava products in the world) have particularly explored the benefits of contract arrangements in cassava enterprise. This then gives Nigeria the hope that this model can positively impact her cassava sub-sector (Adesina, 2012). Fortunately, Nigeria has a comparative advantage as the largest producer of cassava in the world. In Nigeria, an appreciable number of cassava-based agro-allied industries are coming on board and the industrial demand for cassava root is steadily rising. Many of these industries are opting for outgrower scheme arrangements to guarantee stable and continuous supply of cassava roots. However, the efficiency and equity with which the model is been implemented is yet to be ascertained.

Some of the cassava based agro-allied user companies that have attempted using the outgrower scheme model in Nigeria include Matna Starch Industry at Akure in Ondo state; producing starch from cassava, Ekha Agro Company along Lagos–Ibadan road in Ogun state; producing glucose syrup from cassava, Thai Farm International, Ososa, Ogun

state; producing high quality cassava flour, Allied Atlantic distilleries also in Ogun state; producing ethanol from cassava, the Nigerian Starch Mills,Ihiala, Anambra State; also producing starch from cassava as well as Psaltry Company International, Ado-awaye, Iseyin, Oyo.Other models that could serve similar purposes as the outgrower scheme model include the Public Private Partnership Model (PPP), the Commodity Alliance Model (CAM), the Nucleus Estate Model, the Multipartite Model, and the Intermediary Model to mention a few. Notwithstanding, the outgrower scheme model proves unique among them all because it gives farmers the highest freedom of expression, it affords farmers a higher level of participation if appropriately implemented and it facilitates a better means for checks and balances at the operational level (Abegunde and Ladele, 2019).

Cassava as a plant originated from South America and is known under various names: *Manihot esculenta*, manioc, yucca and tapioca. The tubers (part of the root system) and the leaves are used as food sources. It is an important staple food in many developing countries of Africa, South and Central America, India and Southeast Asia. Cassava tuber is rich in carbohydrates, mainly starch, and is a major source of energy. With the exception of sugar cane, cassava is the highest source of carbohydrates (Foodsafety, 2005). Cassava remains Africa's second most important staple food after maize in terms of calories consumed. It is very rich in starch and contains significant amounts of calcium (50mg/100g), phosphorous (40 mg/100g) and vitamin C (25 mg/100g) (Thai Farm International, 2012).

The three largest cassava producing countries at present in Africa are Nigeria, the Democratic Republic of Congo and Ghana, and out of the three, Nigeria is the leading producer. Despite this applaudable status of Nigeria in cassava production, she is yet to explore all the potentials embedded in her cassava sub-sector.The demand for cassava products is on the increase globally and Nigeria should be among the leading participants. Commercialisation of cassava is not all about growing the crop in large quantity but an integration of such with effective value addition. To effectively commercialise cassava production in Nigeria, the Federal Government initiated policies and programmes such as the Presidential Initiative on Cassavaand the Cassava Transformation Plan.

1.2 Statement of research problem

Cassava production over the years has received a wide range of attention in Africa. In early 1960s, Africa accounted for forty-two percent of the world's cassava production, thirty years later (around early 1990s), Africa produced half of the world's cassava output; essentially because Nigeria and Ghana stepped up their production fourfold. In the process, Nigeria replaced Brazil as the world's leading cassava producer with the south-west zone producing not less than 22% of the total production (Henk*et al.*, 2007; PCU, 2003).

Realising the huge potential embedded in Nigeria's cassava sub-sector, the Federal Government launched the Presidential Initiative Programme on cassava in 2003 with the aims of increasing production to the tune of 150 million MT per annum by the year 2010 and to realize up to US $5.0 billion from cassava export. In year 2006, production rose to 45.75 million tonnes; 18% higher than the production in 2004 (Sanni *et al.,* 2009). Unfortunately, as this trend was advancing, itmet with a critical challenge, which was the absence of necessary and appropriate market linkages.

The International Fund for Agricultural Development (2010) confirmed that in countries such as Nigeria and Ghana, widespread adoption of high-yielding cassava varieties and improved pest management have resulted in a sharp rise in the production of cassava, but marketing has been posing serious difficulties. Peasant farmers lament about poor market with many of them selling at giveaway prices when better market opportunities fail to come their way. Prolonged delay to sell cassava roots means a double loss to them; one, the opportunity cost of the land that could have been used for other economic activities and two, the deterioration that occurs to cassava roots in the soil. IFAD (2010) further submitted that several rural development interventions in Western and Central Africa focused on improving poor farmers' yields, but better yields have not always translated to increased income. Therefore, as cassava production grows, the need for efficient markets and a better coordinated value chain is becoming increasingly important to value chain actors who depend on a stable cassava enterprise for their livelihood.

Aderibigbe (2007) identified some weaknesses in Nigeria's cassava value chain, the first of which relates to productivity. The national average yield of cassava in Nigeria is around 10.0 tonnes/ha, in contrast to Thailand, which nationally experienced yields of 17.1 tonnes/ha. Regional yields in countries such as India, Laos, Thailand and Barbados have been estimated as high as 25 to 40 tonnes/ha. Obviously, Nigeria's highest productivity yields fall short of these rates and this situation is due to a number of factors including small scale farming, manual operation, little or no use of fertilizer and limited knowledge in the use of high yielding cultivars to name a few. As a result, Oyewole and Philip (2006) observed that while the cost of production of a tonne of cassava in Nigeria is about 104 US dollars, in countries like China and Thailand it costs only 21 US dollars. These challenges depict the weakness of agri-support services available to cassava farmers in Nigeria. The array of quality services meant to backstop farmers right from land preparation to post-harvest management are very vital if Nigerian farmers will favourably compete with their counterparts elsewhere in the world.

Sanni *et al.* (2009) also observed inefficient market information system in Nigerian cassava sub-sector: there is a wide gap from farmers to processors and end-users, and no adequate and prompt information on market trends toappropriately control each of these activities. This obviously translates to imbalance between demand and supply, causing either glut or scarcity for farmers and end users, respectively to the end that Nigerian factories that depend on cassava roots were forced to stop production due to scarcity of raw materials (Daily Trust, 2010). In Nigerian open market, cassava is known to be a commodity that follows a cyclic trend of glut and scarcity usually within the interval of three years. As such, farmers who produce without getting a stable market to sell need to be appropriately connected with users who often face cassava scarcity either as industrial raw material or as a source of household staple food. Whatever prospect cassava value addition stands to offer, the nation will lack sustainability except there is a regular supply of cassava roots. A regular supply of cassava raw materials to agro-processing industries and the open market is the life-wire of the cassava value chain. This is a gap that well managed outgrower scheme are meant to fill oncethe appropriate enabling environment is put in place by government and her public extension system.

As cassava outgrowers partner with user-companies, most of their farming constraints, risks and uncertainties become a joint responsibility. Arising from the principle of backward integration and the expectation to off-takeoutgrowers' output, user-companies possess sufficient morale and economic justification to finance outgrowers' production and monitor the optimal utilisation of production resourcesadvanced for better output. This is the platform upon which outgrower scheme fits into the current status of Nigerian cassava value chain. However, this essentially demands an equitable management of the scheme, as partners in the arrangement could maltreat one another if necessary oversight is lacking. It is against this backdrop that this study seeks to answer the following research questions:

1.3 Research questions

1 What are the existing operational structures of cassava outgrower schemes in the study area?

2. What is the perception of cassava outgrowers to outgrower schemes in the study area?

3. How much benefits do farmers derive through their participation in cassava outgrower scheme?

4. What are the contributions of agri-support service providers (private and public extension services, input suppliers and farm credit providers) to cassava outgrower schemes in the study area?

5. What is the level of women participation in cassava outgrower schemes in the study area?

6. Whichoperational-related factors determineparticipation of farmers in cassava outgrower schemes?

7. Which factors determine discontinuance of outgrowers in cassava outgrower schemes?

8. What are the values added to cassava by user-companies in the study area?

9. What is the effectiveness level of cassavaoutgrower scheme in the study area?

1.4 Objectives of the study

The general objective of the study is to determine the effectiveness of outgrower scheme among cassava farmers in the study area.The specific objectives are to:

1 examine the existing operational structures (organisational, market, conformity, constraints, participation) of cassava outgrower schemes in the study area,

2. examine the perception of cassava outgrowers to cassava outgrower scheme in the study area,

3. determine benefits derived by farmers through their participation in cassava outgrower scheme,

4. determine the contribution of agri-support service providers (private and public extension workers, input suppliers, farm credit providers, etc.) to cassava outgrower schemes,

5. assess the level of women participation in cassava outgrower scheme,

6. examine the operational-related factors determining participation of farmers in cassava outgrower scheme,

7. examine the factors determining discontinuanceof outgrowers in cassava outgrower scheme,

8. describe the values added to cassava by user-companies; and

9. determine the effectivenesslevels of cassava outgrower scheme in the study area.

1.5 Hypotheses of the study

The following hypotheses were tested in order to provide empirical bases for issues raised in this study:

$H_0$1: There is no significant relationship between the level of conformity to cassava contractual agreements by user-companies and the effectiveness of cassava outgrower scheme in the study area.

$H_0$2: There is no significant relationship between the perception of cassava outgrowers to the scheme and its effectiveness

$H_0$3: There is no significant contribution of key factors determining participation of outgrowersin cassava outgrower scheme in the study area.

$H_0$4: There is no significant relationship between the contribution of agri-support service providers to cassava outgrower scheme and its effectiveness in the study area.

$H_0$5: There is no significant contribution of factors determining outgrowers' effectiveness rating of cassava outgrower scheme in the study area.

$H_0$6: There is no significant difference in the effectiveness of cassava outgrower schemesacross user-companies in the study area.

1.6 Justification of the study

Nigeria ranks as the largest producer of cassava worldwide, outshining countries such as Brazil, Ghana and others. However, it is worth noting that this feat was attained through expanded production rather than increased productivity. The bulk of Nigerian cassava farmers still remains smallholder farmers producing at low productivity level (10-12 Mt/ha). Notwithstanding, Nigeria has a comparative advantage in the cassava sub-sector; vast expanse of arable land that favours the commodity, millions of farmers with interest in growing the commodity, favourable rainfall pattern and large number of water bodies that could serve as sources of irrigation, new up-springing agro-allied industries to off-take the produce after satisfying the domestic need of the populace to mention a few, nonetheless the current reality reveals that the sub-sector is performing far below its potentials.

Crucial among the steps necessary for development in Nigerian cassava sub-sector at the moment is the need to harness available potentials and resources for prompt action, while other areas yet in need of attention are identified and addressed to arrive at a holistic intervention for development. An alternative approach that could serve as a platform to harness potentials and resources available in Nigerian cassava sub-sector is the arrangement of outgrower scheme. It is a market-driven approach wherein cassava agro-processors engage farmers as a form of backward integration and assures them a guaranteed market for their produce while backstopping them with necessary input and production services all through the production cycle.

Nigerian cassava sub-sector is ripe enough for this type of intervention and a good number of such arrangements are gaining increasing attention in our industrial sector. It is therefore necessary to study the performance of these arrangements and how much it can serve to develop the sub-sector. As a result, the outcome of this research study will further orientate outgrowers on the fundamentals of outgrower scheme and how best to maximiseits potentials. It will further enlighten non-outgrowers on the availability of these

schemes and the benefits they stand to derive from them. Industrialists who have been facing challenges in the management of the scheme so far will understand some factors responsible from the outcome of the study. The result of the study will likewise bring to fore the roles played by various service providers (extension services, credit providers andagro-input dealers) in the management of outgrower scheme. Finally, the results of the study will guide policy makers on approaches to adopt in order to tackle the challenge of the cyclic cassava market glut often experienced in Nigeria.

1.7 Definition of operational terms

1. Outgrower scheme: It is a market-driven approach wherein agro-processors engage farmers as a form of backward integration and assures them a guaranteed market for their produce at an agreed price while backstopping them with necessary input and production services all through the production cycle.

2. Off-take: this is an act of buying back a pre-determined quantum of agricultural produce in quantity and specified qualities as agreed upon between producers and users.

3. User companies: These are agro-processing companies with factories that utilize agricultural produce (cassava) in large volumes as raw materials to manufacture their end products.

4. Value addition: It entails transformation of raw outputs into other forms of products with higher value and diversified utilities. The transformation can take place in the form of processing, preservation and storage. Such transformation creates utilities in time, place and form.

5. Agricultural Value Chain:Thisdenotes the whole range of goods and services necessary for agricultural produce to move from the farm to the final consumer with the idea of actors connected along a chain to produce and deliver goods to consumers through a sequence of activities. It could be vertical or horizontal.

6. Vertical integration:This is the merging of companies or firms that handle a similar item from raw material production to retail sale. The merging could either be in form ofbackward integration or forward integration.

7. Renege: to go back on a promise or commitment.

8. Monopsony: a situation whereby a product or service is bought or used by only one customer.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Review of literature in this study focused on concepts such as definition of outgrower scheme, history of outgrower scheme, benefits and challenges of outgrower scheme both to user-companies and outgrowers. Small, medium and large scale cassava agro-allied firms existing in Nigeria were also highlighted, while a typical example of large scale cassava user-company was described. Furthermore, basic theories adapted for this work were explained as they apply under the theoretical framework.

2.1 Definition of outgrower scheme

According to Haque (2000), contract farming/outgrower scheme is a system for production and supply of agricultural/horticultural produce under forward contracts between producers/suppliers and buyers. Eaton and Shepherd (2001) described it as an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural produce under forward agreements, frequently at predetermined prices. The arrangement also invariably involves the buyer in providing a degree of production support such as inputs and technical advice. It is a case of bringing the market to the farmers, which is navigated by agribusiness firms (Christensen and Scott, 1992). Wright (1989) observed that a contractual agreement encompasses three areas, viz:

(i) Future market (grower and buyer agree for future transactions),

(ii) Resource provision (buyer agrees to supply inputs and technical advice), and

(iii) Specification compliance (growers agree to follow the recommended package of practices for crop cultivation).

2.2 History of outgrower scheme

The use of formal contracting arrangements between farmers and firm as a mechanism to integrate small farmers into economies of scale began in the 1930s in America. It gained

prominence in the west in the 1960s in conjunction with the emergence of agribusiness in both national and international arenas. Somewhat later, contracting was introduced into Africa, Latin America, and Asia, primarily as a form of post-plantation production in which peasant smallholders could be contracted as outgrowers for foreign-owned processing firms (Diana, 1986). Diana further explained that contract farming is defined by three fundamental characteristics:

(i) A futures or forward market whereby a buyer or processor agrees in advance to purchase a crop acreage or volume;

(ii) The linkage of product and factor markets such that purchase depends on specific grower practices or production routines and input and/or service provision by buyer-processors; and

(iii) The differential allocation of production and marketing risks associated with the contract itself.

2.3 Contract farming models

It has been earlier established that contract farming and outgrower scheme are often used synonymously. This is not to say that some authors still do not draw a line of distinction between the two nomenclatures; for instance, Will (2013) posited that outgrower scheme is rather a particular contract farming model much associated with the Nucleus estate contract farming model and it is characterised by a higher level of production service advance from the off-taker in exchange for land and labour provided by outgrowers. In any case, it is generally accepted that both models have a lot of things in common. As posited by Eaton & Shepherd (2001) and Will (2013), contract farming has five basic business models as follows:

2.3.1 Centralized model

This model usually stems up from a backward integration attempt by user-companies who also will serve as off-takers for such arrangements. Off-takers are committed to the contract by providing production services in advance to farmers, even though, this provision may vary in intensity depending on agreement reached at the inception of the arrangement. At the minimal, it could be only farm input provision while, at the other extreme it could mean that the off-taker will keenly oversee all production activities

beginning from land preparation to post-harvest operations. Quotas are usually distributed to farmers by the beginning of each season while, delivery conditions are specified and quality is tightly monitored. Examples of agricultural commodities outsourced through this model include tobacco, cotton, sugar cane, coffee, tea, cocoa, and rubber as well as livestock products such as poultry, pork, beef and milk. This type of model is practiced under the Psaltry cassava outgrower scheme model as described by Fadairo&Alarape (2020).

2.3.2 Nucleus estate model

This is rather a variant of the centralized model under which a user-company/off-taker owns and manages an estate plantation of her own. The plantation is usually located close to the company's processing plant to take advantage of raw material supplies. The nucleus estate system involves investments into land, mechanisation, machineries, farm structures, staff and management. This model usually ensures supplies to growers and an organised management of the production system to assure a cost-efficient utilisation of installed processing plant and to satisfy customer demands for the company to break even. The nucleus estate has been used for resettlement purposes; to develop oil palm industries and other tree crops. It has also been used for the development of dairy nucleus estates. According to Poku, Birner and Gupta (2018), most agricultural contract arrangements especially in developing countries various elements of contract typologies which eventually evolve as variants of existing contractual models. This is often done with the intent to minimize the risks of renege or non-compliance of contracting parties in the arrangements.

Furthermore, Akuriba&Tangonyire (2020) and Paglietti& Sabrie (2012) identified another variant of the nucleus estate contract model in Ghana which they termed as 'Nucleus-farmer outgrower scheme model' under this structure, a commercial farmer (who is well resourced) with robust capacity and often time supported by development partners or the government takes up the charge of coordinating smallholder farmers under the scheme. This neucleus-farmer now plays the role that normally would have been played by an agro-allied firm that is to off-take smallholders' farm output under the scheme and serves as an intermediary between outgrowers and the user-company concerned. Production

services provided by the nucleus-farmer included extension support, technical skill transfer and inputs advance in form of improved seeds, fertilizer, agro-chemicals as well as mechanized services like tractor services, treshing, shelling and support for harvesting and produce transportation.

2.3.3 Multipartite model

This model essentially leverages on a public Private Partnership platform as it usually involves a synergy among statutory bodies, private companies and farmers. It can likewise emerge from the centralised or nucleus estate models. Multipartite contract farming model can engage separate institutions to handle credit provision, crop production supervision, contract management, processing and marketing within the arrangement. This implies under the model, farmer-user-company arrangement could be complemented with third parties which are service providers on extension, credit, training/capacity building, inputs, logistics, market etc. These parties are usually guided by memorandum of understanding signed with appropriate legal backing which also would have appropriately factored in the mode of payment for services rendered. In their study on rubber nucleus estate contract farming among smallholders in Western Ghana, Paglietti& Sabrie (2012) made reference to a tripartite outgrower scheme arrangement involving the Agricultural Development Bank and the National Investment Bank of Ghana as financial institutions in the arrangement, the Ghana Rubber Estate Limited as off-taker company and owner of the nucleus estate while, the Rubber Outgrowers and Agents Association serves as the umbrella body for outgrowers in the scheme. They also referred to a multipartite outgrower scheme arrangement aimed at the production of sorghum involving the TechnoServe organization in Ghana, the Ghana Guinness Breweries Limited, the Savannah Agricultural Research Institute, the nucleus farmers and outgrowers.

2.3.4 Intermediary model

In this model, the processor/user-company subcontracts the outsourcing of agricultural commodities to an intermediary who could be a produce buyer, collector, aggregator or even a farmer cooperative organization. Characteristically, the intermediary as supported by the user-company provides some production services in advance to farmers or at the least some cash advance to secure the loyalty of the farmers. This model needs be

approached with a lot of monitoring to forestall the challenge of losing control over the production process especially for crops that need high compliance to recommended practices and unfair treatment of farmers by intermediaries. However, if well-designed with efficient in-built incentive-structures and adequate control mechanisms, the model can be such that will be highly rewarding. Examples of commodities that are often applicable to the intermediary model are cocoa, cashew, maize, cowpea, soybean, green beans and vegetables. The intermediary model is commonly practiced in Southeast Asia and West Africa; in Indonesia it is usually termed plasma, while in West Africa it is referred to as produce buying often practiced by Licenced Buying Agents (LBAs). Oladejo (2019) in her study on the profitability and efficiency analysis of cocoa marketing in Ondo State, Nigeria, explained that during the marketing board era, cocoa marketing board appointed licenced buying agents (LBAs) who could either be individuals, cooperative societies or companies to purchase, store, bag, grade and transport cocoa beans to designated stores.

2.3.5 Informal model

This model is mostly used by individual entrepreneur or small and medium enterprises (SMEs) who engage farmers informally in simple contract sometimes on seasonal basis. Commodities such as fruits, vegetables, watermelon and kolanuts are outsourced under the informal model. Entrepreneurs who arrange this contract sometimes may have to serve supermarkets, eateries or some sort of classified markets with minimal value addition to the produce outsourced. For reason of limited fund, such entrepreneurs may partner with a financial institution to guarantee loan for farmers in the arrangement. Support services are provided as agreed upon between the entrepreneur and the farmers. It is actually the most transient and speculative of all contract farming models, since there exists a high risk of default from either party in the arrangement.

2.4 Benefits of Outgrower scheme

Outgrower scheme facilitates a forum whereby user-companies directly engage in business with farmers. Diana (1986) identified that this form of agribusiness assists small farmers by providing new technologies, ready markets, secured inputs and prices, and increased cash incomes; furthermore, it offers a mechanism by which the local community

will be able to initiate self-sustained development, and by which the government can earn foreign exchange or increase food security goals for specified agricultural commodities. Reviewing from the works of Eaton and Shepherd (2001), Kirsten and Sartorious (2002) and Carlos (2005), the following benefits are derivable from outgrower scheme by various stakeholders involved:

2.4.1 Benefits to the user-company

Outgrower scheme as it allows the user-company to delegate production to smallholders has several advantages, some of which are:

i. Access to regular raw material supply

Outgrower scheme assures user-companies of regular inputs of raw material from smallholders to meet its economies of scale; achieving this through purchases from the open market could be difficult. Much more, contracts can specify planting dates as well as total quantity to be outsourced. Outgrower scheme therefore both reduces uncertainty and gives the firm control of the production process(Paglietti& Sabrie, 2012). Both estate and outgrower scheme models of outsourcing raw materials are far more dependable compared to purchases from the open market. User-companies that could have invested much into the business and factory equipment cannot depend on unpredictable flow of input from the open market as this will not justify their investments. Outgrower schemes' managementsneed to must make sure that there is a well outlayed schedule for harvesting and delivery of produceto the factory: this is likely to beachieved under a well-managed outgrower scheme arrangement.

ii. Prevention of land constraints challenges

Through outgrower scheme arrangement, the firm does not have to invest in land acquisition, hired labour or large scale farming operations, as also buttressed by Brüntrup*et. al.* (2018). It helps the firm to avoid conflict over landownership and labour issues. Most plantations in the world were established during the colonial era when land was relatively abundant and the colonial powers had less challengesabout land acquisition. The pattern around land tenure system has so much changed in the recent years, such that even if it is possible for a user-company to purchase large expanse of land, the difficulty of getting it on a single tract of land to afford the necessary economies of scale could

make it almost impossible.Hence, outgrower scheme facilitatesthe cultivation of raw materialson such a land that could not have been available to the user-company.

iii. Political acceptability

Aside economic reasons, there are several political reasons for which outgrower scheme proves attractive to user-companies. It allows the firm (particularly foreign) not to invest too many resources in a country and therefore to avoid the risk of appropriation. It also serves as a boost to the goodwill of the user-companies, more so that it touches the lives of peasant farmers at the grass root level. Outgrower scheme, presented as a smallholder friendly scheme, can be good for the public image of a user-company and give the impression that it brings social benefits to the community. This can be exploited by the firm to attract the state, or even international aid.

iv. Quality consistency

More consistent quality of raw materials can be obtained through outgrower scheme than if purchases were made from the open market. Distinct varieties of produce in the desired quality and quantities are often not available in the open market. For example, a multinational firm that invested in the Indian state of Punjab found that the local varieties of tomatoes were unsuitable for processing into paste or ketchup. This was one of the factors that made it decide to go into contract farming (Eaton and Shepherd, 2001). Furthermore, it is important that raw material production source is traceable, should in case issues about food safety comes up as a challenge from consumers' end.

2.4.2. Benefits to outgrowers

i. Access to stable market

Smallholder farmers are often constrained in what they can produce by limited market outlets. Thus, the primary motive that encourages small-scale farmers to be enlisted in contract farming is market access, through which also comes increased income from the sale of produce with a minimal level of risk. However, they must produce within specified quality and quantity parameters. Hussain & Thapa (2016) posited that outgrower scheme model has often been adapted across different regions of the world to proffer solution to

problems of lack of production capital and poor linkage to ready markets for farmers among others.

ii. Access to agri-inputs and agri-support services

Many contract farming arrangements have provision of agri-inputs like seeds, fertilizers and agro-chemicals as part of their components. The user-company may still go further to provide some agri-support services aside the inputsalready supplied. All of these come to play essentially to enhance adherence to good agronomic practices for easy attainment of projected yields and desired qualities. It is often uncommon that smallholders outside the outgrower scheme arrangement gain access to such inputs and agri-support services. Inputs and production service provision was observed by Fadairo&Alarape (2020) in the deployment of Psaltry Company outgrower scheme in Oyo State, Nigeria. It was likewise reported by Akuriba&Tangonyire (2020) among maize outgrowers in their study carried out in Northern Ghana.

iii. Access to credit

Credit access for smallholders has remained a long-standing problem especially in developing countries. Erstwhile structures for credit provision to farmers such as Agricultural Developent Banks and export crops marketing boards were not sustained in many of these countries, hence the increased difficulty in credit access among most smallholderfarmers.Outgrower scheme arrangements in most occasions provide farmers with some credits to support their farming production (Hussain & Thapa, 2016). Mostly, user-companies advance their outgrowers with fund through their supervisors or by partnering with financial institutions as guaranteed by user-companies. This means the contract serves as collateral, otherwise, financial institutions will not offer credits.

iv. Access to new and appropriate technologies

Improved technologiesand practices are important to attain and sustain high quality produce as could be required by user-companies. This is also needed to increase productivity to help satisfy market demands. However, smallholders are often hesitantat adoptinginnovations because of the attendant risks and costsassociated. They are more disposed and encouraged to adopt innovations when assured of external support. This, the

private agro-allied industries will be willing to do,as it can directly satisfy their interest and objectives.Brüntrup*et. al.* (2018) observed better disposition among smallholders to the use of improved technologies in Tanzania due to the leverage obtained through outgrower schemes.

v. Access to assured and fixed pricing system

The open market is characterisedwith price instability basically because its pricing system is left to the dictates of market forces. Farmers' returns is thus dependent on their bargaining power and sometimes luck. This can create considerable uncertainty which to a large extent outgrower scheme can overcome. Usually, user-companies indicate in advance the price(s) to be paid and these are specified in the agreement. On the other hand, some contracts are not based on fixed prices but are related to prevailing market prices at the time of delivery,and even at that, the contracted farmer is still better off because of access to input advanceshe/she would have enjoyed.

vi. Increased production

Quite a number of reasons could inform why agricultural production in Sub-sahara Africaremains at the low ebb,and a major one of them is market uncertainty. Under a well-managed outgrower scheme however, this constraint is well attended to. It thus implies that outgrowers' level of production is bound to steadily rise as they advance in outgrower scheme arrangements.

vii. Increased productivity

Productivity is the rate of production per unit area of land. It is much more dependent on the efficiency with which outgrowers utilize production resources. Efficient utility of production resources will in turn depend on availability and timely access to these resources coupled with the level of technical knowledge deployed by outgrowers. Farmers under outgrower scheme arrangement therefore stand a better chance of increased productivity as user-companies in contract with them take up the responsibility of ensuring the availability and accessibility of most of these production resources. Beyond this, there exists also the transfer of technical knowledge to outgrowers, all in the bid to increase productivity and reduce cost of production.

2.5 Challenges associated with the practice of outgrower scheme

Even though contract arrangements through outgrower scheme can reduce risks associated with production and marketing to a good extent, contractsmanagement themselves riskinherent, thus leading to potential challenges for both farmers and the user-companies. Challenges associated with the scheme for each of the stakeholders are discussed below.

2.5.1 Challenges associated with outgrower scheme for user-companies

i. Extra-contractual sales

The sale of produce by farmers to other parties outside the frame of the contract can be a major problem. Extra-contractual sales are often possible and are not easy to manageonce an alternative market exists. Just like firmsare prone to renege on contract agreements when prevailing price from other outlets appears cheaper, anoutgrower may also be tempted to default by side-selling to other buyers in an instance whereby prices offered outside the contract is considered to be higher. In a situation whereby outgrowers have easy access to other markets for the same produce, this can be challenging except enforcement to contract terms is very strong.Brüntrup*et. al.* (2018) likewise observed extra-contractual sales as a major challenge in implementing outgrower schemes.

ii. Extra-contractual delivery

Just as managers must watch against sales of produce outside the scheme, so also must they guard against produce from outside being channeled into the buying system especially when quality standard counts. This can happen when non-outgrowersfor the reason of better price offeredat anotheragro-allied company choose to channel their produce into the supplyflowusingcolleagues thatparticipate in the scheme. User-companies find it difficult to manage targets for production and other standards pertaining to quality when outgrowers engage in this kind of practices.

iii. High transaction cost of dealing with large number of farmers

A contracting firm will typically be linked to a large number of farmers, scattered over wide regional areas. Managing a commercial relationship with myriad of partners is a complex task, requiring investments in personnel, in controls and in monitoring systems. The cost of logistics tends also to be high when inputs must be distributed and produce assembled by the user-company.

iv. Diversion of advanced inputs

One of thechallenges often encountered in the management of outgrower scheme is that outgrowersteud to divert inputs advanced under the contract for unintended aims. They canuse advanced inputs on other farms or even sell them. This has a negative repercussion, as productivity will reduce and the quality will be affected. Often, steps taken by user-companies to overcome such problems include improved monitoring through fieldworkers, training of outgrowers and the introduction of certain punitive measures for defaulters.

v. Insufficient farmland

Situations could arise whereby farmers interested in outgrower scheme would be constrained by limited farmland and unfavourable land tenure system in their communities. User-companies must ensure farmers have access to suitable and sufficient land to cultivate the crop under contract. Otherwise, disputes can ensue between farmers and land owners after resources have been committed to the land. This will eventually lead to a waste of the firm's resources as well as that of the farmers.

vi. Socio-cultural constraints

There could be problems when the contract management enlist farmers who find it difficult toadjust to schedules and set timelines under the contractdue to social commitments. Outsourcing produceusingoutgrower scheme as well has socio-cultural implications. When working within communities where customsor traditionsare held in high esteem, it can be difficult promoting innovations that conflict with their values and norms. Beliefs and norms as well as religious traditions also play important roles. As an example, it may not be very appropriate that harvesting is scheduled for festive periods, and when norms and customs prevalent in the community are violated farmers'poormay be low.

vii. Farmers' displeasure

Some conditions can result in farmers' displeasure. unfair buying, payments later than agreed upon, poor extension support, inefficient transport system, a suddenmodification in price mechanismandlack of respect for farmers canengender irritations. Where prompt management is lacking, aconditionof this nature can lead todisagreementand farmers can

start withdrawing from the scheme. This underscores the role of efficientoversightifoutgrower schemearragements will succeed.

2.5.2 Challenges associated with outgrower scheme for farmers

Most of the challenges faced by farmers in outgrower scheme come from unequalstatusesexisting amongcontracting parties, with user-companies in most timeshaving the tendency to oppress other partieswithin the relationship.

i. Possibility of default from user-company on contractual agreement

Firms canbreach contract agreementsanytime variations occur in market conditions compared to what obtained when such agreements were reached.Furthermore, most items of contract including produce delivery and price specifications could largely be based on futuristic expectations.Hence, major alterations that could affect the probability of such expectations' realisation might make firms push for renegotiation, and where this is not working, they could resort to sharp practices by delaying produce off-take or introducing stringent measures that will force the price down. This was observed by Fadairo and Alarape, (2019) as part of the challenges farmers encountered in Psaltryoutgrower scheme in Oyo State, Nigeria.

User-companies' off-take delay could come under the disguise of low compliance with quality standard or no space tooff-take produce, as such they might decline to off-take produce as a strategy to transfer to farmers the financial losses arising from unexpected market outplay. In the absence of effective enforcement mechanisms, farmersmight have little or nothing to do to help the situation.

ii. User-companies could set delivery schedules to affect price

user-companies could set produce delivery timelines to their own favour by taking advantage of the harvesting period to affect farmers' selling price, particularly when payment is determined by the prevailing market price as at the time of delivery.Usually, prices of farm produce are cheaper during harvest time because they are likely to be in surplus and market supply will often exceed demand. But as time goes by, prices of such

produce begin to appreciate; such that the longer a farmer is able to store a produce (especially before the next season's harvest), the higher the price it commands in the market.

User-companies can deliberately set delivery date during the surplus period, when prices are low for them to store the produce and be using during off-season period.

iii. Possibility of manipulations through price determination

in some occasions, user-companies deliberately introduce some sort of complexity into the contract pricing system by either making use of complex formulas or employing some quality and quantity calculations to confuse farmers. The use of traits like fat content, sucrose level, somatic cell counts, bacteria level count and similar approaches that involve laboratory analysis can easily be manipulated by user-companies.

iv. The tendency to be glued to an enterprise choice

Contract farmers can find themselves glued to limited enterprise choices as influenced by the crop or livestock of interest under the contract. This can affect such farmers to become less flexible and also unable to deploy appropriate production mix to benefit maximally from evolving market opportunities.

v. The risk of lossingout of previous business linkages

Engagement in contract farming could be demanding and difficult to combine with former agribusiness transaction partners. This could lead to loss of former linkages already established with lenders, and other service providers. It could be difficult to reconnect with these lost linkages if for one reason or the other, a contract farmer ends up discontinuing the contract arrangement.

vi. Increased risk associated with monoculture

Under outgrower scheme arrangement, common risks connected with monoculture system is rather aggravated. For example, the production of a singular crop or animal under an intensive system can increase the farm's vulnerability to disease outbreak. Also, it gives no room for diversification in case of crop failure or outbreak of diseases as the case may be.

vii. Increased risk of indebtedness

The risk of indebtedness grows for farmers who fail to exercise caution. The flipside of cheap credit access comes as the weight of increased debts. The ease of credit access outgrower scheme can open to farmers could lure them into unrestricted and less disciplined borrowing habit even to finance non-essentials and consumables. In the long run, this may be to farmers' detriment.

viii. Gradual weakening of farmers' bargaining power

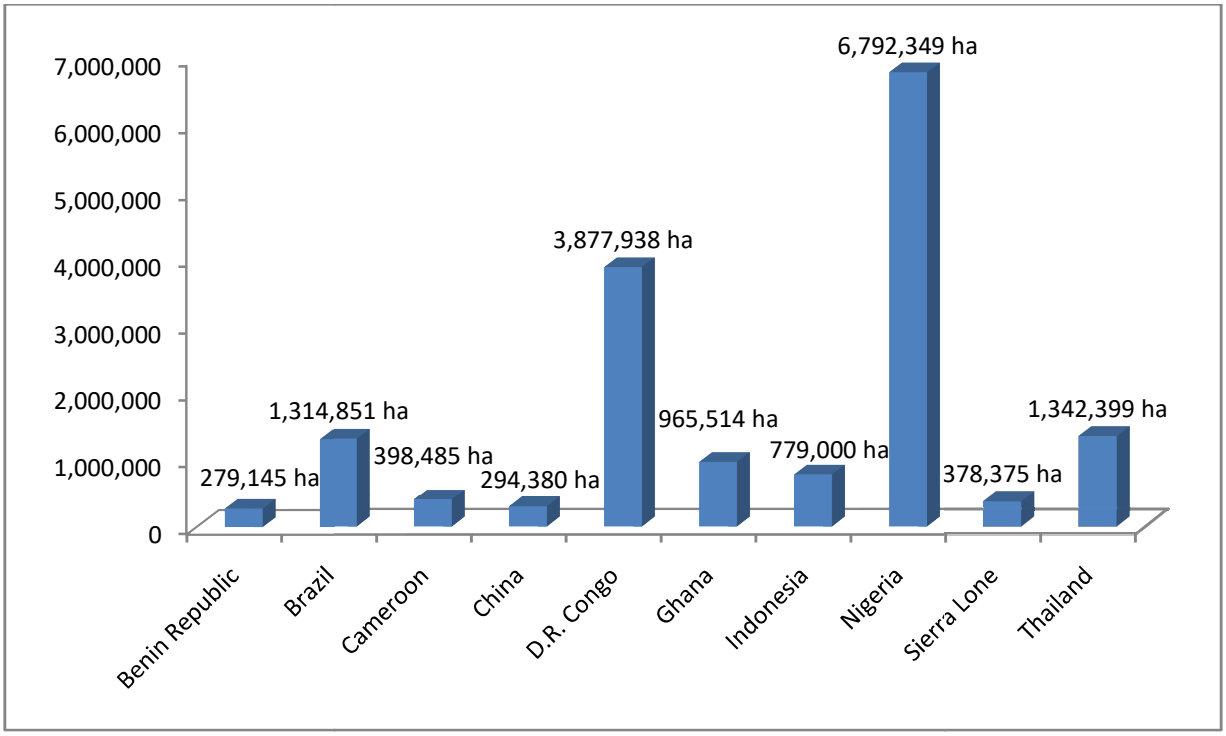
User-companies have the social responsibility of providing some services to farmers' communities and some incentives to toutgrowers(Brüntrup*et. al.,* 2018), such could be by providing free transportation and sharing of sourvenirs like shirts, caps, hand fans, cups etc. These indirectly might foster increased reliance on user-companies for even non-farm supports. In fact, in some cases user-companies become the last resort philanthropist entities to approach for the provision of needed public services or infrastructures. Nonetheless, dependence on user-companies for such supports may weaken farmers' bargaining capacity and reinforce monopsonistictendencies in the user-companies.

2.6 Small-scale cassava production in Nigeria

Nigeria is well endowed for agricultural development. She has a total land area of 92.4 million hectares with not less than 82 million hectares suitable for arable farming. However, only 34 million hectares are currently under cultivation mostly by smallholder farmers cultivating less than 5 hectares each (PwC, 2017). This implies the Nigerian farming population is largely made up of smallholders as posited by Sabo *et.al.,*(2017), Mgbenka and Mbah (2016), Evbuomwan and Okoye (2016) and Adamu and Idisi (2014). These are the set of farmers who cultivate the bulk of food produced in Nigeria. Literature has however revealed that small-scale farmers in Nigeria, most of whom are cassava farmers are faced with various constraints in their production activities. Some of these constraints according to Oyelami, Ladele and Adegeebo (2017) and Mgbenka and Mbah (2016) include poor funding, unfavourable policy environment,unfavourable land tenure system, high cost of farm inputs, limited access to farm credits, inadequate modern

farming tools and poor market linkage (which leads to non-remunerative prices for cassava produce) and weak extension support.

Most of the afore mentioned constraints confronting Nigerian smallholder farmers have been responsible for their low productivity in cassava production and this explains the reason why the growth in Nigeria's cassava sub-sector is premised on cultivated area expansion rather than increased productivity per unit area of farmland. Figures 1, 2 and 3 respectively show the major cassava producing countries in the world along their cassava land area, production and productivity status in 2017, Thailand which produced 30,973,292 tonnes of cassava devoted 1,342,399 hectares of land to it, while Nigeria which devoted more than five times (6,792,349 hectares) the land size of Thailand, only produced 59,485,947 tonnes of cassava (not even double the production of Thailand). This is as a result of existing productivity differential between Thailand (23.1tons/ha) and Nigeria (8.8tons/ha) as revealed in figure 3. Though, Nigeria is applauded as the largest producer of cassava in the world, statistical realities show that she is currently performing far below potentials. Proactive steps are therefore needed by all stakeholders along the Nigerian cassava value chain to address all identified challenges to develop the sub-sector.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6,792,349 ha
378,375 ha
1,342,399 ha
Benin Republic
Brazil
Cameroon
China
D.R. Congo
Ghana
Indonesia
Nigeria
Sierra Lone
Thailand

Figure 1: Cassava land area of major producing countries in 2017.
Source: FAOSTAT, (2018).

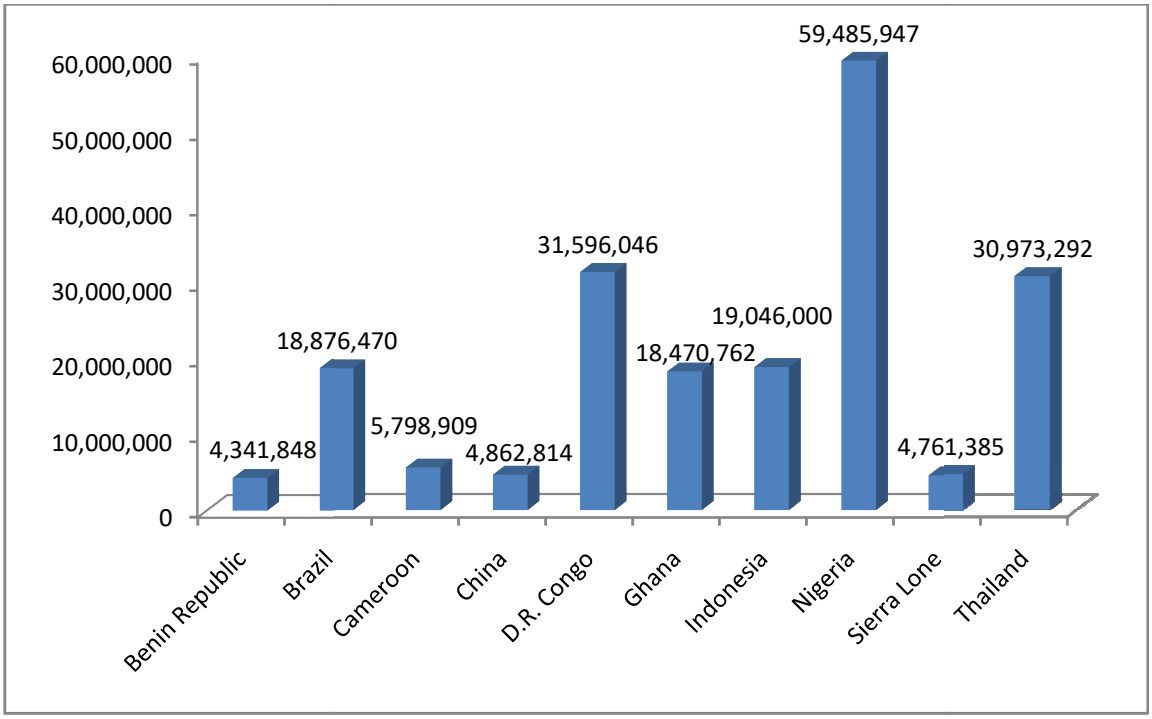

Figure 2: Cassava production in tonnes of major producing countries in 2017.
Source: FAOSTAT, (2018).

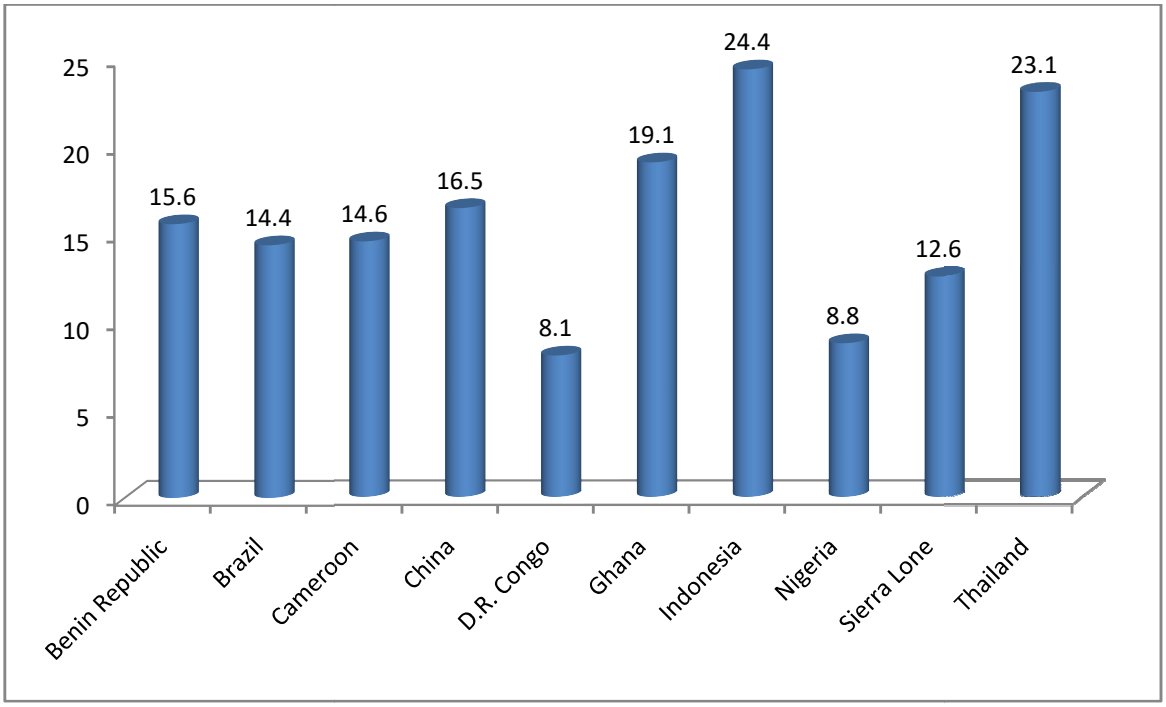

Figure 3: Cassava productivity in tonnes/ha of major producing countries in 2017. Source: FAOSTAT, (2018).

2.7 Agricultural development programmes in Nigeria

Nigeria in the quest to develop her agricultural sector has implemented several agricultural development programmes. Some of these are:

2.7.1 The Farm Settlement Scheme:

It was established between 1959 and 1965 using the community development approach to attract young school leavers to agripreneurship. It was also meant to address rural-urban migration through provision of amenities in the settlements, so as to retain the agricultural labour force. The adoption of a top-down style with no involvement of clienteles in design and implementation as well as little or no linkage to research; coupled with some political mayhem as at the time defeated the aim of the programme.

2.7.2 The National Accelerated Food Production Programme (NAFPP):

This programme was launched in 1972 and conceptualized to incorporate research, extension and input supply using a network of agro-service centres. Participatory technology development was employed with farmers minimally involved during farm trials tagged as "mini-kits" production under the project. The programme was jointly sponsored by the Federal and State government to rapidly increase the production of six major crops namely: sorghum, millet, wheat, rice, maize and cassava with research role assigned to selected research institutes to develop technologies relevant to farmers' needs for the production of identified crops. The programme's design and implementation were top-driven and poor funding from the Federal and State governments led to its gradual collapse.

2.7.3 Operation Feed the Nation (OFN):

This programme was introduced in 1976 as a strategy to substantially increase food production by harnessing the human, material and natural potentials of the country. It was designed to mobilize the general public to participate in agricultural production and thereby attain self-sufficiency in food production. The programme only created awareness

about food insecurity and the need to face it head long, but could not lead the country into attaining food security as it lost steam following the then change in political regime.

2.7.4 The River Basin Development Authority (RBDA):

The RBDAs were established in 1977 for the exploitation of the nation's water resources for irrigation to ensure all year round production of essential food crops. Extension responsibilities were assigned to the authorities in 1984/85 when farmers were allowed to access RBDAs services in their catchment areas through the ministry of agriculture. Unfortunately, the programme ran into a problem of poor funding following the then global economic recession.

2.7.5 The Green Revolution:

This approach was adopted premised on its success story in Asia and was launched in 1979 with the intention to replace the Operation Feed the Nation that had then become unpopular. The idea of new regimes coming up with new projects rather than sustaining existing ones gave rise to the green revolution programmes. It was focused at achieving self-sufficiency in food production within five years but with no clear approach. Hence, diversification of efforts into several activities which could not be sustained led to its collapse.

2.7.6 The Pilot (Enclave) Agricultural Development Projects (PADP):

The agricultural development project approach started in 1975 as a World Bank assisted integrated rural development package with pilot projects in Funtua, Gusau and Gombe using the Training and Visit (T&V) extension delivery method as developed by Benor and Baxter. The approach was premised on the philosophy that a combination of essential factors comprising the right technology, effective extension, access to production-enhancing inputs, adequate market and other infrastructural facilities are essential to get agriculture moving (Akinbile, 2002). The success recorded in these pilot projects led to the establishment of enclave ADPs in six more centres which were Lafia, Ayingba, Bida, Ilorin, Ekiti and Oyo North between 1979 and 1982.

2.7.7 State-wide Agriculture Development Projects (ADPs):

The success recorded in PADP encouraged the creation of state-wide Agricultural Development Projects (ADPs) as the major machinery of public service extension delivery throughout the federation. This phase of extension service witnessed a rapid growth of the ADP concept and it reached national coverage by 1989. The main feature of the T&V approach according to Akinbile, (2002) is that a close link must exist between research and extension through communicative strategies such as: On-Farm Adaptive Research (OFAR), Monthly Technology Review Meetings (MTRMs), Small-Plot Adoption Technique (SPAT), Fortnight Trainings (FNTs), and Research-Extension-Farmer Input Linkage System (REFILS).Although the T&V system was reported to be working successfully, its high cost and large requirement of trained manpower were the major factors affecting its sustainability, especially in the event of the withdrawal of counterpart funding by the World Bank (Shaib *et al*, 1997).

2.7.8 Directorate for Food Roads and Rural Infrastructure (DFRRI):

The Directorate was established in 1986 as a kind of home grown social dimensions of adjustment (SDA) embarked upon in most sub-Saharan African countries by the World Bank, African Development Bank and the United Nations Development Programme (UNDP). It was designed to improve citizen's quality of life encompassing nutrition, housing, health, employment, road, water, industrialization and so on as well as ruralites' standard of living through the use of resources existing in rural areas. However, the incidence of mismanagement of funds and provision of sub-standard infrastructures by the directorate decimated the impact the directorate could have made. According to Idachaba (1988), failure to stick to focus and poor accountability were part of challenges that confronted the programme.

2.7.9 National Agricultural Land Development Authority (NALDA):

This land development authority was established in 1992 after the earlier Land Use Decree of 1978 and the Land Use Act of 1979 were criticized as empowering highly placed

officers to usurp land belonging to the rural poor. The authority was aimed at giving strategic public support for land development to engender and promote better uses of rural land and resources in Nigeria. This was conceived to boost profitable employment opportunities, raise rural dwellers' wellbeing and ultimately assist to achieve food security.

2.7.10 National Fadama Development Project (NFDP):

The first National Fadama Development Project (NFDP-1) was initiated in 1990 to promote simple low-cost improved irrigation technology under a tripartite funding arrangement involving the World Bank, the Federal and States government of Nigeria. The main objective of this project was to sustainably increase the incomes of fadama users through expansion of farm and non-farm activities with high value-added output (Iwuchukwu and Igbokwe, 2012). NFDP adopted a Community Driven Development (CDD) approach especially in subsequent phases after the first. Appraisal of the first phase revealed remarkable success and relevant gaps to be filled, hence the approval of the second, third and the current additional financing phase of the project.

2.7.11 National Special Programme on Food Security (NSPFS):

This programme was launched in 2002 with the broad objective of increasing food production and eliminating rural poverty. Other specific objectives of the programme were to increase farmers' output, productivity and income, strengthen research and extension service and to train farmers on farm management for effective utilization of resources. A revolving interest-free loan was made available to farmers across the nation under this programme in addition to the provision of simple farm tools aimed at attaining self-sufficiency. However, the programme was confronted with challenges such as inability of most beneficiaries to repay their loan to time, complexity and incompatibility of tools, low extension to farmer contacts and difficulty in integrating introduced technologies into existing production system.

2.7.12 Root and Tuber Expansion Programme (RTEP):

This programme was launched in 2003 in 26 states of the federation and was designed to achieve economic growth, improve access to social services and carry out intervention measures to protect poor and vulnerable groups. On a national scale it was aimed to engender food security and stimulate demand for cheaper staples such as cassava product, yam, potato etc as against other carbohydrate such as rice; taught to be more expensive. Small scale farmers with less than two hectares per household were the main targets of the programme with special attention paid to women who play significant roles in rural food production, processing and marketing. RTEP also focused on the multiplication and dissemination of improved root and tuber varieties to farmers so as to increase productivity and income.

2.7.13 Agricultural Transformation Agenda (ATA)

The vision of ATA as initiated in 2011 was to achieve a hunger-free Nigeria through an agricultural sector that drives income growth, accelerates food and nutritional security, generates employment and advances Nigeria into a leading player in global food markets to grow wealth for millions of farmers (FMARD, 2011). To achieve this goal, fertilizer procurement and distribution, marketing institutions, financial value chains and agricultural investment framework was restructured, giving rise to the Growth Enhancement Support (GES) Scheme which was a focal strategy deployed under this programme. The transformation action plan for some priority commodities such as rice, cassava, sorghum, cocoa cotton, maize, dairy, beef, leather, poultry, oil palm, fisheries as well as agricultural extension were focused in the six geopolitical zones of the country.

2.7.14 The Anchor Borrowers' Programme - Agricultural programme premised on outgrower scheme model:

In 2015, the Government of Nigeria chose agriculture as the means to achieve her economic diversification plan. This led to a step of providing enabling environment for

agriculture to take the center stage in addressing the basic needs of her rising population. Realizing that finance was a major constraint to agricultural development, the Central Bank of Nigeria came up with the Anchor Borrowers' Programme (ABP) to address food insecurity, poor access to finance, unemployment and diversify the economy while creating inclusive growth. The programme aimed at promoting self-sufficiency in production of key agricultural commodities, strengthen local processing by sustainable provision of raw materials, reduce over reliance on imports and encourage grassroot economic development through job and wealth creation. A major platform upon which the programme was premised is the outgrower scheme model.

According to Oyelami *et. al.*, (2017),under the Scheme, anchors (processing companies) served as off-takers in recognition of their track record and experience in working with out-growers to produce specific agricultural commodity. It involves a finance model whereby anchor firms, CBN, Nigeria Incentive based Risk Sharing System for Agricultural Lending (NIRSAL) and state governments organise out-growers and ensure their compliance with contractual terms thereby reducing the incidence of side-selling. Participating financing institutions serve as channels to deliver credit to the out-growers who are expected to be smallholders cultivating between 1 and 5ha. It is instructive that in pursuance of agricultural transformation, Nigeria, like other countries of the world is adopting a value chain approach using the outgrower scheme model to develop her agricultural sector.

2.8 Cassava Agro-processing Firms in Nigeria

According to Sanni *et al.* (2009), Nigerian Government's Cassava Initiative was successful at promoting new entrants and investment into cassava micro-processing as well as encouraging both small and large-scale processing industries as highlighted below;

* Most of these micro and small-scale processors are involved in producing traditional foods or intermediate products, such as chips, high quality cassava flour (HQCF), or starch.

* Medium-scale factories, processing cassava into HQCF, starch, and high-grade fufufor export; have also been established by local entrepreneurs near cassava farming communities. Some companies in this category are Peak Products Ltd, Abeokuta; Vesa Farms Ltd and Deladder Investment in Benin City; Jodek Ventures, Oyo; Wahan Foods Ltd, Afon, Kwarastate; Agadu Farms Ltd, Gboko, Benue state; Kanawa Nig. Ltd, Kano; Godilogo farms, Odudu, Cross River state; Rose Endeavors, Ahoada, Riversstate; Widows Mite, Abak, AkwaIbom state, and Aquada Investment, Umuahia, Abiastate.
* Major large-scale processors, such as Nigerian Starch Mills in Ihiala, Anambra state, and Matna Starch Industry at Akure, Ondo state, are the leading starch industries supplying high-grade refined products to manufacturing industries, such as Cadbury and Nestlé Plc. Thai Farm International, Ososa, Ogun state is known for the production of cassava flour. Ekha Agro Co. along Lagos–Ibadan road was commissioned in March 2007 to produce 26% of the annual national demand for glucose syrup. The company supplies cassava-based glucose syrup of high quality to Nestlé, Cadbury, and Guinness for the manufacture of beverages and malt production (Sanni *et al.,* 2009). The list however keeps growing as new cassava-based agro-processing companies get established by the day.

2.8.1 Thai Farm International (TFI)

Thai Farm International (TFI) located at Ososa in Ogun state (Plate1), is one of the thriving cassavaagro-processing firms in Nigeria at present. It is a foreign private company from Thailand having international as well as Nigerian shareholders. It was incorporated in 2006 in Nigeria with 14 shareholders – 4 Nigerian and 10 overseas shareholders. This came up following a longtime effort by the government of Thailand to build a bilateral trade and business ties with Nigeria. Following various visits of Thai delegations to Nigeria, it came to light that Thailand as a leading processor and exporter of cassava products can collaborate with Nigeria (a leading cassava producer) to facilitate exchange of ideas and useful technologies. Subsequent surveys led to the conclusion that

this project was highly feasible and endowed with many positive attributes beyond the narrow objective of profit alone.

Plate 1: Thai Farms International in Nigeria.
Source: Field survey, 2017.

Since its establishment, the company has built and commissioned a high quality cassava flour plant. The flour plant is of a capacity of 240 metric tons of raw cassava roots per day which translates into a flour product capacity of 60 metric tons of flour per day for supply into the Nigerian staple food chain. It supports over 1,000 small farmers through the purchase of their cassava crops(Plate 2). A sample of cassava price Thai farms offers based on the level of starch content is shown in Table 1. It is expected that as production increases each of these farmers will increase their production five-fold, aside the possibility of absorbing more farmers into the outgrower arrangement. As at the time of this study, the firm has employed 57 full time workers and 25 part time workers at the factory. Presently, the management of this company is taken over by the Flour Mills of Nigeria.

The cassava supply chain of Thai Farm International is very critical to their success, the firm needs 45,000 MT of cassava roots per annum for the flour plant. The Supply Chain is thus actively managed by a team of experienced Nigerians to ensure farmers are identified, recruited and made to grow cassava roots for the firm. The team is also responsible for monitoring the progress of farmers and assists them with inputs and transport to ensure the cassava roots arrive in quantity, on time and to date to the factory site. The efforts thus far have met with success and the firm has been able to source for all the cassava roots required. However, to record such a level of success, the team did not rely only on one source of raw materials supply. A multiple source of raw materials was strategically developed as follows:

1. by engaging outgrowers who will farm on their own land but agree to sell the crop to the firm.This outgrower initiative has engaged over 1,000 farmers cultivating over 3,000 hectares of land (each of them farming less than 5 hectares of cassava farm).
2. by owning cassava farms on leased land under the leadership of an experienced Thai cassava farmer;
3. by owning cassava roots on land belonging to other farmers and communities on a profit sharing basis (this is referred to as "out farming") and
4. by purchases from the cassava open market.
5. Land used for farming by the firm includes: (i) Leased land and (ii) Land farmed by TFI on a share-cropping system (profit sharing) with local farmers.

Table 1: Thai Farms International Table of Cassava Price

Cassava with starch content (%)		Price
From	To	Naira/MT
0.0%	18.9%	Not Accepted
19.0%	19.9%	9,000
20.0%	20.9%	10,000
21.0%	21.9%	11,000
22.0%	22.9%	11,500
23.0%	23.9%	12,000
24.0%	24.9%	12,500

Source: Thai Farm International, 2013


The entrance Loading of cassava into the processor


The processing plant **A farmer-mgt meeting**


The cassava root reception **Some finished cassava flours**

Plate2: Some of the pictures at Thai Farms and personnel in the company.
Source: Field survey, 2017.

2.8.2 Allied Atlantic Distilleries Limited

Allied Atlantic Distilleries Limited (AADL) is the first cassava-based plant in Africa, purposely for the production of Extra Neutral Alcohol (ENA) also known as Ethanol. The plant is expected to supply raw material to distillers, pharmaceutical companies and other industries that require ethanol as raw material. The establishment of this factory will reduce dependence on imported ENA thereby saving the country's foreign exchange and increasing jobs in the industrial sector as the first manufacturer of ethanol in Nigeria. As the biggest manufacturer of ethanol from fresh cassava in Africa, AADL is producing about nine million litres of ethanol yearly and 30,000 litres daily requiring 250 tonnes of fresh cassava roots per day. In addition to ethanol, the company will produce carbon dioxide (CO2) for use in various industries such as the soft drinks industry. To meet this need of cassava raw material AADL requires a steady and sustainable flow of cassava roots to the factory which called for venturing into the cassava outgrower scheme. The company collaborated with Cassava Value Addition Project (CAVA) to develop a network of outgrowers within her catchment area. This involved a formal agreement with cassava farmers as outgrowers, while the company off-takes the cassava outputs. Some incentives offered to outgrowers in the arrangement include training, fertilizer, improved cassava stem cuttings, use of tractors (free or at a reduced cost), and access to credit facilities.Over 8,000 farmers located within the factory's environ in Ogun state and Oyo state, Southwest Nigeria, have been engaged while the company provides more than 40,000 indirect jobs to people in the area.

2.8.3 Harvest Feed and Agro-processing Limited

Harvest Feed and Agro-processing Limited (HFAP) started as a venture enterprise which was registered in 2001. It has different sub-components of the venture enterprise which started mainly from the poultry sub-component, especially the egg production line. As the poultry sub-component grew, the venture enterprise diversified into the feed mill sub-component. This led to the establishment of HFAP first cottage factory located a Km 37, Lagos-Ibadan Expressway, Alagbado, Lagos. The venture further extended her operations

and got upgraded to a limited liability company, expanded into a medium scale poultry enterprise with about 2,500 layers and added another factory at Iju Ota, along Sango, Idi-iroko road. From this point, the company further diversified into cassava starch production and in 2015, HFAP developed further to establish an agro-processing cassava starch factory in Ajura, Obafemi Owode local government area of Ogun state. Thisagro-processing cassava starch factory has an installed capacity of 25 tonnes of high quality cassava starch per day as at 2015 and this factory has been developing in capacity since then. To secure a stable and sustainable supply of cassava roots for the plant installed, HFAP ventured into a cassava outgrower scheme arrangement and organised farmers in Ogun State which are been supported to produce for the cassava raw material need of the factory.

2.8.4 Psaltry International Company Limited (PIL)

This company is an agro-allied company established in the year 2005. The company started withmarketing cassava produce but later expanded its business line to include farm development and production of food grade starch, high quality cassava flour (HQCF), glucose and sorbitol from cassava. PIL initiated a cassava outgrower scheme in September 2012 for farmers within 80km radius to its factory before erecting a starch factory which commenced production in May 2013. In 2015, Psaltry expanded its production capacity from 5,000MT to 15,000MT of cassava starch per annum.

Among the mission and objectives of PIL are to:

- cultivate, process, and sell the quality cassava derivative in form of starch, flour, sorbitol, and other cassava derivatives to international and local markets;
- improve cassava value chain development among rural farmersthrough dissemination of innovative agronomic practices and
- empower farmers by prompt provision of agricultural inputs and alleviate poverty among rural dwellers for community development

Within the last 8 years, PIL has grown from Line 1 to Line 4while, it stands as the first cassava-based sorbitol factory in Africa whileits production capacity has increased from

7,000 tons per annum in 2014 to 35,000 tons per annum in 2020 for High Quality Cassava Starch, Flour, Glucose and Sorbitol.

2.8.5Mokk Investments Limited

Mokk Investments Limited is a limited liability company established in 2001 and incorporated under the Companies and Allied Matters Act in Nigeria. The company was established to provide premium services in the agro-allied and transport industries and it has grown to be an active player in the cassava cultivation and processing industry. Mokk Investments Limited engages in large scale cultivation, processing, exportation and marketing of various agro products from yam, maize and especially cassava. The company uses cassava roots, yam tubers and maize for the production of products such as garri, starch, pellets, chips, fufu, lafun, yam, pap and beans for local consumption. The company also has third party processing arrangements in Kaduna and Ogun states respectively and mini-processing centres in Oyo, Osun and Kwara states; specifically, in Lagunjo, Ijebu Mushin and Ifo in Ogun State. Mokk Investments established 1000 hectares of cassava with the support of fortis micro finance bank and Fadama III using outgrower scheme and other models. The company has recently acquired 10hectares of farmland in Ado Odo town Ogun state for the establishment of 100 metric tons of food grade starch processing plant. The waste product from this plant is meant to generate electricity, liquid fertilizer and animal feeds to enhance the company's product range and earnings capacity. The company operates from its administrative office, farm and factory at Owode, Okeodan and Ilagunjo Ogun state amongst others. Mokk Investments Ltd have at various times collaborated with the Federal Ministry of Agriculture towards improvement in cultivation and processing of cassava products across Nigeria.

2.8.6 Matna Foods Company Limited

Matna Foods Company Limited is a company in the Agro-allied industry with specialty to produce food grade cassava starch. The company was incorporated in 1998, but activity did not commence business until 2002. Matna Foods processes cassava roots into high

standard multi-utility cassava starch. The company was initiated by Chief (Dr) Joseph O. Sanusi (CON) and the late Mr. Tae Won Cho, a South Korean. The company has been in consistent production of cassava starch for not less than a period of 17 years. To ensure a stable supply flow of cassava to keep the factory running, Matna Foods deployed a classified type of outgrower scheme arrangement whereby medium to large scale cassava farmers only are enrolled. These set of outgrowers sign a formal agreement with the company and are fully supported for production in advance after which deductions are made when cassava supplies are made to the factory. The decision to concentrate on only medium and large scale cassava producer for outgrower scheme came as a result of recurrent disappointment from smallholders who often fail to comply with contract agreements.

2.9Theoretical and conceptual framework

The theoretical framework for this study is derived from the theory of Transaction cost and the Flow theory.

2.9.1 Theoretical framework

2.9.1.1 The Transaction Cost Theory

In economics and related disciplines, a transaction cost is thecost incurred in making an economic exchange; it could be restated as the cost of participating in a market (FIXGlobal, 2010).Transaction Cost Theory has been developed to facilitate an analysis of the comparative costs of planning, adapting, and monitoring task completion under alternative governance structures (Williamson, 1985). According to Williamson (1981), a transaction cost occurs when a good or a service is transferred across a technologically separable interface. Therefore, transaction costs arise every time a product or service is being transferred from one stage to another, where new sets of technological capabilities are needed to make the product or service.

The model (figure 4) shows institutions and market as a possible form of organisation to coordinate economic transactions. When the external transaction costs are higher than the internal transaction costs, the company will grow. If the external transaction costs are

lower than the internal transaction costs the company will be downsized by outsourcing. Therefore decision-makers at the managerial level must weigh the transaction costs associated with executing a transaction within their firms (insourcing) versus the transaction costs associated with executing such transaction in the market (outsourcing) and then decide.

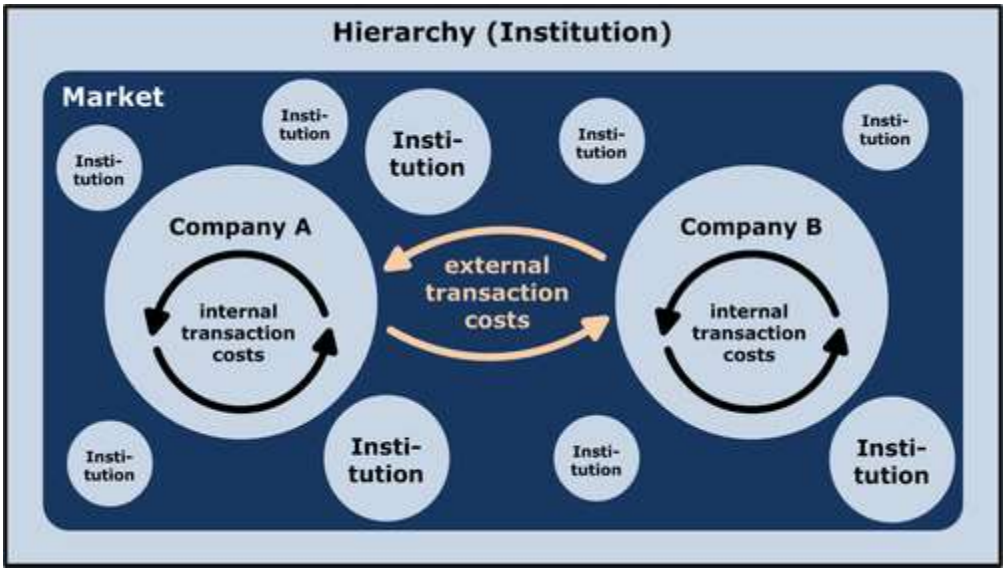

Figure 4:Transaction cost theory [Adapted from Williamson (2002) in Theory of the firm]

As evident from the foregoing, the cassava user-companies in the study area serve as the firms whose managerial unit will weigh the transaction cost associated with insourcing and outsourcing of their cassava raw materials. Insourcing will involve the engagement of the service of outgrowers through vertical integration, while outsourcing entails purchasing their cassava raw materials from the open market.

If the cost it entails for a company to produce her own raw material (internal transaction cost) using the mechanism of vertical integration by engaging outgrowers is lower than the cost with which to purchase same from the open market (external transaction cost), the company will grow by making more profit. However, if the internal transaction cost is higher than the external transaction cost, the company will consider the option of buying from the open market. This implies downsizing by laying off the service of outgrowers. The implication of this is that outgrowers must take advantage of innovations and appropriate technologies that can boost their productivity beyond what ordinarily obtains in the average farmers' fields otherwise their service will prove irrelevant. Nevertheless, the scheme is so designed to share this responsibility of increased productivity between both contracting parties as the technical empowerment outgrowers need is meant to be supplied by the company.

2.9.1.2 The Flow Theory of Production

According to Koskela*et. al* (2007) one of the production theories for creating products and services is the Flow Theory. The flow theory of production is focused on realising value quickly, minimizing inventory and reducing the total latency of production. Production does not occur unless there is a specific request for a product or a very strong expectation of such a request. Flow seeks to increase the tempo of production. Thus, it could be inferred that the demand for cassava root from user-companies serves as impetus for increased production for farmers. Farmers will therefore produce beyond their usual level of production meant to service household consumption and the local market when demand is assured from user-companies.

2.9.2 Conceptual Framework

The conceptual framework of the study is based on the premise that effectiveness of outgrower scheme among cassava farmers is influenced by user-companies' and farmers' characteristics, the contribution of extension and the level of involvement of the government and other non-governmental organisations. All of these factors, as they relate with one another have been categorized as independent, intervening and dependent variables as shown in Figure 5.

2.9.2.1 Independent variables

The independent variables of the study consist of the user-companies' characteristics such as organisationalstructure foroutgrower scheme, marketing outlets, extension staff strength, qualifications and welfare. Also, of similar importance are farmers' characteristics such as age, sex, marital status, land tenure, farm size, farming experience, level of education, associational membership and duration of participation in outgrower scheme. In addition is the contribution of extension to effectiveness of the scheme. An effective extension contribution will aid high conformity to agreements binding on stakeholders of the scheme. This will lessen the severity of constraints encountered in the outgrower scheme and increase the level of benefits derived from the scheme. Invariably the suitable interplay of the afore-mentioned variables will lead to a favourableperception from farmers which will also enhance their level of participation in the scheme. These variables have direct effects on the effectiveness of outgrower schemes among farmers in the study area.

2.9.2.2 Intervening variables

These are influences of government policies on outgrower scheme, aids from the government and other non-governmental organizations on outgrower scheme, as well as climate change and herdsmen farmland destruction in the study area.

2.9.2.3 Dependent variable

This is effectiveness of cassava outgrower scheme. Effectiveness was measured using indicators such as guaranteed market, access to farm inputs, perceived change in farmers' productivity, compliance to agreed terms, regular flow of cassava root to factory, cassava price stability, outgrowers' capacity to keep agreement terms, logistic challenges and suitability of the scheme.

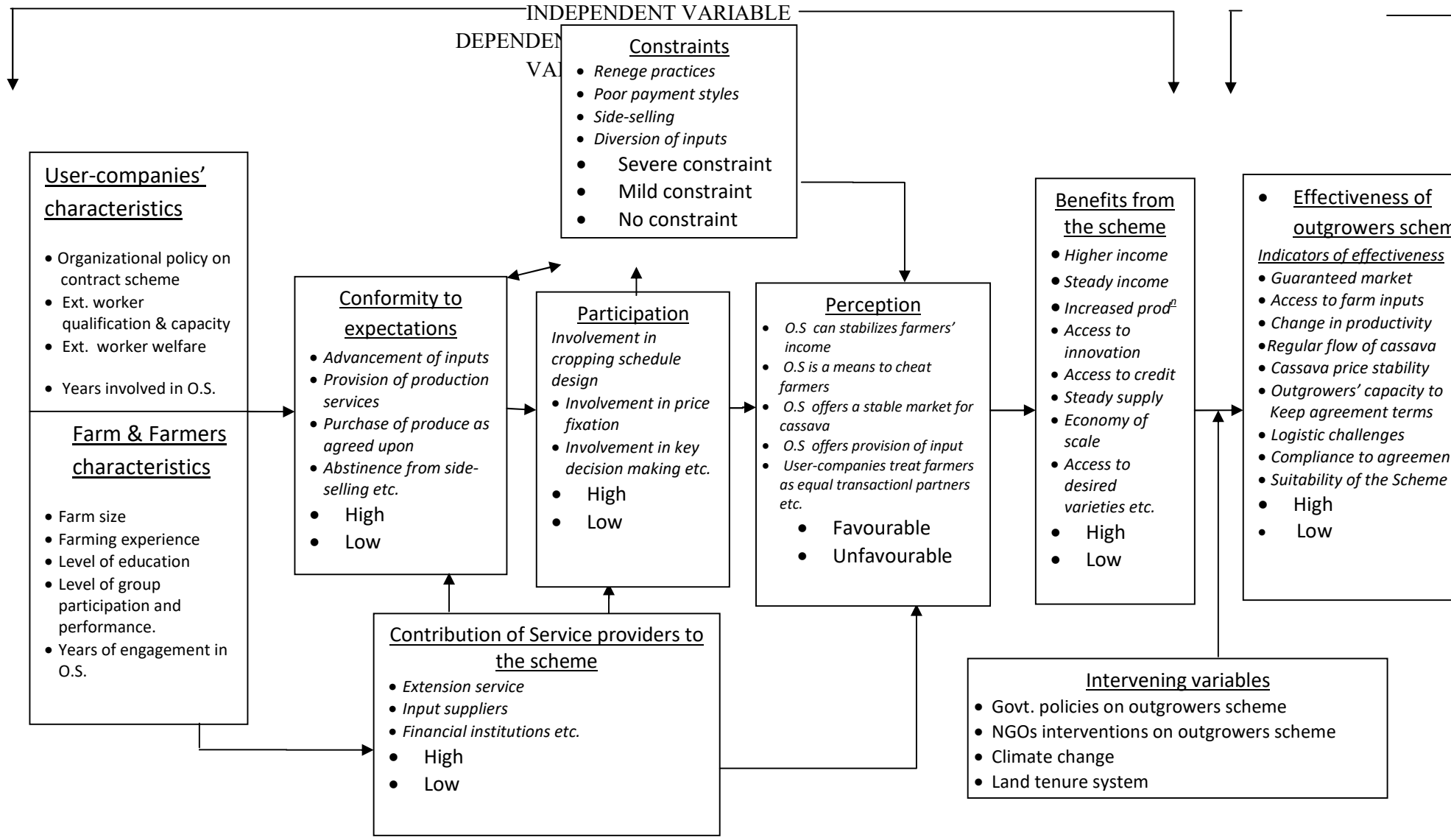

Figure 5: Conceptual framework for effectiveness of outgrower scheme among cassava farmers in South West Nigeria.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 The study area

The study was carried out in south-west zone of Nigeria. Nigeria is divided into six agricultural zones, namely; The North West, North East, North Central, South West, South East and South South zones. These six zones cover the agro-ecological environments of Nigeria. The South West zone lies between latitude 5^{o} and 9^{o} north and longitude 2^{0} and 8^{0} east, it has a land area of 78,771km^2, representing 8.5% of the country's total land area. The zone includes Ekiti, Lagos, Ogun,Ondo, Osun and Oyo states (figure 6). It has a population of 27,511,992 persons and a population density of 349 persons per km^2 according to the 2006 Census. It is as well largely populated by Yoruba speaking people. However, immigrants from other states of the country are found scattered in different parts of the zone, these include the Hausas, Fulanis, Igbos, Tivs, Idomas, Urhobos and Efiks. The zone is bounded by the Atlantic Ocean in the south, Kwara and Kogi states in the north, Edo and Delta in the east and Republic of Benin in the west.

Its vegetation ranges from the swamp forest in the southern coast to derived savannah in the north. The rain and deciduous forest lies between the two vegetation belts. The climate of the southwest zone is typically equatorial, with distinct wet and dry seasons. The mean annual rainfall varies from 2,600mm in the southern/coastal area of Lagos and Ogun states to nearly 1200mm in the northern areas of Ondo, Oyo and Osun states. In this area, not less than 65% of the people depend on agriculture as their main source of livelihood, while others engage in other livelihood activities such as white collar jobs, trading, artisanship, transportation and hunting (Oladeji and Thomas, 2010; Nigeria Masterweb, 2006; Kuponiyi, 2003).

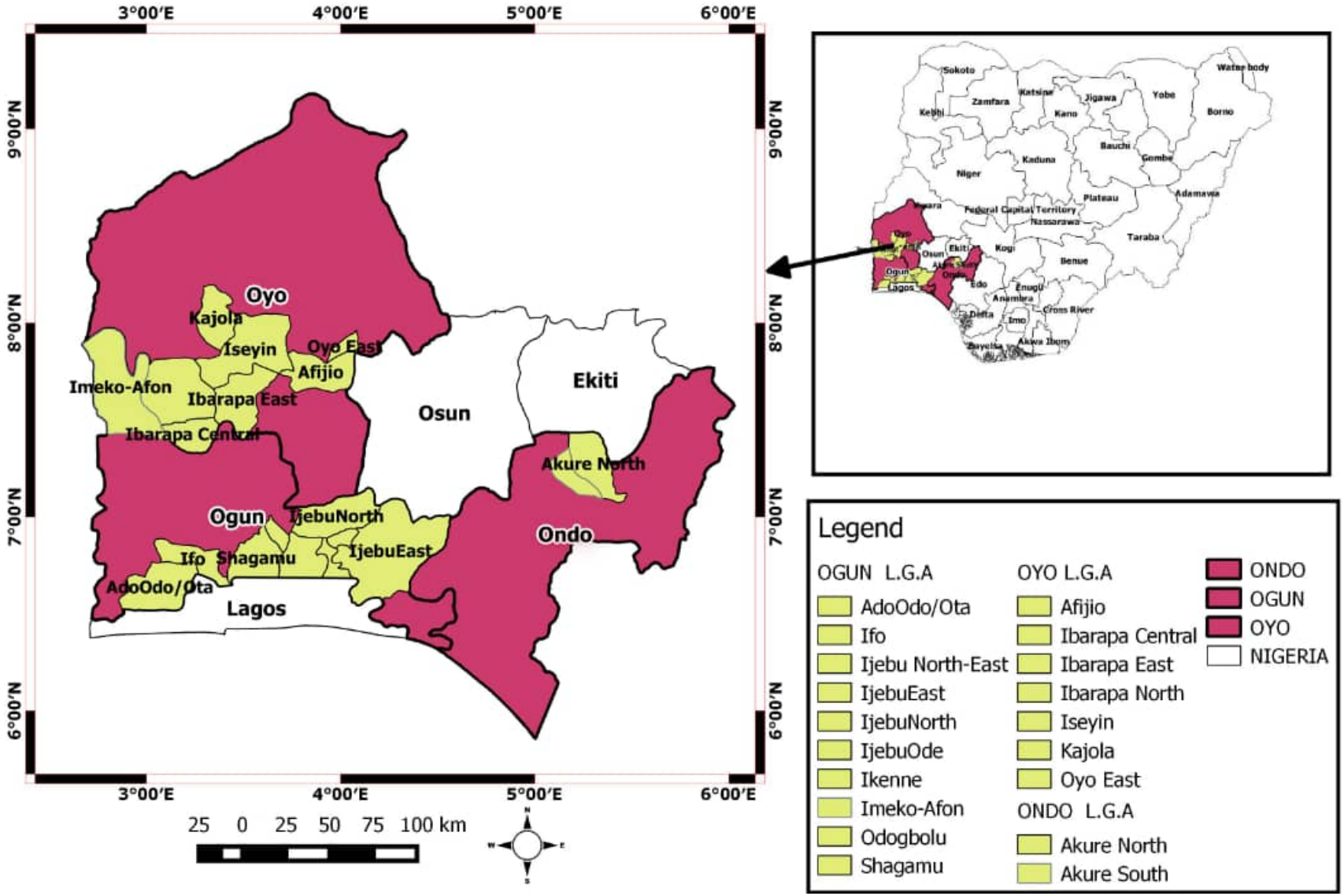

Figure 6: Map showing the study area

Source: Generated from QGIS 3.0.

3.2 Population of the study

The population of the study comprised cassava outgrowers, who were in contract arrangements with various cassava user companies in southwest Nigeria; both the ones who were actively participating in cassava outgrower scheme and those who for one reason or the other have discontinued their contractual engagements. The study population also included key members of staff of the user companies who were strategically positioned to oversee their outgrower schemes and cassava outgrower clusters. It further included service providers such as input dealers, financial institution staff, extension personnel (both private and public) who served as stakeholders in the management of the scheme.

3.3 Sampling procedure and sample size

As presented in Table 2, a three-stage sampling procedure was employed for the study. The first stage of the sampling procedure involved a purposive selection of three out of the six states existing in the study area (Figure 6). These states are Ogun, Ondo and Oyo states; because most of the large scale cassava agro-based industries in the study area were located in these states. It therefore implied that most of the smallholder cassava outgrowers in the study area were located within these states' environs.

The second stage of the sampling procedure involved a purposive selection of the major cassava based industries (user-companies) in the study area; these included Thai farms International, Ososa, Ogun state; Matna Foods, Akure, Ondo state; Allied Atlantic Distilleries Limited, Agbese, Idi-iroko road, Ogun state, Psaltry Company International, Ado-awaye, Iseyin, Oyo state, Ekha-agro Company, Ibafo, along Lagos-Ibadan express way, Ogun state, Mokk Investment, Oke-Odan, Ogun State and Harvest Feeds and Agro-processing Limited, Abeokuta, Ogun State. Then the lists of cassava outgrower clusters in contract with each of these user-companies were obtained and fifty percent of the Local Government Areas (LGAs) of the cassava outgrowers after resolving all cases of overlap was selected. This translated to eleven LGAs from Ogun state and nine LGAs from Oyo state, respectively. Respondents from Ondo state who were mainly in contract with Matna Foods Company were captured using qualitative method because they were only nine in

number aside the fact that their contract arrangement was different in nature from those of other user-companies.

Both Ogun and Oyo states as at the time of this research had 233 and 76 clusters of outgrowers respectively, giving a total of 20 LGAs and 309 clusters in all.Furthermore, a selectionof fifty percent of the total clusters from each of the sampled LGAs was made. This gave the sampled cassava outgrower clusters to be 119 clusters in Ogun state and46 clusters in Oyo state, giving a total of 165 sampled clusters. According to information garnered during pre-survey visits made to some of the major cassava based user-companies in the study area, the cassava outgrower clusters in the study area wereobserved to contain between nine and thirteen farmers each, hence the modal figure of ten was purposively chosen for the next stage of sampling.

The last and third stage of the sampling procedure involved a simple random sampling of ten percent of farmers each from sampled cluster of cassava outgrowers. This made a total of 119 cassava outgrowers from Ogun state and 46 from Oyo state. Altogether, a total sample size of 165 cassava outgrowers was used for the study. In a similar vein, using the Agricultural Development Programme (ADP) structure, non-outgrower cassava farmers located in contiguous communities with sampled outgrowers were proportionately sampled using a ratio of three outgrowers to one non-outgrower to provide a basis for comparison. As a result, 67 and 21 non-outgrower cassava farmers were randomly sampled from Ogun and Oyo states respectively. This gave a total of 88 non-outgrower cassava farmers used for the study. The total sample size (outgrowers and non-outgrowers) for the study was 252 farmers.

3.3.1 Respondents captured with snowball and qualitative tools

Snowball sampling technique was employed to select a sample of Ekha-agrofarmers which were mainly discontinued outgrowers as at the time of the study because the user-company ran out of production. Furthermore, this same sampling technique was used to select otheroutgrowers that have discontinued their contractual engagements with any of the sampled user-companies. As such the total number of discontinued outgrowers sampled was 55.

Two private extension workers with at least one extension supervisor from the average of seven extension personnel engaged by sampled user-companies were randomly selected for In-depth Interview (IDI). Also,a respondent each from associated service providers (Input dealers and financial institutions) in affiliation with selected user-companies were selected for In-depth Interview. Finally, from each of the sampled user-companies, two cassava outgrower clusters were randomly selected for Focus Group Discussion (FGD) to elicit relevant information useful for the study.

Table 2: Analysis of sampling procedure for outgrowers and non-outgrowers

Sampled States	Major user-companies engaging outgrowers in the states	Total No. of LGAs where outgrowers leave	Sampled LGAs (50%)	Total No. of clusters in the sampled LGAs	Sampled clusters (50%)	Number of outgrowers in sampled clusters	Sampled outgrowers (10%)	Sampled non-outgrowers through ADP structure
OGUN	1.Thai Farm International	14	1. Odogbolu	65	33	330	33	17
			2. Ijebu North	2	1	10	1	1
			3. Ikene	5	3	30	3	3
			4. Ijebu N/E	5	3	30	3	3
			5. Sagamu	2	1	10	1	1
			6. Ijebu Ode	3	2	20	2	1
			7. Ijebu East	12	6	60	6	3
			Total	(94)	(49)	(490)	(49)	(29)
	2.Allied Atlantic Distilleries Limited	8	1.Ado-Odo/Ota	18	9	90	9	5
			2. ImekoAfon	6	3	30	3	2
			3. Ifo	4	2	20	2	1
			4. Yewa South	14	7	70	7	4
			Total	(42)	(21)	(210)	(21)	(12)
	3.Mokk Investments	6	1. Ado Odo-Ota	20	10	100	10	5
			2. Yewa South	26	13	130	13	7
			3. Ifo	24	12	120	12	6
			Total	(70)	(35)	(350)	(35)	(18)
	4.Harvest Feed	4	1. Ifo	18	9	90	9	5
			2. Ikene	10	5	50	5	3
			Total	(28)	(14)	(140)	(14)	(8)
OYO	1.Psaltry	4	1. Iseyin	23	12	120	12	4
			2.Ibarapa-East	5	3	30	3	1
			Total	28	(15)	(150)	(15)	(3)
	1.Thai farm International	7	2. Afijio	3	2	20	2	1
			4. Ibarapa East	1	1	10	1	1
			Total	(4)	(3)	(30)	(3)	(2)
	2.Allied Atlantic Distilleries Limited	9	1. Iseyin	12	6	60	6	3
			2. Ib./Central	18	9	90	9	5
			3. Ib./North	10	5	50	5	3
			4. Kajola	5	3	30	3	2
			5. Oyo East	12	6	60	6	3
			Total	(57)	(29)	(290)	(29)	(16)
							Total outgrowers sampled = 166 farmers	Total non-outgrowers sampled = 88farmers
							Total sample size = 252 farmers	

Source: Field survey, 2017.

3.4 Instrument of data collection

Primary data used for the study were obtained through both quantitative and qualitative methods. Quantitative data from respondents were obtained through the use of pre-tested and validated interview schedules and questionnaires, while qualitative data were obtained using qualitative data collection instruments such as Focused Group Discussion (FGD) and In-depth Interview (IDI)guides.

3.5 Validation of Instrument

Validity of instrument for data collection was tested using face validity with the help of the researcher's supervisor and co-supervisors, members of academic staff and professionals in Agricultural Extension and Rural Development. The experts examined how the content of the interview schedule, FGD and IDI guides covered the study objectives. This helped to validate the relevance of items on the instruments and remove any ambiguity.

3.6 Test for reliability of Instrument

Reliability of the instrument for data collection was done to determine the degree to which it consistently measured what it was designed to measure. This was done using the split-half methodbyadministering 30 copies the interview schedule to outgrowers outside the communities used for the study. Areliability coefficient of 0.78 was obtained for the instrument and on this basis, the instrument was considered reliable.

3.7 Measurement of variables

3.7.1 Independent variables

The independent variables of this study were measured for both cassava outgrowers and non-outgrowers in the study area. Each of the variables was appropriately designed to elicit necessary information from either the outgrowers or the non-outgrowers cassava farmers as follows:

3.7.1.1 Farmers' personal characteristics

i. Age: Respondents were asked to indicate their actual age in years. This was obtained at interval level while, the responses were later categorised into (a) 20 – 29 (b) 30 – 39 (c) 40 – 49 (d) 50 – 59 (e) 60 – 69(f) 70 – 79 (g) 80 – 89.

ii. Sex: Respondents' sex was obtained at nominal level as a score of 1was assigned to male, while 2 was assigned to female.

iii. Marital status: Respondents were asked to indicate their marital status and a score of 1was assigned to single, 2 to married, 3 to divorced, 4 to widowed and 5 to separated. This was measured at nominal level.

iv. Educational status: Respondents indicated their highest level of education and a score of 1 was assigned to no formal education, 2 to primary education, 3 to secondary education, 4 to tertiary education and 5 to other type of education. It was obtained at nominal level.

v. Religion: Religion was captured at nominal level as respondents signified their religion from the list provided. Christianity was assigned a score of 1, Islam, 2, Traditional religion, 3 and other forms of religion, 4.

vi. Primary occupation: Respondents were asked to indicate their primary occupation at a nominal level and this was assigned a score of 1, while other occupations were assigned scores of 2, 3, 4, etc. depending on their number.

vii. Associational involvement: Respondents were requested to indicate if they belonged to any association and those who indicated yes were assigned a score of 1, while those who indicated no were assigned a score of 0. It was obtained at a nominal level.

viii. Types of association involved in: Respondents who indicated yes further signified the type of association they belonged. Using a nominal level of measurement, all farmers' association was assigned a score of 1, cassava growers association, 2, non-farmer association, 3, while other types were assigned a score of 4.

ix.Farming experience: Respondents specified their actual years of farming experience at an interval level and their responses were later categorised into (a) 1 – 10 (b) 11 – 20(c) 21 – 30 (d) 31 – 40 (e) 41 – 50 (f) 51 – 60 (g) 61 – 70.

x. Land ownership status: Respondents indicated their land ownership status as a score of 1 was assigned to inherited, 2 to family owned, 3 to communally owned, 4 to leased and 5 to borrowed. It was captured at a nominal level.

xi. Years of participation in outgrower scheme: The number of years each respondent had participated in outgrower scheme was obtained at interval level and the responses were later categorised into (a) 1 – 2 (b) 3 – 4 (c) 5 – 6 (d) 7 – 8 (e) 9 – 10.

3.7.1.2 Farmers' farm characteristics

i.Farm size: Respondents stated their total farm size in hectares at an interval level.

ii. Types of crops grown: Respondents were requested to signify the types of crops they grow from the list provided as a score of 1was assigned to cassava, 2 to yam, 3 to maize, 4 to cowpea, 5 to melon and 6 to others. This was captured at a nominal level.

iii. Cassava farm size: Respondents indicated their cassava sizes in hectares. Responses were obtained at interval level and later categorised into (a) 1 – 10 (b) 11 – 20 (c) 21 – 30 (d) 31 – 40 (e) 41 – 50 (f) 51 – 60.

iv. Average cassava yield per hectare: Respondents pointed out their average cassava yield per hectare in tonnes. This was collected at interval level and the responses were later categorised into (a) 11 – 20 (b) 21 – 30 (c) 31 – 40.

v. Source of labour: Respondents described their sources of labour and a score of 1 was assigned to self-labour, 2 to family labour, and 3 to hired labour. It was measured at nominal level.

vi. Types of labour: Respondents specified the type of labour they engaged on their farm which was measured at a nominal level as a score of 1 was assigned to manual labour, 2 to mechanical labour and 3 to both.

3.7.1.3 Organisational structure of user companies' cassava outgrower scheme

Respondents from user-companies described their cassava outgrower scheme (COS) organisational structure from a list of interview questions on organisational policy,

number of field staff and their gender distribution. The responses obtained were qualitatively analysed.

3.7.1.4 Cassava market structure in the study area

Respondents gave details about the structure of cassava market available in the study area. Interview questions such as how guaranteed and accessible were the markets? The mode of sales/purchase and the level of profitability were asked. The responses were appropriately recorded after which qualitative analysis was carried out.

3.7.1.5 Conformity of user-companies to outgrower scheme's expectations

Outgrowers indicated the level of user-companies' conformity to outgrower scheme's expectations from a list of six conformity statements presented. These were indicated using a six-item scale with response options of always, sometimes and never which were assigned scores of 2, 1 and 0 respectively; giving a maximum obtainable score of twelve and a minimum of 0. Index of user-companies' conformity to scheme's expectations were derived by adding all responses together and the mean index (7.8±2.5) was computed. Using the mean to categorise respondents, those whose indices fell between the mean and the maximum were categorised as transacting with user-companies which had high conformity level, while those below the mean were categorised as transacting with user-companies that had low conformity level to outgrower scheme expectations.

3.7.1.6 Constraints from user-companies to outgrower scheme management

Outgrowersidentified constraints from user-companies to COS management from a list constraint provided. These were indicated using a 14-item scale with response options of severe constraint, mild constraint and no constraint which were assigned scores of 2, 1 and 0 respectively. This gave a maximum obtainable score of twenty eight and a minimum of 0. The weighted mean scores of constraints items from user-companies were generated and used to rank respondents according to the severity of constraints they face from user-companies under the scheme.

3.7.1.7 Level of cassava outgrowers' participation in the scheme

Outgrowersdescribed their level of participation in the scheme's management from a list of participation items provided. These were indicated using an eight-item scale with response options of always, sometimes and never which were assigned scores of 2, 1 and 0 respectively; giving a maximum obtainable score of twenty four and a minimum of 0. The mean index of outgrowers' level of participation was derived to be 9.0±4.8and this was used to categorise respondents into high and low levels of participation in scheme's management.

3.7.1.8Outgrowers' perception about cassava outgrower scheme

Outgrowers' perception about cassava outgrower scheme was measured by providing a list of twenty fourperceptional statements. This was indicated using a 5-point likert's scale of SA, A, U, D and SD with scores of 1, 2, 3, 4, 5 assigned respectively for positively worded statements and the reverse for negatively worded statements.The maximum score obtainable was 120 while, the minimum score was 24. The perceptionmean score of 77.8±8.4derived was used to categorise respondents into possessing favourable and unfavourable perceptions about COS.

3.7.1.9 Benefits derived by outgrowers from the scheme

Outgrowersspecified the benefits derived from the scheme out of a list of possible benefits. A seven-item scale with response options of yes and no was used as score of 1 was assigned to yes and 0 to no to give a maximum obtainable score of seven and minimum of 0. The frequency scores of benefits derived were then used to describe various benefits accruable to outgrowersfrom the scheme.

3.7.1.10 Contribution of agri-support service providers to cassava outgrower scheme

The contribution of agri-support service providers to outgrower scheme was measured from three support services. These are the extension service, the farm input suppliers and the financial institutions.

i. Contribution of extension to cassava outgrower scheme

Respondents indicated the contribution of extension service to the scheme from a list presented. These were indicated using a nine-item scale with response options of yes and

no. Score of 1 was assigned to yes and 0 to no, giving a maximum obtainable score of nine and minimum of 0. Thereafter, the frequency scores of extension contribution were derived and used to describe respondents according to the contribution of extension received under the scheme.

ii. Contribution of farm input suppliers to cassava outgrower scheme

Respondents signified the contribution of farm input suppliers to the scheme from a list of items provided. These were indicated using an eight-item scale with response options of always, sometimes and never which were assigned scores of 2, 1 and 0 respectively; giving a maximum obtainable score of sixteen and a minimum of 0. The weighted mean scores of farm input suppliers' contribution items were generated and these were used to discuss the contribution of input suppliers to respondents in the scheme.

iii. Contribution of credit providers to cassava outgrower scheme

Respondents pointed out the contribution of credit providers to COS from a list provided. These were indicated using a ten-item scale with response options of always, sometimes and never which were assigned scores of 2, 1 and 0 respectively; giving a maximum obtainable score of twenty and a minimum of 0. Thereafter, the weighted mean score of credit provider's contribution (CPC) items were obtained and used to describe the role played by credit providers with respect to support given to respondents in the scheme.

3.7.1.11 Level of women participation in outgrower scheme

Outgrowersdescribed the level of women participation in the scheme from a list presented. Using aneight-item scale with response options of yes and no, scores of 1 was assigned to yes and 0 to no, to give a maximum obtainable score of eight and minimum of 0. The frequency scores of women participation vis a vis their male counterpart were used to describe the intensity of women participation in the scheme.

3.7.1.12 Factors determining participation or discontinuance of farmers in outgrower scheme

3.7.1.12.1 Factors determining participation of farmers in outgrower scheme

Outgrowersspecified factors determining their participation in the scheme from a list provided and using a 22-item scale with response options of yes and no. Score of 1 was assigned to yes and 0 to no, giving a maximum obtainable score of twenty twoand

minimum of 0. Afterwards, the weighted mean scores of factors determining participation were derived and used to describe respondents according to various factors determining their participation in the scheme.

3.7.1.12.2 Factors determining discontinuance of farmers in outgrower scheme

i. Contribution of private extension workers to discontinuance in outgrowerscheme

Respondents pointed out the contribution of user-companies' private extension workers to their discontinuancein the scheme from a list provided. These were indicated using a 10-item scale with response options of yes and no. Score of 1 was assigned to yes and 0 to no, giving a maximum obtainable score of ten and minimum of 0, thereafter the weighed mean scores of items in the scale were used to describe private extension workers' contribution to discontinuance of respondents in the scheme.

ii. Contribution of farm input suppliers to discontinuance in outgrower scheme

Respondents indicated the contribution of farm input suppliers to their discontinuancein the scheme from a list presented, and using a7-item scale with response options of yes and no. Score of 1 was assigned to yes and 0 to no giving a maximum obtainable score of seven and minimum of 0. Subsequently, the frequency scores generated from the items of farm input suppliers' contribution to discontinuancewereused to discuss respondents' discontinuance as informed by farm input suppliers.

iii. Contribution of credit providers to discontinuance in outgrower scheme

Respondents were asked to indicate the contribution of credit providers to theirdiscontinuance in cassava outgrower scheme from a list presented.A ten-item scale having response options of yes and no with scores of 1 assigned to yes and 0 to no givinga maximum score of ten and minimum of 0 was employed. Then, weighed mean scores of items credit providers' contribution to discontinuance were computed and used to describe respondents' discontinuance as could be linked with credit providers' contribution.

iv. Contribution of user-companies to discontinuance in outgrower scheme

Respondents pointed out the contribution of user-companies discontinuance in the scheme from a list provided. These were indicated using a 10-item scale with response options of yes and no. Score of 1 was assigned to yes and 0 to no giving a maximum obtainable score of ten and minimum of 0. Thereafter, using the weighted mean scores derived from user-

companies' contribution to discontinuance items, respondents' discontinuance werediscussed as much as could be attributed to user-companies' performance.

v. Discontinued cassava outgrowers' participation while in the scheme

Discontinued outgrowersdescribed their level of participation in scheme's management from a list provided, while a 7-item scale with response options of yes and no assigned with scores of 1 and 0 to give a maximum score of seven and a minimum of 0 was employed. After this, weighted mean scores of items in the scale were used to describe the participation level of discontinued outgrowerswhile in the scheme.

vi. Compliance of user-companies to agreed terms with discontinued outgrowers while under scheme

Discontinued outgrowers indicated whether user-companies kept to agreementsin the schemeor not through a response option of yes or no which was assigned scores of 1 and 0 respectively. Those who responded yes further specified the extent to which their user-companies complied with the agreement by using response options of always, sometimes and never which were assigned scores of 2, 1 and 0 respectively. User-companies' compliance weighted mean scores were then utilized to describe respondentsas transacting with user-companies having high or low compliance level with COS agreement.

3.7.1.13 Effectiveness of cassava outgrower scheme

The dependent variable of the study is effectiveness of cassava outgrower scheme. This was measured based on user-companies' and outgrowers' performances vis a vis the standard etiquettes guiding outgrower scheme management. The standard ettiquettes took into consideration agreed/signed contractual terms peculiar to private arrangements between user-companies and outgrowers wherever applicable. These were reflected in effectiveness indicators such asguaranteed market, access to farm input, perceived change in productivity, compliance of user-companies to COS agreements as captured under cassava outgrowers' domain, while under user-companies' domain these were supply flow of cassava roots to factories, cassava price stability, outgrowers' capacity to keep agreements, logistic challenges associated with COS, compliance of outgrowers to COS agreements and cassava outgrower scheme suitability.Effectiveness indicators scores from respondents were standardised and pooled together. A mean score (1.55±0.50) was

afterward obtained, which was used to categorise respondents into high or low effectiveness levels for COS arrangements.

3.7.1.13.1 Outgrowers and non-outgrowers indicators

Effectiveness indicators from cassava outgrowers' and non-outgrowers' perspectives were as follows:

i. Guaranteed market

Outgrowers and non-outgrowers were asked to describe how guaranteed was their cassava market under the scheme or in the open market from a list presented. These were indicated using an eight-item scale with response options of always, sometimes and never whichwere assigned scores of 2, 1 and 0 respectively; giving a maximum obtainable score of sixteen and a minimum of 0. Then, using the mean index of guaranteed market (10.8±2.0), respondents were categorised as having high or low guaranteed market under the scheme or in the open market.

ii. Access to farm inputs

Outgrowers and non-outgrowers described their level of access to farm inputs under the scheme or from other sources from a list of itemsprovided. A nine-item scale with response options of always, sometimes and never, assigned scores of 2, 1 and 0 respectively to give a maximum score of eighteen and a minimum of 0 was employed. Subsequently, the mean index (10.8±2.0) of input access level was derived and used to categorise respondents as having high or low level of access to farm input under the scheme or other sources accordingly.

iii. Perceived change in cassava productivity

Outgrowers' perception towards change in their productivity under the scheme were measured by providing a list of ten perceptional statements. These were indicated using a 5-point likert's scale of SA, A, U, D and SD with scores of 1,2,3,4,5 assigned respectively for positively worded statements and the reverse for negatively worded statements.Using the mean perceptional index (37.8±4.6) derived, respondents were categorised as obtaining high or low productivity.

iv. Compliance of user-companies with outgrower scheme agreement

Outgrowers were requested to indicate whether or not user-companieskept to agreementsin the scheme using response options of yes and no which were assigned scores of 1 and 0 respectively. Those who responded yes further specified the extent to which their user-companies complied with the agreement by using response options of full compliance, partial compliance and poor compliance with scores of 2, 1 and 0 respectively. The mean compliance index (11.0±5.6) was computed and used to categorise respondents as transacting with user-companies having high or low compliance level to COS agreements.

3.7.1.13.2 User-companies' indicators

Effectiveness indicators from user-companies' perspective were captured qualitatively through In-depth interview. This became necessary because available respondents from sampled user-companies were few in number and inappropriate to run a quantitative statistical analysis. In any case, all important indicators pivotal to measuring effectiveness of outgrower scheme from user-companies' ends were still captured during the interview as follows:

i. Supply flow of cassava raw material to user-companies' factories

Respondents from user-companies illustrated the level of flow of cassava to the factory under the scheme from interview questions that centred around increase or decrease in the level of cassava flow and whether cassava supply through COS meets factory's demand or otherwise. The responses were appropriately recorded and analysed qualitatively.

ii. Cassava price stability

User-companies' respondents described the stability of cassava price under the scheme from interview questions bothering on how much cassava price fluctuation in the open market affects factory price, the frequency of factory price review and how consistent does cassava supply from outgrowers remain even when open market price appreciates. The response obtained were subsequently analysed through qualitative method.

iii.Outgrowers' capacity to keep to agreement terms

Respondents from user-companies were requested to rate outgrowers' capacity to keep agreement terms from interviews touching on how strong were outgrowers' financial base

to cope even when advances fail and whether outgrowers engage in extra-contractual sales and delivery. Responses elicited were analysed using qualitative methodology.

iv. Logistic challenges

User-companies' respondents detailed the logistic challenges they faced through interview questions such as how easy were management functions to perform and how difficult was it coordinating many outgrowers? The responses obtained were qualitatively analysed.

v. Compliance of outgrowers to scheme agreements

Respondents from user-companies indicated whether or not there was an agreement signed at the on-set of the scheme. Those who responded yes were further asked to describe the extent to whichoutgrowers complied with scheme agreements. Responses obtained were afterward analysed through qualitative methodology.

vi. Suitability of the scheme

User-companies' respondents described the suitability of the scheme from a list of interview questions such as how much the factory's raw material need was met and how cost-effective was it to run the scheme. All responses obtained were afterwards analysed qualitatively.

3.8 Data Analysis

Descriptive and inferential statistics were used for data analysis. Descriptive statistics such as frequency, percentages, means, standard deviation, pie charts and bar charts were used. While inferential statistics such as Pearson Product Moment Correlation (PPMC), Multiple regression, Logit function and ANOVA were used to test the stated hypotheses.

The Pearson Product Moment Correlation used to measure the intensity or the magnitude of relationship between conformity to cassava contractual agreements; perception about COS; and the contribution of agri-support service providers to the scheme and COS effectiveness was denoted as follows:

$$r = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{\left[N\sum x^2 - (\sum x)^2\right]\left[N\sum y^2 - (\sum y)\right]}}$$

Where:

N= the number of pairs of scores

$\sum xy$= the sum of the products of paired scores

$\sum x$ = the sum of x scores

$\sum y$ = the sum of y scores

$\sum x^2$ = the sum of squared x scores

$\sum y^2$ = the sum of squared y scores

The logit regression model used to determine factors that influence participation of farmers in outgrower scheme was specified as follows:

$$P_i = P\,[Y_i = 1/x_i] = \frac{\exp\,(\beta_1+\beta_2 X_i)}{(1+\exp\,(\beta_1+\beta_2))^2}$$

Where, P lies between 0 and 1 ($0< P_i>1$).

The P_i is the dependent binary variable (1 for participation in outgrower scheme and 0 otherwise) and Xi is the independent variable

Where:

i = 1, 2, 3,… 23.

X_1 = Age of farmer (Years)

X_2 = Sex (Male = 1, female = 0)

X_3 = Household size (number)

X_4 = Farming experience (Years)

X_5 = Present farm size (Hectare)

X_6 = Present cassava farm size (Hectare)

X_7 = Provision of organic fertilizer in advance (Dummy yes = 1, 0 otherwise)

X_8 = Payment for stumping in advance (Dummy yes = 1, 0 otherwise)

X_9 = Payment for ploughing in advance (Dummy yes = 1, 0 otherwise)

X_{10} = Payment for harrowing in advance (Dummy yes = 1, 0 otherwise)

X_{11} = Payment for ridging in advance (Dummy yes = 1, 0 otherwise)

X_{12} = Payment for planting in advance (Dummy yes = 1, 0 otherwise)

X_{13} = Provision of agro-chemicals in advance (Dummy yes = 1, 0 otherwise)

X_{14} = Provision of spraying implements in advance (Dummy yes = 1, 0 otherwise)

X_{15} = Provision of irrigation facilities in advance (Dummy yes = 1, 0 otherwise)

X_{16} = Provision of cash in advance (Dummy yes = 1, 0 otherwise)

X_{17} = Availability of ready market (Dummy yes = 1, 0 otherwise)

X_{18} = Provision of extension (Dummy yes = 1, 0 otherwise)

X_{19} = Provision of guarantor opportunity (Dummy yes = 1, 0 otherwise)

X_{20} = Increased income (Dummy yes = 1, 0 otherwise)

X_{21} = Payment for harvesting in advance (Dummy yes = 1, 0 otherwise)

X_{22} = Payment for transportation of produce to factory in advance (Dummy yes = 1, 0 otherwise)

X_{23} = Access to prompt payment (Dummy yes = 1, 0 otherwise)

While, the multiple linear regression equation for the effectiveness rating of cassava outgrower scheme is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_{5+} \beta_6 X_6 + \beta_7 X_{7+} \beta_8 X_{8+} \beta_9 X_{9+} \beta_{10} X_{10} + \varepsilon$$

Where Y is the effectiveness rating of cassava outgrower scheme, β_0 is the intercept and $\beta_1, \beta_2, \beta_3, \ldots \beta_{12}$ are the slope parameters of the model, while

X_1 = farmers take part in fixing cassava price

X_2 = Organic fertilizer in advance

X_3 = Payment for planting in advance

X_4 = Inorganic fertilizer in advance

X_5 = Provision of extension services

X_6= Payment for ploughing in advance

X_7 = Payment for harrowing in advance

X_8 = Guaranteed cassava market

X_9 = Input access

X_{10} = Irrigation facilities in advance

X_{11} = Provision of cash in advance

X_{12} = User-companies' conformity

ε = error term.

The test statistics for the Analysis of Variance (ANOVA) is the F-test and the formula for the computation is as follows:

$$F = \frac{\sum n_j \left(\overline{X}_j - \overline{X}\right)^2 \Big/ (k-1)}{\sum\sum \left(X - \overline{X}_j\right)^2 \Big/ (N-1)}$$

Where:

X = individual observation,

$\overline{X}_j$ = sample mean of the j^{th} treatment (or group),

$\overline{X}$ = overall sample mean,

K = the number of treatments or independent comparison groups, and

N = total number of observations or total sample size.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results, interpretation and discussion of data collected. The results are presented and discussed under main sections covering: personal and farming characteristics, organizational structure of cassava outgrower scheme and cassava market structure. Also covered under this chapter are conformity of user-companies to scheme agreements, constraints from user-companies to scheme management,cassava outgrowers' participation in the scheme, outgrowers' perception about the scheme and benefits derived,contribution of agri-support services to the scheme and comparison of male and female farmers' participation as well as factors associated with female farmers' participation in the scheme.In addition to the afore-mentioned are factors determining participation of farmers in the scheme, contributions of various stakeholders to discontinuance in the scheme, accessibility level of non-outgrowers to services/operations in cassava enterprises and their awareness about cassava outgrower scheme in the study area. Also captured wereoutgrowers' access to guaranteed market and farm inputs, perceived change in cassava productivity and user-companies' compliance with scheme agreements as well as results of tested hypotheses.

4.2 Personal characteristics of farmers

4.2.1 Age

Age distribution of outgrowers, discontinued outgrowers and non-outgrowers as presented in Table 3 shows that the respondents were within the age range of 20 and 80 years with mean ages of 47.5 years, 55.4 years and 48.9 years for outgrowers, discontinued outgrowers and non-outgrowers, respectively. The mean age of outgrowers (47.5 years), non-outgrowers (48.9 years) appeared to be fairly lower than that of discontinued outgrowers (55.4 years). All the same, respondents' mean ages implied that they were in

their active years. This finding is in consonance with the submission of Ogunsumi, Okunlola and Ewuola (2010) who found the mean ages of sustained and abandoned users of maize and cassava technologies in South-West Nigeria to be 49.7 and 47 years, respectively. It is also consistent with the finding of Adebisi-Adelani, Adeogun and Zaka (2014) who reported a mean age of 47.7years among farmers in Ekiti state.This farmers' age representation is a pointer to the fact that youths are yet to be sufficiently attracted to agriculture as a profession.

4.2.2 Sex

Sex of the respondents as presented on Table 3 shows that most of the outgrowers (75.6%), discontinued outgrowers (90.9%) and non-outgrowers (81.7%) were males, while 24.4% of the outgrowers, 9.1% of the discontinued outgrowers and 18.3% of the non-outgrowers were females. This implies cassava farmers in the study area were primarily males and it is similar to the finding of Ladele, Oyelami and Balogun (2015) who reported 70.9% of their farmer respondents in Oyo state to be males. The reason for this imbalancein sex distribution among cassava outgrowers was expressed during FGD sessions that: *"women take more interest in processingcassava than in production, especially when such production is transcending from subsistenceto commercial operation."*Most of these women process cassava into gari, fufu, and lafun (native cassava flour).This is further corroborated by the report of Kagbu, Ahmadu and Lyocks (2014) who stated that women are more predominant in processing and marketing of cassava than men folks.

4.2.3 Marital status

Findings in Table 3 further revealed that most of the outgrowers (93.3%) were married, 3.0% of them were single and widowed respectively, while 0.6% were divorced.Most discontinued outgrowers (94.5%) were likewise married and 5.5% were widowed,while97.2% of non-outgrowers were also marriedand only 2.8% were single. These findings imply that a large proportion of farmers across the three categories of respondents were married. This agrees with the findings of Adelakun, Adurogbangba and Akinbile (2015), and Akinbile, Akwiwu and Alade (2014) who respectively had 95% and

88% of their respondent farmers as married. Marriage induces a sense of responsibility aside the fact that family members could provide cheap labour on respondents' cassava fields. This is also corroborated by the submission of Ekong (2003), that in rural Nigeria, family members offer economic benefits, as the greater the number of hands in the family, the higher the productivity of such a family.

4.2.4 Educational level

The educational level of respondents is presented in Table 3. The result shows that most of the respondents were educated as 95.7% of outgrowers, 100% of discontinued outgrowers and 95.8% of non-outgrowers had formal education ranging from primary to university level, while only 4.3% of outgrowers and 4.2% of non-outgrowers had no formal education.Education enlightens people's mind and gives the courage and boldness to express their own opinions wherever necessary. The high proportion of educated outgrowersparticipating in the scheme often assisted them to resist attempted practices of exploitative tendencies from user-companies. This finding is in line with the resultsof Apantaku, Aromolaran, Shobowale and Sijuwola (2016) and Ladele, Oyelami and Balogun (2015) in their studies in Oyo state that farmers' level of education is generally high as they respectively found that 79% and 71.8% of their respondents had formal education.

4.2.5 Religion

As shown in Table 3, 64.6% of cassava outgrowers, 63.6% of discontinued outgrowers and 60.6% of non-outgrowers were Christians, while 35.4% of outgrowers, 36.4% of discontinued outgrowers and 39.4% of non-outgrowers were Muslims respectively. This suggests that Christianity and Islam are commonly practised among cassava farmers. This is corroborated by the finding of Aderinto (2013) that there is a wide acceptability of cassava farming among people of different religious backgrounds. Notwithstanding, it should be noted as opined by Ekong (2003) that religious belief can sometimes act as negative factors to economic productivity and acceptance of innovation. However, cassava outgrower scheme in the study area is operated with no religious bias, as farmers from any religion were free to participate.

Table 3: Distribution of farmers based on personal characteristics

Variables	Outgrowers [n= 164]			Discontinued outgrowers [n= 55]			Non-outgrowers [n= 71]		
	f	%	Mean/SD	f	%	Mean/SD	f	%	Mean/SD
Age[years]									
20 – 29	1	0.6	47.5±10.4	-	-		2	2.8	48.9±14.1
30 – 39	37	22.6		3	5.5	55.4±10.3	12	16.9	
40 – 49	61	37.2		10	18.2		21	29.6	
50 – 59	33	20.1		23	41.8		21	29.6	
60 – 69	30	18.3		13	23.6		9	12.7	
70 – 79	2	1.2		5	9.1		5	7.0	
80 – 89	-	-		1	1.8		1	1.4	
Sex									
Male	124	75.6		50	90.9		58	81.7	
Female	40	24.4		5	9.1		13	18.3	
Marital Status									
Single	5	3.0		-	-		2	2.8	
Married	153	93.3		52	94.5		69	97.2	
Divorced	1	0.6		-	-		-	-	
Widowed	5	3.0		3	5.5		-	-	
Educational level									
No formal edu.	7	4.3		-	-		3	4.2	
Primary	41	25.0		22	40.0		20	28.2	
Secondary	44	26.8		22	40.0		23	32.4	
NCE	30	18.3		7	12.7		7	9.9	
Polytechnic	22	13.4		2	3.6		7	9.9	
University	20	12.2		2	3.6		11	15.5	
Religion									
Christianity	106	64.6		35	63.6		43	60.6	
Islam	58	35.4		20	36.4		28	39.4	

Source: Field survey, 2017.

4.3 Farming characteristics of cassava farmers

4.3.1 Farming experience

Table 4 shows that 42.1% of cassava outgrowers, 21.8% of discontinued outgrowers and 49.3% of non-outgrowers have been cultivating cassava for not less than 20 years. The discontinued outgrowers however had most (41.8%) of them having a farming experience of above 40 years. This is because most of them were advanced in age as earlier observed. The mean farming experiences in years were 24.3±11.6, 34.9±15.6 and25.1±15.7respectively for outgrowers, discontinued outgrowers and non-outgrowers. This implies that respondents were well experienced in cassava farming. This is in consonance with the findings of Abdoulaye *et al.* (2014) who found the average farming experience among cassava farmers in Nigeria to be 24 years.

4.3.2 Land tenure

Table 4 further reveals the distribution of land tenuretype obtainable among respondents in the study area.Most outgrowers (31.1%) obtained their farmland through lease, 25.0% of them made use of family land, while 21.3% inherited their farmland. Also, 16.5% of these outgrowers rented their farmland while, a minute proportion (3.6% and 2.4%) purchased and borrowed their farmland respectively. A fairly similar distribution obtained among discontinued outgrowers as 38.2% of them cultivated leased land, 21.8% on family land and 20.0% on rented land.

However, 12.7% of the discontinued outgrowers cultivated inherited land, while only 7.3% of them made use of purchased land. Among non-outgrowers cassava farmers as well, the land tenure distribution was not much different; 25.4% of the non-outgrowers cultivated leased land, 23.9% farmed on inherited land while, 19.7% and 15.5% of non-outgrowerscultivated rented and family land respectively. Like other categories of respondents, the land tenure leastpractised among non-outgrowerswere the borrowed and purchased land with 9.9% and 5.6% respectively. These findings imply that cassava farmers in the study area were taking to more of leased and rented land for farming

activities than inherited and family land showing that they are becoming more business oriented. This was likewise corroborated by submissions from the FGD conducted with outgrowers in Ososa, Odogbolu LGA in Ogun State as follows:

"The government needs to help us open up more virgin land, because the arable land available is no more sufficient for farmers. This has led to scarcity of farmland as many of us are either forced to purchase, lease or rent farmland to cultivate cassava and other arable crops"

This implies some farmers have pieces of family land which are still occupied with trees and yet to be opened up for arable farming.

4.3.3 Land rent fee in hectares

Data obtained also indicated the yearly land rent fee per hectare paid by respondents in the study area (table 4). The yearly mean rent fee per hectare paid by cassava outgrowers was ₦2,498±3,321, discontinued outgrowers paid ₦5,782±4,937, while non-outgrowers paid ₦3,464±3,628. The result shows that discontinued outgrowers category paid the highest yearly mean rent fee per hectare(₦5,782±4,937). This is because many of them had their farm on a farm settlement land area where rent fee was higher because of the competition for land holdings among settlers. This land rent charge differs from what obtains generally on farmland not located in farm settlements among various communities of the study.

4.3.4 Cassava farm size

Table 4 shows that cassava farm sizes varied from 1 to 60 hectares with the largest proportion falling between 1 – 10 hectares of cassava farmland. Hence, most of the outgrowers (89.0%), discontinued outgrowers (87.3%) and non-outgrowers (85.9%) had cassava farms ranging from 1 to 10 hectares. Only 7.9%of outgrowers, 10.9% of discontinued outgrowers and 8.5% of the non-outgrowers had between 11 and 20 hectares of cassava farm sizes each. Respondents with cassava farm sizes beyond 20 hectares covered a small proportion of the respondents as 1.2% of outgrowers and 1.8% of discontinued outgrowers had cassava farms between 21 and 30 hectares, 5.6% among non-outgrowers had cassava farms between 31 and 40 hectares, while 1.8% of the outgrowers had cassava farm sizes beyond 40 hectares.

This implies that the bulk of people across the three categories of respondents were smallholder farmers as they cultivated between 1 and 10 hectares with mean farm sizes of 6.1±7.7, 6.5±5.1 and 3.4±3.3 hectares respectively for outgrowers, discontinued outgrowers and non-outgrowers. However, worthy of note is the fact that cassava outgrower scheme is encouraging some new entrant large farm holders who cultivated above 40 hectares of cassava farm. This production growth trend was also validated during FGD sessions when discussants claimed that the guaranteed market provided by user-companies enabled them to expand cassava production with little or no fear of market glut.

4.3.5 Average cassava yield in tonnes/ha

The average cassava yield in tonnes per hectare of farmers across the three categories of respondents is presented in Table 4. Most outgrowers (68.9%) had cassava yield of between 11 and 20 tonnes/ha, 29.9% of them had cassava yield ranging between 21 and 30 tonnes/ha,while 1.2% had yield between 31 and 40 tonnes/ha. Similarly, most of the discontinued outgrowers (83.6%) had cassava yield ranging from 11 to 20 tonnes/ha, while the yield of 16.4% of them fell between 21 and 30 tonnes/ha. The trend was not also different among non-outgrowers as most (77.5%) had cassava yield of between 11 and 20 tonnes/ha and 22.5% had yield ranging between 21 and 30 tonnes/ha. The set of respondents that had the highest level of cassava yield (31-40 tonnes/ha) came from the outgrowers category. The mean cassava yields in tonnes per hectare were19.9±3.8, 11.3±6.6 and 18.6±3.4 for outgrowers, discontinued outgrowers and non-outgrowers respectively showing outgrowers as the category with the highest mean score. This implies that farmers that participated in outgrower scheme had access to some production services which reflected positively on their productivity.

4.3.6 Period of contract engagement

The study also revealed the period of contract engagement with user-company for outgrowers as well as for discontinued outgrowers. The mean period of contract engagement for both outgrowers and discontinued outgrowers were 3.9±2.4 years and 2.9±1.5 years.This implies cassava outgrower scheme in the study area is still at a

preliminary stage; the user-companies as well as the outgrowers could still have a lot to learn and more room for improvement to make the scheme work better. This will as well be a very appropriate time for government intervention in the contract farming system in Nigeria so as to develop a sound regulatory structure/mechanism that will enhance the growth and sustenance of this kind of arrangement in the nation.

4.3.7 Hectares grown for contract farming

It was further revealed from Table 4 that most (75.0%) of outgrowers and most (63.6%) of discontinued outgrowers cultivated between 1 and 5 hectares of cassava for contract purpose, showing that most of them were smallholders. Furthermore, the distribution of gradual increase in hectares of land committed to outgrower scheme could be observed among active outgrowersas presented in the table. This gives an indication that if well managed and sustained, the outgrower scheme has the potential to gradually transform farmers from small scale to large scale farmers and benefit them significantly.

Table 4: Distribution of farmers based on farming characteristics

	Outgrowers [n= 164]			Discontinued outgrowers [n= 55]			Non-outgrowers [n= 71]		
Variables	f	%	Mean/SD	f	%	Mean/SD	f	%	Mean/SD
Farming experience [in years]									
Below20	69	42.1	24.3±11.6	12	21.8	34.9±15.6	35	49.3	25.1±15.7
21 – 30	58	35.4		14	25.5		17	23.9	
31 – 40	24	14.6		6	10.9		9	12.7	
Above40	13	7.9		23	41.8		10	14.1	
Land tenure									
Purchased	6	3.6		4	7.3		4	5.6	
Inherited	35	21.3		7	12.7		17	23.9	
Family land	41	25.0		12	21.8		11	15.5	
Rented land	27	16.5		11	20.0		14	19.7	
Leased land	51	31.1		21	38.2		18	25.4	
Borrowed land	4	2.4		-	-		7	9.9	
Land rent fee/ha [₦]									
5,000 and below	148	90.2	2,498±3,321	18	32.7	5,782±4,937	57	80.3	3,464±3,628
5,001 – 10,000	15	9.1		22	40.0		14	19.7	
10,001 and above	-	-		15	27.3		-	-	
Cassava farm size [ha]									
1 – 10	146	89.0	6.1±7.7	48	87.3	6.5±5.1	61	85.9	3.4±3.3
11 – 20	13	7.9		6	10.9		6	8.5	
21 – 30	2	1.2		1	1.8		-	-	
31 – 40	-	-		-	-		4	5.6	
41 and above	3	1.8		-	-		-	-	
Average cassava yield [in tonnes/ha]									
11 – 20	113	68.9	19.9±3.8	46	83.6	11.3±6.6	55	77.5	18.6±3.4
21 – 30	49	29.9		9	16.4		16	22.5	
31 – 40	2	1.2		-	-		-	-	
Period of contract engagement [years]									
1 – 2	47	28.7	3.9±2.4	25	45.5	2.9±1.5	-	-	-
3 – 4	62	37.8		21	38.2		-	-	
5 – 6	37	22.6		9	16.4		-	-	
7 – 8	6	3.7		-	-		-	-	
9 – 10	12	7.3		-	-		-	-	
Hectares grown on contract									
1 – 5	123	75.0	5.1±5.3	35	63.6	5.2±2.8	-	-	
6 – 10	29	17.7		20	36.4		-	-	
11 – 15	4	2.4		-	-		-	-	
16 – 20	5	3.0		-	-		-	-	
21 – 25	1	0.6		-	-		-	-	
26 – 30	1	0.6		-	-		-	-	
31 – 35	-	-		-	-		-	-	
36 – 40	1	0.6		-	-		-	-	

Source: Field survey, 2017.

4.3.8 Membership of farmers' association

In figures 7, most of the farmers within the three categories of respondents; outgrowers (83.5%), discontinued outgrowers (85.5%) and non-outgrowers (83.1%) were members of one association or the other, while only 16.5% of outgrowers, 14.5% of discontinued outgrowers and 16.9% of the non-outgrowers belonged to no association. This implies farmers across all categories considered attached importance to associational membership. As posited by Ladele (2016), if appropriately utilised, farmers' associations and especially cooperatives could serve as conduit through which farm supplies (inputs), market for farm produce, production credit, local verification trials (research), extension services and farm to market roads could be more accessible to farmers and thereby transforming them from peasantry to agri-business. It likewise provides a platform to explore and maximize the benefits of social capital. This is however contrary to the finding of Manza *et al*, (2015) among farmers in Zangon Kataf LGA of Kaduna state, as only 27.7% of their sampled farmers belonged to associations, while other did not.

Furthermore, as shown by figures 8, 9 and 10, individual respondents in accordance with their categories indicated which types of association they belonged to. As such, according to figure 10, most of the outgrowers (64.6%) indicated that they were members of Cassava Growers Association of Nigeria, 16.5% of them declared that they were members of All Farmers Association of Nigeria, while 0.6% of the outgrowers were members of the Buhari Youth Association. Also as shown in figure 9, most of the discontinued outgrowers (67.3%) affirmed to be members of the Cassava Growers Association of Nigeria, 14.5% of them belonged to All Farmers Association of Nigeria, while 7.3% were members of the National Programme for Food Security (NPFS). Figure 10 likewise revealed the associational distribution of non-outgrowers as 35.2% of them indicated that they were members of the Cassava Growers Association of Nigeria, 26.8% were members of All Farmers Association of Nigeria, while only 9.9% belonged to the Coker Farm Settlement Association. This is a farm settlement located in Ifo LGA of Ogun state. The Cassava Growers Association of Nigeria has the largest number of members among respondents because it is an association which is more specific to cassava production and enterprises.

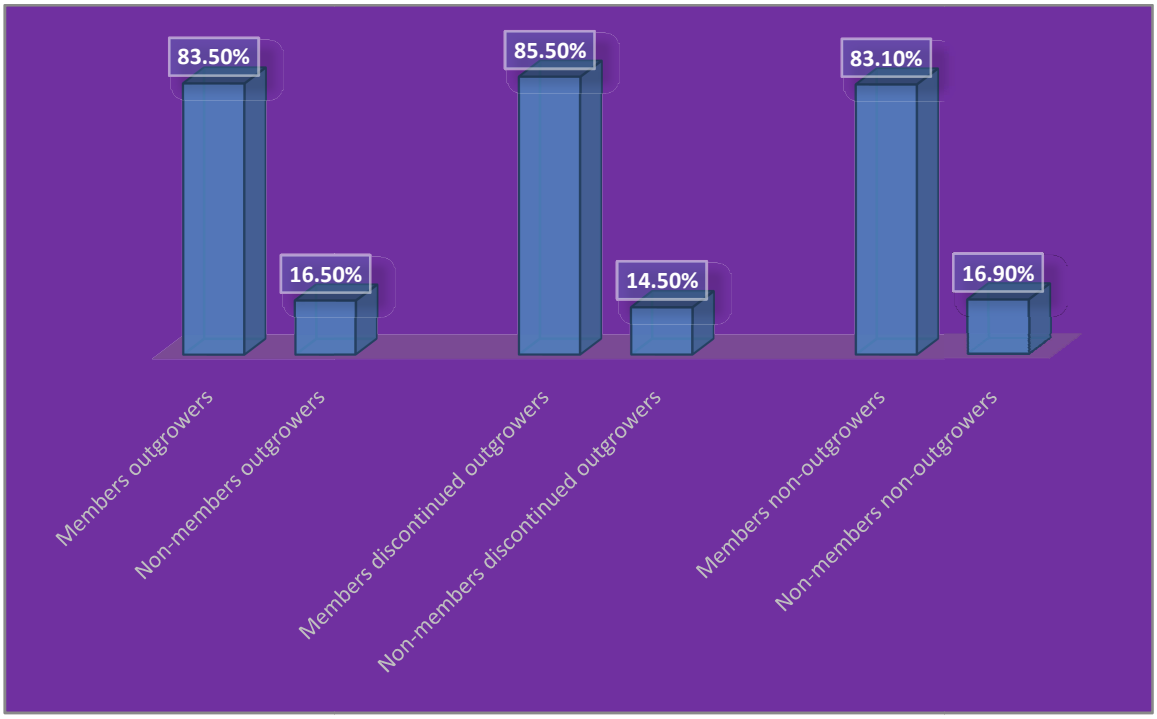

Figure 7: Distribution of respondents by their associational membership
Source: Field survey, 2017.

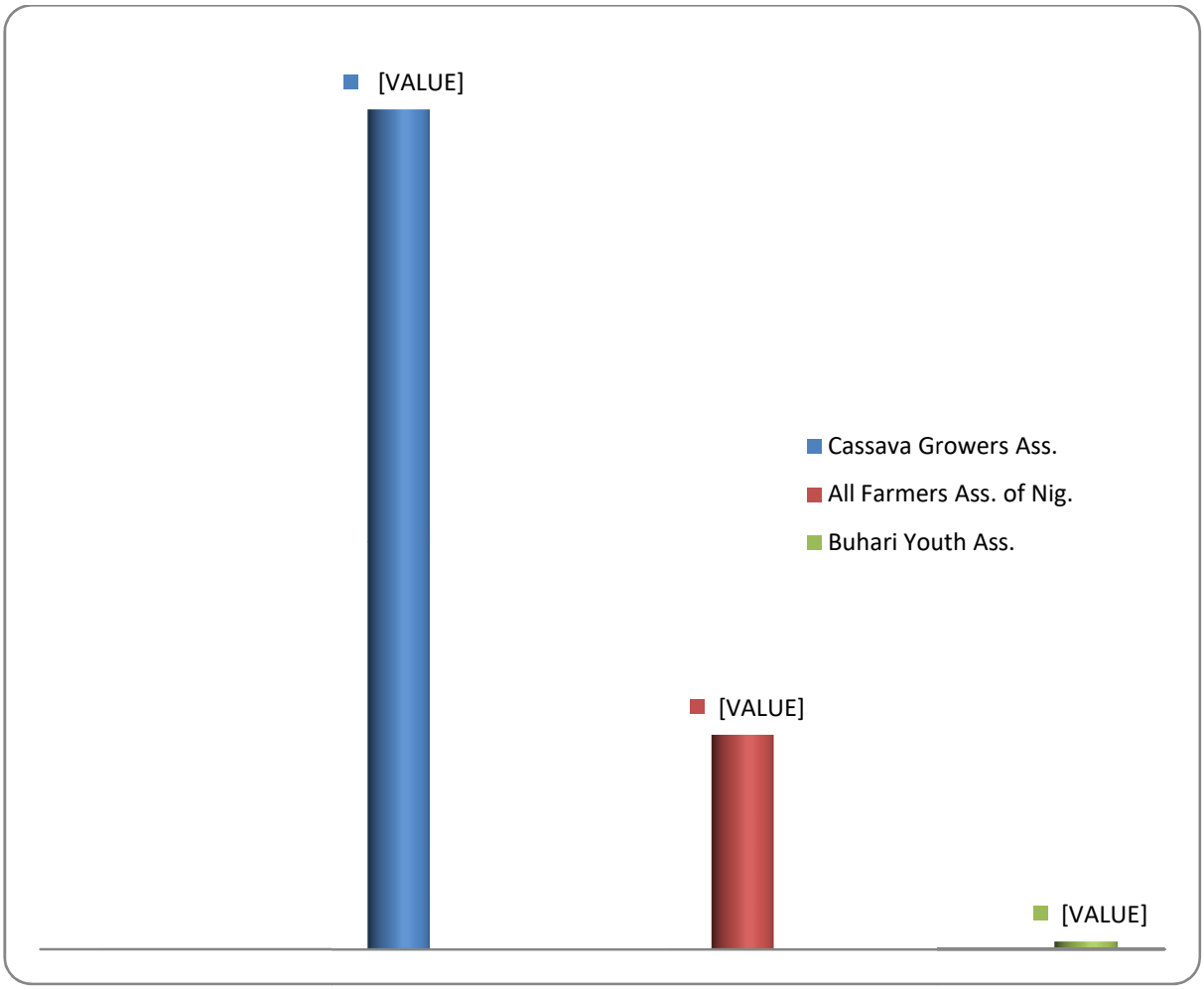

Figure 8: Distribution of outgrowers by their associational affiliation
Source: Field survey, 2017.

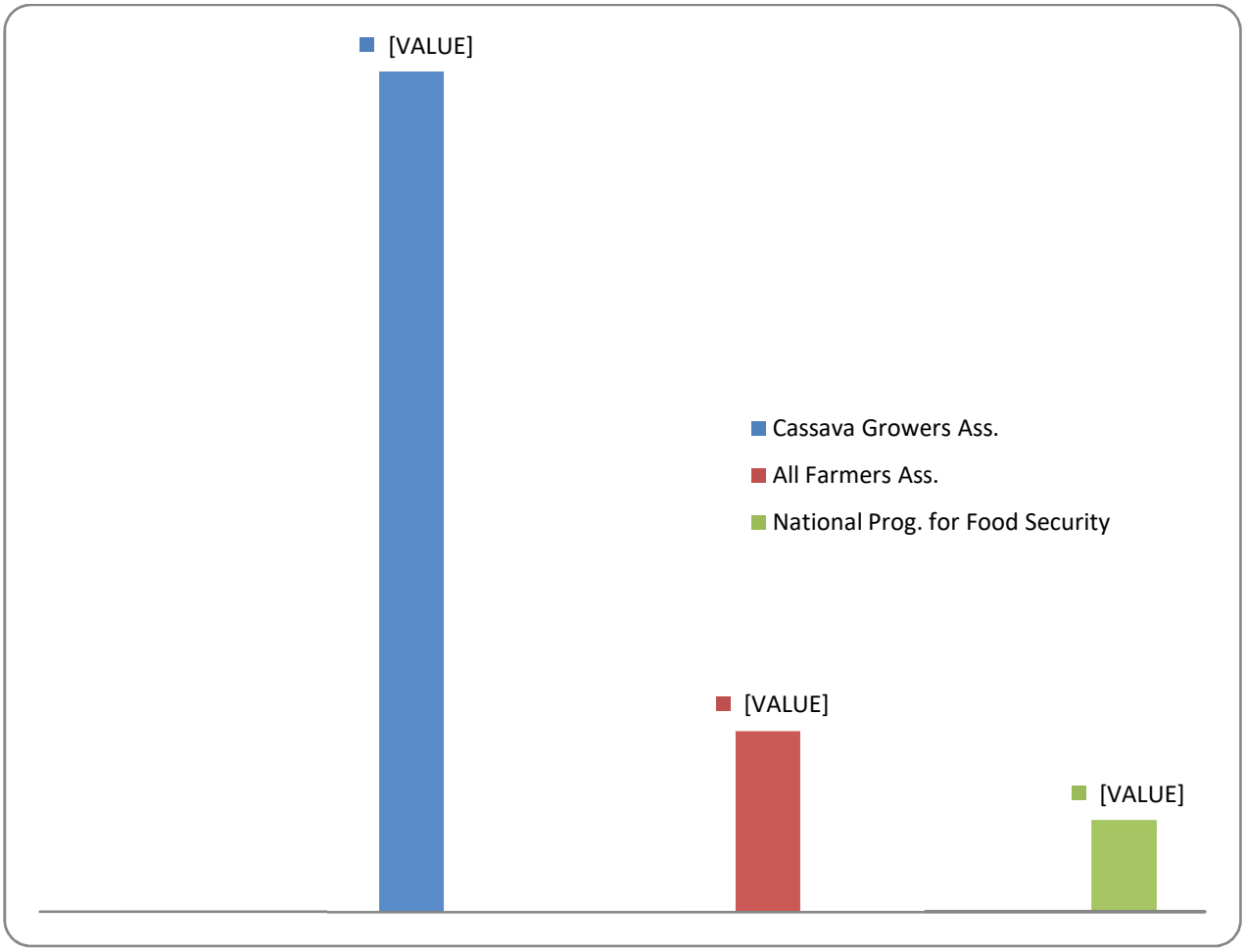

Figure 9: Distribution of discontinued outgrowers by their associational affiliation
Source: Field survey, 2017.

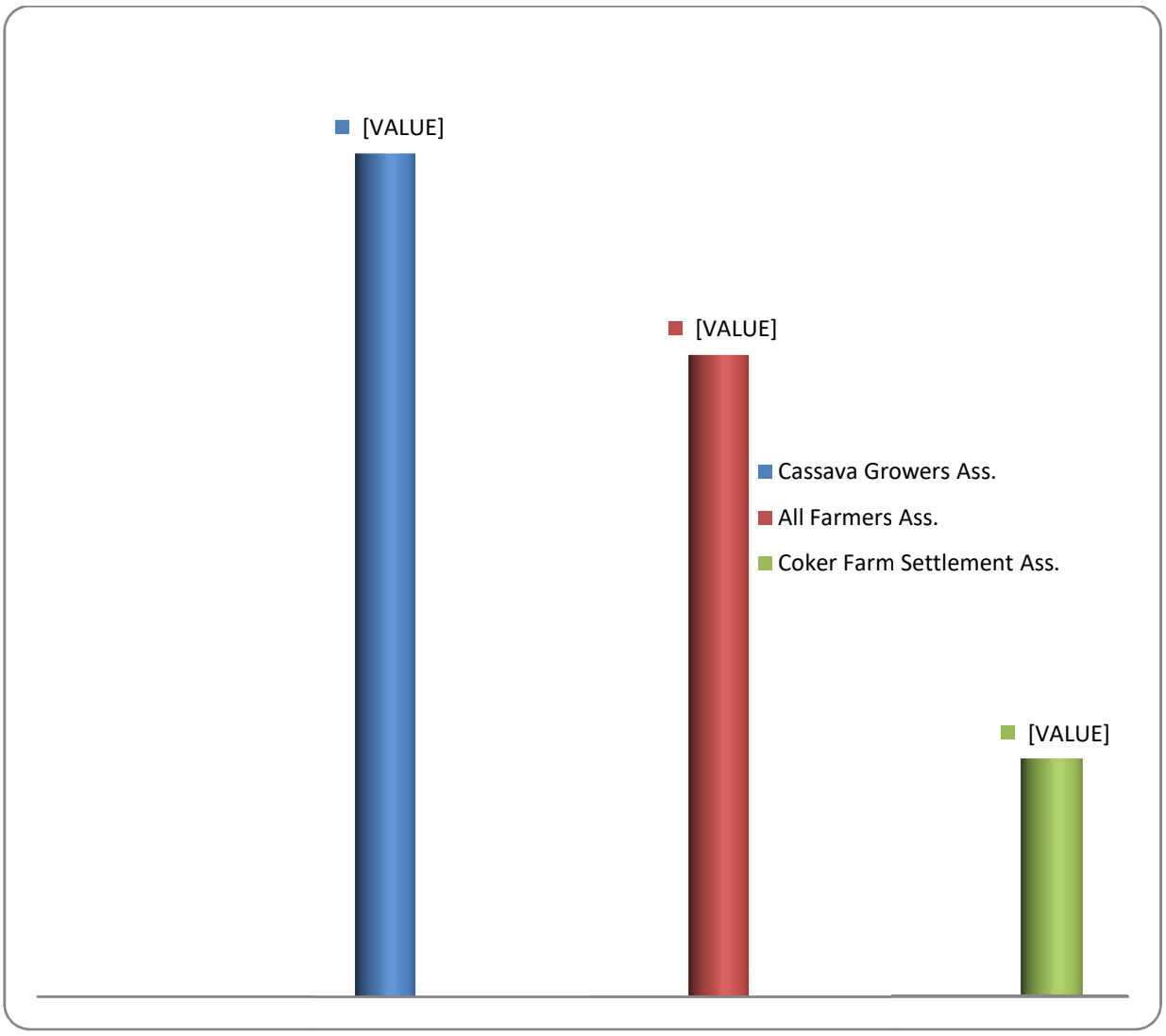

Figure 10: Distribution of non-outgrowers by their associational affiliation
Source: Field survey, 2017.

4.4 The operational structures of cassava outgrowerschemes in the study area

There are structures that serve as frameworks within which the cassava outgrowerschemes operate. Components of these structures examined include user-companies'outgrower scheme organizational structures, cassava market structure in the study area, conformity to outgrower schemes' agreements, constraints to effective management of outgrower schemes, and levels of outgrowers' participation in outgrower schemes' management. Results and discussion related to the components of these operational structures are presented below.

4.4.1 Organisational structure of user-companies' cassava outgrower scheme

Most of the user-companies visited in the study area had policies guiding their operations of cassava outgrower scheme to varying degrees of implementation. Most of them upheld the principle of working with farmer groups as against individual farmers because this approach helps to cover many farmers in addition to its benefits of social capital. Not all of the user-companies however utilized the instrumentality of Memorandum of Understanding (MoU) because not all were fully committed to the practice of advancing outgrowers with farm inputs and production services. As such, the few user-companies committed to this practice made use of MoU. Some of them even requested for guarantors to stand for farmers.

User-companies usually had about one or two extension supervisors with varying numbers of private extension workers under them. Most of the private extension workers happened to be males with few females constituting about 20% of their total number. While private extension supervisors had either Bachelor or Master's degree in fields related to agriculture, private extension workers had academic qualifications ranging from National Diploma (ND) to Bachelor degree in similar disciplines. The extension to farmer ratio maintained by user-companies was within the range of 1:9 to 1:500 at most. This ratio falls within the World Bank standard ratio of 1:800 (Vanguard, 2017) and it is far better than what currently operates in the Nigerian public extension service where one public extension worker covers 8,000 farmers (Ogbeh, 2016). It can be established that user

companies operated close to principles ideal for effective extension delivery which might have been informed by their profit orientation.

Most user-companies provided means of mobility for their extension workers as supervisors were given vehicles while,private extension workers were given motorcycles. In-service trainings were likewise organised for private extension workers ranging from once to thrice a year. None of the user-companies was yet to be designing cropping schedules for outgrowers because cassava supplies were yet to outshoot factories' demands. Most of the user-companies also said that they negotiate cassava price with outgrowers at the beginning of each season, however, market forces could sometimes necessitate a shift from either end of farmers or user-companies. Respondents from user-companies disclosed that the percentage of their total yearly budget devoted to outgrower scheme management varied from 10% – 40%, while the tonnage of cassava roots off-took from outgrowers ranged within 10% to 60% of their total factory usage. Plate 3 shows an in-depth interview session with one of the user-companies' respondents. By and large, operations across user-companies in the study area showed that they all employed the centralized model of contract farming arrangement, only that commitment to production service advancement to outgrowers varied among them.

Plate 3: In-depth interview with the raw material manager of Matna Foods, Ogbese, Akure, Ondo state, Nigeria

Source: Field survey, 2017.

4.4.2 Cassava market structure

The market for cassava roots in the study area was largely divided between local processors and user-companies. Local processors were widely distributed across all rural localities where farmers cultivate cassava and they process cassava roots into gari, fufu and cassavaflour [lafun], while a few process into native starch. User-companies on the other hand, were sited at key locations which gave them varying proximities to different farming communities. However, while local processors had the culture of buying cassava roots in piece-meal due to their limited capacities, user-companies purchased in large quantities because they operated at industrial scale. Furthermore, while the mode of cassava roots purchase is similar across user-companies, the local processors had various modes of cassava roots purchase typical to different localities. Six modes of cassava marketing were identified as follows:

i. Cassava stands counting

Under this mode, there is an agreed prevailing price for a number ofcassava stands per communities in localities where this is practiced. The unit number of stands traded with is 200. As at the time of data collection, a unit of 200 stands cost between ₦7,000 and ₦10,000 subject to varying grades of cassava rootsizes. Some cassava stands are randomly uprooted in the farm to arrive at a grade of cassava root size which will inform pricing. After agreeing on the price of a unit of 200 stands, the buyer will pay for the number of units he/she wishes to buy and will engagelabourers to harvest. Under this arrangement, the farmer is not responsible for harvesting. At the minimum a hectare of cassava under sole-cropping can have a plant density of 10,000 cassava stands.Going by the earlier stated cost price for 200 cassava stands, it implies a revenue of between ₦350,000 and ₦500,000 from a hectare.

ii. Cassava root counting [Ile]

In this case, big cassava roots are counted on agreed number of cassava roots per unit. As at the time of data collection in the study area, 20 cassava roots were sold for ₦1,000. The buyer will also be responsible for harvesting under the watch of the farmer. However, all the small roots that are of lesser grade to those counted in units will automatically belong to the buyer. All big cassava roots will then be counted in 20 per unit and payment will be made accordingly.

This approach occurs often in Ogun state, however, in other localities of Oyo state, this same mode is used differently such that the farmer will harvest the cassava roots himself and transport the big roots to the market while, he/she uses the small roots for other purposes. On getting to the market, market agents will arrange the cassava roots in units of 20, 40 or 50 as the case may be. This will be sold at an agreed prevailing market price. The risk in this mode is that buyers are not identified afore-hand. If the farmer is fortunate buyers can purchase all, while if unlucky buyers may not show up.

iii. Aggregate of cassava roots

This mode comes to play when after harvesting, it is discovered that all cassava roots are of smaller grade lesser to the grade that could key into unit counting. In that instance, the whole cassava roots harvested could be bargained for, while the agreed price is paid to the farmer.

iv. Cassava vehicular loading

In some other localities of the study area, particular vehicles commonly used to transport cassava roots to the market were already labeled with specific price per time. Such vehicles include Starlet,Jalukere, Pick-up and Diana. There also exists standard method of loading such vehicles with cassava so as to be acceptable in the market. In this case the farmer will be responsible for harvesting and transportation to the market.

v. Cassava paste measurement

Under this mode, the cassava roots will be harvested and peeled by the buyer and transported to the grinding machine in the town. After grinding, the paste will be measured in units using a big (20 litres) paint container at an agreed priceof N1000 per container. The total cost of the cassava paste will then be paid to the farmer.

vi. Sales to user-companies

User-companies purchase cassava roots in large volumes often measured in tonnes, so farmers are free to use vehicles of various sizes up to a lorry (Plate 4) to transport cassava roots to the factory. Farmers are free to either use a personally arranged transport service or the advanced transport service from the user-company if available. When loaded lorries get to the factory, they are weighed at the weighbridge with and without the load of cassava roots, the difference of which will give the actual tonnes of cassava roots supplied. Furthermore, most of the user-companies place premium on the starch content of

cassava roots supplied. This informs the price disparity offered in accordance to the level of starch content in the cassava roots supplied.

Plate 4: A lorry off-loading cassava roots at Thai Farms International Factory, Ososa, Ogun State, Nigeria
Source: Field survey, 2017.

4.4.3 Conformity of user-companies to outgrower scheme expectations

As shown in table 5, the conformity of user-companies to outgrower scheme expectations was measured using six basic elements which were off-take of cassava produce [which had to do with ready market], farm input advance, technical services advance, transport service advance, payment for outgrowers' produce and response to complaints. According to the table, the element of schemeexpectations mostly conformed to by user-companies was the off-take of all cassava production quotas/output ($\overline{\chi} = 1.90$), followed by payment for cassava supplied ($\overline{\chi} = 1.51$) and provision for transportation of cassava to factory in advance ($\overline{\chi} = 1.43$). However, schemeexpectations elements such as provision of technical services ($\overline{\chi} = 1.16$) and provision of farm inputs ($\overline{\chi} = 1.06$) were weakly conformed to, while the element least conformed to was prompt action to outgrowers complaints. This implies that even though the transaction/relationship between user-companies and outgrowers is symbiotic in nature, user-companies conformed more to schemeexpectation elements that directly served their interest. The tendency for this kind of disposition is naturally inherent, this therefore serve as a strong reason why an independent regulatory mechanism with an oversight function on outgrower scheme management should be instituted.

Table 5:Conformity of user-companies to outgrower scheme expectations

S/N	Items	Always		Sometimes		Never		Mean	SD	Rank
		f	%	f	%	f	%			
1	All production quotas of farmers purchased	147	89.6	12	7.3	5	3.0	1.90	0.42	1st
2	Farm inputs are timely provided	64	39.0	46	28.0	54	32.9	1.06	0.85	5th
3	Technical services are timely provided	72	43.9	46	28.0	46	28.0	1.16	0.84	4th
4	Transportation services are timely provided	96	58.5	44	26.8	24	14.6	1.43	0.74	3rd
5	Cassava supplies are paid for as agreed	95	57.9	58	35.4	11	6.7	1.51	0.62	2nd
6	Prompt actions on outgrowers' complaints	20	12.2	92	56.1	52	31.7	0.80	0.64	6th

Source: Field survey, 2017.

4.4.3.1 Categorisation of user-companies by their levels of conformity to outgrower scheme expectations

Table 6 shows the conformity scores of user-companies in the study area. The minimum and maximum scores were 2.0 and 12.0 respectively, while the mean was 7.8±2.5. According to the table, the categorisation of user-companies by the distribution of their conformity scores showed that a little above half (51.2%) of respondents had low level of conformity to outgrower scheme expectations. This implies that even though all sampled user-companies conformed to scheme expectations at varying degrees, the conformity of a larger proportion was low. This was because sufficient attention was not given to advance provision on farm inputs, production services and outgrowers' welfare by most of the user-companies in the study area. This is in consonance with the finding of Ruml &Qaim (2020) who observed dissatisfaction among palm oil contract farming households in Ghana because their user-company was adjudged to be performing below their expectations. Hence, many of them resolved to discontinue the contract arrangement as soon as the cycle was over.

Table 6: Categorization of user-companies by their levels of conformityto outgrower scheme expectations

Levels	Scores	Frequency	percent	Mean	SD
Low	2.0 – 7.7	84	51.2	7.8	2.5
High	7.8 – 12.0	80	48.8		

Source: Field survey, 2017.

4.4.4 Constraints from user-companies to outgrower scheme operation

Table 7 shows that under-pricing of cassava especially during times of glut ($\overline{\chi} = 1.83$), decision taking with no consideration for outgrowers' views ($\overline{\chi} = 1.75$) and user-companies' reneging on agreements guiding the scheme ($\overline{\chi} = 1.65$) topped the ranking of constraints originating from user-companies in scheme management. This implies most user-companies in the study area understudy trends of cassava market price to lower their off-take price during glut. This does not augur well for outgrowers as they end up with unfavourable market options, yet their production cost remains unchanged regardless of market price fluctuations. Taking this reduction in cassava off-take price as an example, most user-companies do not invite outgrowers to a meeting to discuss this decision which as well confirms the constraint of user-companies' renege on scheme agreements. This is similar to the findings of Rulm and Qaim (2020) in an oil palm contract arrangement in Ghana where many smallholder farmers accused their user-company of offering low off-take price, lack of transparency and honesty and unfair contract terms among others.

Also, in a similar order of severity were complexity in cassava pricing ($\overline{\chi} = 1.49$), little or no interest about outgrowers' welfare ($\overline{\chi} = 1.42$) and lack or poor advance provision of farm inputs ($\overline{\chi} = 1.42$). Cassava price is usually based on its quantity of starch content which is determined in the laboratory at user-companies' factory and some outgrowers tend to doubt this outcome especially when it is low by claiming that they were not allowed to sight the readings. Many of the outgrowers also were either not advanced with farm inputs at all or their user-companies have ceased to do so. However, of less severity to outgrowers in the scheme were constraints such as bossiness of private extension workers ($\overline{\chi} = 0.76$), difficulty in coping with both companies' cassava demand and family food needs ($\overline{\chi} = 0.64$) and loss of linkage with former cassava buyers ($\overline{\chi} = 0.50$) implying that a good relationship existed between private extension workers and outgrowers in the study area.

Table 7: Constraints from user-companies to outgrower scheme management

S/N	Items	Severe constraint		Mild constraint		No constraint		Mean	SD	Rank
		f	%	f	%	f	%			
1	Breaking agreements guiding the scheme	117	71.3	37	22.6	10	6.1	1.65	0.59	**3rd**
2	Complexity in cassava pricing used	104	63.4	36	22.0	24	14.6	1.49	0.74	**4th**
3	Conflict between farm operations time-table and outgrowers' socio-cultural activities	59	36.0	35	21.3	70	42.7	0.93	0.89	**11th**
4	Loss of linkages with former cassava buyers	6	3.7	70	42.7	88	53.7	0.50	0.57	**14th**
5	Style of payment used	104	63.4	23	14.0	37	22.6	1.40	0.83	**7th**
6	Difficulty in coping with companies' demand and the family food needs	48	29.3	9	5.5	107	65.2	0.64	0.91	**13th**
7	Under-pricing cassava mostly in times of glut	138	84.1	25	15.2	1	0.6	1.83	0.39	**1st**
8	Frequent delay through official process	70	42.7	43	26.2	51	31.1	1.12	0.85	**9th**
9	Taking decisions without outgrowers' views	133	81.1	21	12.8	10	6.1	1.75	0.56	**2nd**
10	Private extension workers becoming bossy	29	17.7	67	40.9	29	17.7	0.76	0.73	**12th**
11	Little or no interest about farmers' welfare	78	47.6	77	47.0	9	5.5	1.42	0.60	**5th**
12	Provision of insufficient inputs in advance	104	63.4	25	15.2	35	21.3	1.42	0.82	**5th**
13	Under-pricing cassava roots at all seasons	22	13.4	139	84.8	3	1.8	1.12	0.37	**9th**
14	Guaranteed market but with lesser profit	50	30.5	113	68.9	1	0.6	1.30	0.47	**8th**

Source: Field survey, 2017.

4.4.5 Cassava outgrowers' participation in the scheme

Table 8 reveals activities/items wherein outgrowers participated in the scheme's operations. Most of the outgrowers (87.2%) kept to conclusions made during farmer-management meetings, 76.8% discussed about the scheme with other farmers and invited them to join, while 73.8% indicated that outgrowers took part in decision making about the scheme. This finding reveals that outgrowers were to some extent satisfied with the scheme management, this is the more reason why most were encouraged to invite other non-contract farmers.On the other hand, most of the respondents (86.0%) maintained that outgrowers were not represented in companies' board of management meetings, 75.6% of the outgrowerssubmitted that user-companies did not treat them as equal business partners under the scheme, while 57.9% of them stated that they were not involved in fixing cassava price. This implies that there were still some adjustmentsoutgrowers expected on the part of user-companies to facilitate improvements as to higher level of participation. Outgrowers in essence desired that under the scheme, user-companies gave them more opportunities for participation especially in key areas such as representation in board of management meetings, treatment as equal business partners and involvement in fixing cassava off-take price.

Table 8: Cassava outgrowers' participation in the scheme

S/N	Items	Yes	
		f	%
1	Outgrowers take part in making decisions about the scheme	121	73.8
2	Farmers are treated as equal business partners in the scheme	40	24.4
3	Outgrowers are represented in board of management meetings of the firm	23	14.0
4	Farmers take part in planning of cropping time-table	71	43.3
5	Farmers take part in fixing cassava price	69	42.1
6	Farmers discuss and invite other non-contract farmers to the scheme	126	76.8
7	Outgrowers attend meetings with the company officials punctually and regularly.	141	86.0
8	Farmers keep to all conclusions arrived to in meetings	143	87.2

Source: Field survey, 2017.

4.4.5.1 Distribution of respondents by their level of participation in the scheme

Table 9 shows the scores of respondents by their levels of participation in the scheme. It was found that more than half (61.6%) of the outgrowers had high level of participation in the scheme, while 38.4% of them had low level of participation. This implies that activities which outgrowers were easily allowed to participate in were such that were aimed at disseminating information or assisting them to conform to instructions that will improve on their performance in the scheme. The likes of such activities included punctuality and regularity at farmer-management meetings, adhering to conclusions/instructions from farmer-management meetings and invitation of other farmers to participate in the scheme. While activities that could give outgrowers stronger voice and rights were not well promoted, such activities included treatment of outgrowers as business partners, outgrowers representation in board meetings and participation in designing cropping time-table.

Table 9: Categorisation of respondents by their level of participation in the scheme

Levels	Scores	Frequency	percent	Mean	SD
Low	0.0 – 8.9	63	38.4	9.0	4.8
High	9.0 – 18.0	101	61.6		

Source: Field survey, 2017.

4.4.6 Frequency of cassava outgrowers' participation in the scheme

According to the result in table 10, activities that recorded the highest frequency of outgrowers' participation were punctuality and regularity in farmer-management meetings($\overline{\chi} = 1.93$). This was followed by adherence to meetings conclusions ($\overline{\chi} = 1.77$) and outgrowers' participation in decision-making ($\overline{\chi} = 1.49$). These activities occurred with higher level of frequency because they were critical to scheme implementation. Several decisions needed to be made to keep the scheme running according to design, as decisions are made, they must be timely communicated to outgrowers on the field, while outgrowers on their part must keep aligning to current instructions informed by decisions arrived at.

However, some activities under the scheme occurred less frequently. These included involvement in designing cropping time-table ($\overline{\chi} = 0.76$), outgrowers' representation in companies' board meetings ($\overline{\chi} = 0.37$) and treatment of outgrowers as equal business partners ($\overline{\chi} = 0.35$). This result revealed the submission of a school of thought which says;outgrower scheme is an attempt to marry two unequal partners which often results in one of the partners suppressing or cheating the other (Little and Watts, 1994).

Table 10: Frequency of cassava outgrowers' participation in the scheme

S/N	Items	Monthly		Bi-annually		Annually		Others		Not at all		Mean	SD
		f	%	f	%	f	%	f	%	f	%		
1	Outgrowers partake in decision making	3	1.8	36	22.0	60	36.6	4	2.4	61	37.2	1.49	1.25
2	Outgrowers treated as equal business partners	-	-	2	1.2	21	12.8	10	6.1	131	79.9	0.35	0.75
3	Outgrowers represented in companies' board meetings	1	0.6	12	7.3	10	6.1	-	-	141	86.0	0.37	0.93
4	Outgrowers partake in planning cropping time-table	-	-	2	1.2	57	34.8	4	2.4	101	61.6	0.76	0.98
5	Outgrowers partake in fixing cassava price	1	0.6	11	6.7	54	32.9	2	1.2	96	58.5	0.90	1.11
6	Outgrowers invite other farmers to the scheme	3	1.8	25	15.2	72	43.9	16	9.8	48	29.3	1.51	1.12
7	Outgrowers meet with staff punctually and regularly	25	15.2	29	17.7	53	32.3	24	14.6	33	20.1	1.93	1.32
8	Outgrowers keep to meeting conclusions	24	14.6	12	7.3	67	40.9	24	14.6	37	22.6	1.77	1.29

Source: Field survey, 2017.

4.5 Perception of outgrowers about cassava outgrower scheme

Table 11 presents outgrowers' perception about outgrower scheme in the study area. The result shows that respondents agreed that cassava outgrower scheme brought stability to their income ($\overline{\chi}$ = 4.17), assistance to their cassava production enterprise ($\overline{\chi}$ =4.07) and also opened a window of stable cassava marketto farmers ($\overline{\chi}$ =3.96). This is coming from a background of farmers' previous unpleasant experiences of a cyclic trend of glut and scarcity in the local cassava market, but incidents under cassava outgrower scheme played out as a sharp departure from their usual experience.In like manner, respondents further agreed that cassava outgrower scheme did not only stabilise income, but did significantly increase farmers' income ($\overline{\chi}$ =4.04); forasmuch as outgrowers' fears of market failure was already allayed, they easily increased production and through economy of scale and increased productivity, their income consequently was enhanced. On a similar note, respondents agreed and attested to the fact that participation in outgrower scheme gave them ready access to production inputs ($\overline{\chi}$ =3.76) which, included both crop protection products such as herbicides and pesticides as well as mechanical inputs in form of tractorisation of farmland.

In the same vein, respondents disagreed with the proposition that cassava outgrower scheme was a means to exploit farmers ($\overline{\chi}$ =3.48). They rather maintained that the scheme had lots of benefits for farmers. On the contrary however, someof the respondents disagreed with the position that user-companies' field staff often act in favour of outgrowers ($\overline{\chi}$ = 2.61). They argued that these private extension workers display strong loyalty to their employers such that at junctures when there are clashes of interest between outgrowers and user-companies, they take side with their companies to outgrowers' disadvantage. This is the reason why outgrowers must unite to always speak with a formidable voice and defend their legitimate rights under the scheme.

Table 11: Outgrowers' perception about cassava outgrower scheme

S/N	Perceptional statements	SA		A		U		D		SD		*Mean*	SD
		f	%	f	%	f	%	f	%	f	%		
1	Cassava outgrower scheme appears to be a means to exploit farmers	20	12.2	24	14.6	2	1.2	93	56.7	25	15.2	3.48	1.26
2	Participation in outgrower scheme brings stability to farmers' income	46	28.0	109	66.5	1	0.6	8	4.9	-	-	4.17	0.67
3	Outgrower scheme can help ready access to farm inputs for farmers	49	29.9	80	48.8	-	-	17	10.4	18	11.0	3.76	1.29
4	User-companies' staff are always honest when dealing with farmers	13	7.9	77	47.0	50	30.5	17	10.4	7	4.3	3.43	0.93
5	Selling to user-companies commands higher price than in the open market	7	4.3	19	11.6	9	5.5	81	49.4	48	29.3	2.12	1.09
6	User-companies deliberately delay off-take for their own gain and outgrowers' loss	2	1.2	28	17.1	49	29.9	56	34.1	29	17.7	3.50	1.01
7	User-companies offer outgrowers little or no provision of farm inputs	19	11.6	33	20.1	1	0.6	94	57.3	17	10.4	3.35	1.24
8	User-companies hardly keep to terms of agreement	9	5.5	79	48.2	1	0.6	68	41.5	7	4.3	2.90	1.13
9	Private extensionworkers often display partiality in favour of the firm	38	23.2	66	40.2	31	18.9	26	15.9	3	1.8	2.33	1.06
10	To a large extent outgrower scheme offers farmers a stable cassava market	26	15.9	119	72.6	8	4.9	9	5.5	2	1.2	3.96	0.73
11	Cassava outgrowers get farm inputs under this scheme once-in-a-while	3	1.8	58	35.4	8	4.9	67	40.9	28	17.1	3.36	1.18
12	User-companies hardly treat farmers as equal business partners	6	3.7	73	44.5	40	24.4	37	22.6	8	4.9	2.80	0.99
13	Cassava outgrower scheme in reality is aimed at assisting farmers	9	5.5	14	8.5	6	3.7	62	37.8	73	44.5	4.07	1.15
14	Participation in outgrower scheme can seriously increase farmers' income	43	26.2	102	62.2	4	2.4	13	7.9	2	1.2	4.04	0.85
15	Production inputs promised under the scheme cannot be said were fulfilled	14	8.5	76	46.3	11	6.7	59	36.0	4	2.4	2.77	1.10
16	User-companies' staff are sometimes partial in farmers selection	3	1.8	24	14.6	46	28.0	55	33.5	36	22.0	3.59	1.04
17	User-companies always keep to terms of agreement	2	1.2	76	46.3	12	7.3	76	46.3	2	1.2	3.00	1.39
18	Under the scheme farmers get occasional provision of production inputs	1	0.6	52	31.7	10	6.1	65	39.6	36	22.0	3.51	1.17
19	User-companies' staff are not completely honest in their dealings with farmers	7	4.3	36	22.0	49	29.9	68	41.5	4	2.4	3.16	0.94
20	User-companies to a large extent treat farmers as equal business partner	6	3.7	39	23.8	19	11.6	88	53.7	12	7.3	2.63	1.04
21	Private extensionworkers often act in favour of the outgrowers	7	4.3	33	20.1	18	11.0	101	61.6	5	3.0	2.61	0.98
22	User-companies are never ready to treat farmers as equal business partners	5	3.0	67	40.9	37	22.6	43	26.2	12	7.3	2.94	1.04
23	The scheme makes available to farmers ready access to production inputs	3	1.8	98	59.8	5	3.0	38	23.2	20	12.2	3.16	1.17
24	User-companies' staff are always impartial in farmers' selection	6	3.7	55	33.5	53	32.3	12	7.3	38	23.2	3.13	1.21

Source: Field survey, 2017.

4.5.1 Respondents' categorisation by their perception about cassava outgrower scheme

The scores of respondents based on their perception about outgrower scheme were presented in table 12. The minimum and maximum scores were 50.0 and 95.0respectively, while the mean was 77.8±8.4. The result shows that most of the respondents (65.2%) had a favourable perception about outgrower scheme. This is not against apriori expectation as a good number of lingering challenges faced under cassava enterprise as earlier reported were addressed by the introduction of outgrower scheme. However, it is expected that if put in place, appropriate policy regulating user-companies/outgrowers relationship would likely improve outgrowers' perception.

Table 12: Categorization of respondents by their perception about cassava outgrower scheme

Levels	Scores	Frequency	Percent	Mean	SD
Unfavourable	50.0 – 77.7	57	34.8	77.8	8.4
Favourable	77.8 – 95.0	107	65.2		

Source: Field survey, 2017.

4.6 Benefits derived by outgrowers from cassava outgrower scheme

Table 13 reveals various benefits enjoyed by outgrowers under cassava outgrower scheme. Most (98.2%) of the respondents claimed that sale of cassava roots to user-companies through participation in outgrower scheme provided them with a stable cassava market. Similarly, 78.7% of the respondents posited that participation in cassava outgrower scheme facilitated their exposure to improved cassava technologies, while 72.0% of them further affirmed that it gave them better access to extension services. This is in consonance with the submission of Iorwuese (2017) that contract farming is the current best practice of agricultural development as it comprises enormous benefits for farmers. He further enumerated the benefits to include assured market, reduction in agricultural commodity price volatility, exposure to new agricultural technologies, expanded production and access to training, production services as well as credits.

However, 79.3% of the respondents owned up that cassava price in the open market was often higher than what obtained at user-companies' factories and what kept sustaining their transaction with user-companies was the opportunity for bulk sales and guaranteed market anytime of the year. Also, 64.6% of the respondents reported that insurance benefits were not available under cassava outgrower scheme in the study area. This implies in most occasions, unexpected natural disasters or lossesincurred on contract plots wereborne by outgrowers.

Table 13: Benefits derived from cassava outgrower scheme

S/N	Items	Yes	
		f	%
1	Participation in cassava outgrower scheme has made access credit easy	87	53.0
2	I now have better access to extension services on my cassava enterprise	118	72.0
3	I enjoy insurance benefit in my cassava enterprise under the scheme	58	35.4
4	Cassava price in the open market is often higher than the company's price	130	79.3
5	Selling cassava to user-company provides stable market	161	98.2
6	Participation in the scheme increases revenue from cassava enterprise	108	65.9
7	Participation in the scheme exposes farmers to improved cassava technologies	129	78.7

Source: Field survey, 2017.

4.7 Contribution of extension to cassava outgrower scheme

Table 14 shows that most of the respondents (87.2%) opined that the primary interest of private extension workers was to get cassava roots for their factory, implying that these private extension workers were less concern about other needs such as the welfare and profitability of outgrowers. In a similar vein, a good number of respondents (75.6%) maintained that private extension workers do not support outgrowers to bargain for better cassava price, instead they take side with user-companies' decisions even when it is to outgrowers' detriment. This finding agrees with the position of Hongdong, Robert and Jianhua (2005) and Brüntrup*et. al.,* (2018) that contract farming/outgrower scheme implementation without adequate competition among contracting firms, informed farmers and enforcement of the rule of law can result in economic serfdom for peasant farmers.

Notwithstanding, a large number of respondents (79.3%) admitted that private extension workers always offered useful advice on cassava cultivation to outgrowers, while 74.4% declared that private extension workers had good relationship with outgrowers. This implies that private extension workers also had their good sides, especially when such role directly relates to the attainment of their primary objective. By and large, a considerably high number of respondents (72.6%) attested to a regular visit from private extension workers as against information gathered among respondents during FGD sessions that *"visits from public extension workers to farmers were rather seldom and either based on request or connected with occasional implementation of projects that require their frequent presence in farmers' communities".* This result underscores the relevance of private extension in the nations' agricultural development pursuit. As rightly observed by Ladele (2015); "the current ratio of 3000 farm families to one extension agent in the public extension domain is grossly inadequate, hence a viable window to explore for significant make-up in this farmer-extension agent ratio deficit is the private extension sector."

Table 14:Contribution of extension to outgrower scheme

S/N	Items	Yes	
		f	%
1	Regular visits from private extension workers	119	72.6
2	Private extension workers assisted me to participate in outgrowers scheme	120	73.2
3	Private extension workers always offer useful advice in cassava enterprise	130	79.3
4	Private extension workers regularly assist to get farm input	104	63.4
5	Private extension workers make case for better cassava price for farmers	40	24.4
6	Private extension workers side company's decision at farmers' detriment	124	75.6
7	The only interest of private extension workers is to get cassava for companies	143	87.2
8	Private extension workers have good relationship with farmers	122	74.4
9	Private extension workers are not straight forward in discharging their duties	53	32.3

Source: Field survey, 2017.

4.8 Contribution of farm input suppliers to cassava outgrower scheme

Farm input suppliers are critical to outgrower scheme management because optimum input usage goes a long way to determine the productivity of outgrowers. Farm inputs needed in the scheme included cassava seed (cuttings), agro-chemicals such as herbicides and pesticides, as well as fertilizers. Hence, user-companies ensure arrangements are made with farm input companies of their choice to timely supply inputs that will be used by their outgrowers within the farming season. As shown on table 15, farm input suppliers, in addition to their input supply role also contributed actively in providing useful advice to outgrowers($\overline{\chi} = 1.15$). Pieces of advice given to outgrowers were largely on the correct/appropriate usage of farm input because wrong usage of input could be counter-productive to outgrowers' farming enterprises. Beyond this, user-companies most times serve as intermediaries between farm input suppliers and outgrowers essentially to facilitate logistics management. As such, input suppliers deliver farm inputs in bulk to user-companies, after which private extension workers pick them up for onward distribution to outgrowers or outgrowers themselves are called upon to pick them. Hence this arrangement facilitates easy access to farm inputs for outgrowers($\overline{\chi} = 1.00$). Furthermore, the bulk purchase often practiced by user-companies help to lower the selling price to outgrowers($\overline{\chi} = 0.90$). Instances of supply of low quality inputs to outgrowers($\overline{\chi} = 0.06$) were rare in the study area, while late input delivery was also uncommon ($\overline{\chi} = 0.27$).

Table 15: Contribution of farm input suppliers to cassava outgrower scheme

S/N	Items	Always		Sometimes		Never		Mean	SD
		f	%	f	%	f	%		
1	Linkage to input suppliers	-	-	102	62.2	62	37.8	0.62	0.49
2	Easy access to farm inputs	56	34.1	52	31.7	56	34.1	1.00	0.83
3	Purchase of bulk inputs at reduced price	50	30.5	49	29.9	65	39.6	0.90	0.84
4	Privilege for input purchase on credit	19	11.6	81	49.4	64	39.0	0.73	0.66
5	Useful advice from input suppliers	67	40.9	54	32.9	43	26.2	1.15	0.81
6	Supply of low quality inputs	-	-	10	6.1	154	93.9	0.06	0.24
7	Farm input price hike by input suppliers	6	3.7	72	43.9	86	52.4	0.51	0.57
8	Late input delivery to outgrowers	1	0.6	42	25.6	121	73.8	0.27	0.46

Source: Field survey, 2017.

4.9 Contribution of credit providers to cassava outgrower scheme

Table 16 that shows the contribution of credit providers to the scheme reveals that a good number ($\overline{\chi} = 1.18$) of user-companies in the study area made efforts to link their outgrowers to credit sources [commercial banks in particular]. Beyond linking outgrowers to credit sources, still a good number ($\overline{\chi} = 1.19$) of user-companies offered to stand as guarantors for their outgrowers. This implies most user-companies were interested in securing loans for their outgrowers as much as outgrowers also were willing to utilize loan facilities. However, only a few ($\overline{\chi} = 0.64$) among outgrowers ended up securing loans, while very many kept hoping that someday, they will as well be able to access loans.

Some of the reasons that kept many outgrowers still on the waiting list include inability to provide required equity contributions, bureaucratic delays and high interest. This finding corroborates the observation of Mgbenka and Mbah (2016), that smallholder farmers' productivity and growth in Nigeria are hindered by limited access to credit facilities. In the same vein, IBH (2016) opined that though, Nigeria's agricultural production is anchored by smallholder farmers, yet lack of access to finance and the resultant inability to invest in basic farming inputs, implements and irrigation which consequently leads to poor yields remain an underlying factor keeping them in poverty.

Table 16: Contribution of credit providers to cassava outgrower scheme

S/N	Items	Always		Sometimes		Never		Mean	SD
		f	%	f	%	f	%		
1	User-company links outgrowers to bank	79	48.2	35	21.3	50	30.5	1.18	0.87
2	Banks accept user companies as guarantor	83	50.6	29	17.7	52	31.7	1.19	0.89
3	People/properties are requested as guarantor	29	17.7	42	25.6	93	56.7	0.60	0.77
4	Banks give loans to outgrowers to time	42	25.6	21	12.8	101	61.6	0.64	0.86
5	Interest rate on loans is lower to commercial banks' rate	54	32.9	29	17.7	81	49.4	0.84	0.89
6	Banks repayment plan is easy to cope with	50	30.5	57	34.8	57	34.8	0.96	0.81
7	There are strict punishments for outgrowers who fail to repay	108	65.9	19	11.6	37	22.6	1.43	0.84
8	Banks deduct insurance fee up-front from loans	94	57.3	32	19.5	38	23.2	1.34	0.83
9	Outgrowers easily benefit from insurance services whenever the need arises	34	20.7	40	24.4	90	54.9	0.66	0.80

Source: Field survey, 2017.

4.10 Comparison between the number of male and female farmers engaged in cassava outgrower scheme

Figure 11 shows that most outgrowers (76.8%) were males, while only a few (23.2%) were females. This result reveals that more of male farmers engaged in cassava outgrower scheme than their female counterpart in the study area. This is in line with an earlier reported finding that, while males were dominant in the production of cassava roots, females were more prominent in cassava processing and marketing. This is also in consonance with other research findings which have revealed male dominance in Nigerian agriculture, especially in the crop production sector (Tijani &Mudashir, 2013, Abudu *et al,* 2014, Abdullahi, 2015).

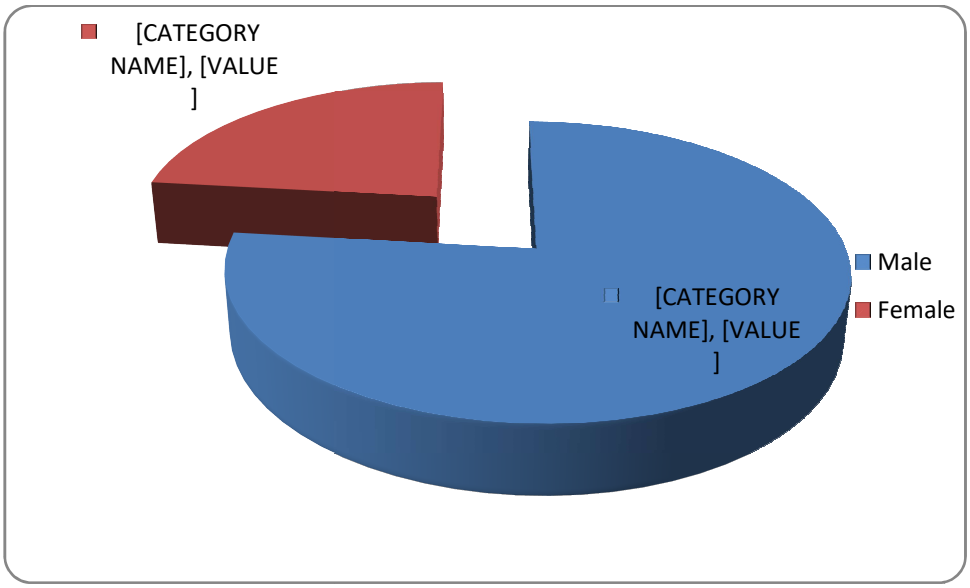

Figure 11: Comparison of male and female farmers' participation in cassava outgrower scheme

4.10.1Comparison of male and female farmers' participation in cassava outgrower scheme

The result on comparison of male and female farmers' participation in cassava outgrower scheme in the study area as disaggregated on the basis of sex is presented in table 17. It shows that even though the number of female farmers was lower to their male counterpart, their participation in the scheme was not inferior. Their percentage score on all items of participation in the table were at par with those of their male counterpart. On items of participation such as decision making about the scheme, women were not marginalised as 72.5% of women; a figure close to men (74.2%) took part. Attendance of meeting with user-company officials likewise involved both males (86.3%) and females (85.0%) actively.

Table 17:Comparison of male and female farmers' participation in cassava outgrowerscheme

S/N	Items	Male		Female	
		f	%	f	%
1	Outgrowers take part in making decisions about the scheme	92	74.2	29	72.5
2	Farmers are treated as equal business partners in the scheme	25	20.2	15	62.5
3	Outgrowers are represented in board of management meetings	18	14.5	5	12.5
4	Farmers take part in planning of cropping time-table	49	39.5	22	55.0
5	Farmers take part in fixing cassava price	48	37.8	21	52.5
6	Farmers discuss and invite other non-contract farmers to the scheme	94	75.8	32	80.0
7	Outgrowers attend meetings with the company officials punctually	107	86.3	34	85.0
8	Farmers keep to all conclusions arrived to in meetings	108	87.1	35	87.5

Source: Field survey, 2017.

4.10.2 Factors associated with female farmers' participation in cassava outgrower scheme according to outgrowers

Factors associated with female farmers' participation in outgrower scheme as indicated by respondents were presented in table 18. A sizeable proportion (63.4%) of the respondents pointed out that female farmers had limited access to farmland where to cultivate cassava in large quantity. This serves as a strong barrier for female farmers' participation in outgrower scheme as user-companies always demand for cassava in large volume.

This is why limited access to farmland most times constrains women from participation in cassava outgrower scheme. This finding is similar to that of Abali, Ifenkwe and Emerhirhi (2014) who likewise discovered that non-land ownership and use of marginal land inhibit effective participation of women in cassava production.

Similarly, 64.6% of respondents attested that female farmers lacked the time needed for cassava outgrower scheme activities due to the load of family responsibilities on them. Gender role of women in the family is connected with a lot of time-demanding duties such as performing house chores, breast-feeding and caringforyoung ones as againstmen's role whichis not as time-demanding.However, most of the respondents (99.5%) disagreed on payment of cassava root delivery being made to husbands instead of female outgrowers, while 93.3% of them similarly disagreed about men cheating women in the scheme. In like manner, 91.5% maintained that women were not denied participation in key decisions about the scheme.

Furthermore 77.4% of the respondents affirmed that user-companies gave equal treatment to either sex and did not consider women as less capable in any way, while husbands as well (72.6%) did not discourage their wives from participating in the scheme. Contrary to other findings however (Abali, Ifenkwe and Emerhirhi, 2014, Ololade & Olagunju, 2013), 53.0% of the respondents maintained that female outgrowers faced no peculiar difficulty in accessing fund different from their male counterparts. This is because respondents of this study are somehow classified; their treatment as outgrowers (whether males or females) under cassava outgrower scheme could afford them a different experience from what obtains with the generality of farmers outside the scheme.

Table 18: Factors associated with female farmers' participation in cassava outgrower scheme

S/N	Items	Yes	
		f	%
1	Limited access to farmland	104	63.4
2	More difficulties to access fund than male farmers	77	47.0
3	Availability of energy needed for task required from outgrowers	71	43.3
4	Lack of time due to family responsibilities	106	64.6
5	Assumption to be incapable by the user-companies	37	22.6
6	Discouragements from husbands	45	27.4
7	Frequent cheatings by men under the scheme	11	6.7
8	Denial to participate in key decisions about the scheme	14	8.5
9	Payment is made to husbands instead female outgrowers	01	0.6

Source: Field survey, 2017.

4.11 Factors determining participation of farmers in cassava outgrower scheme

Table 19 shows series of factors determining participation of farmers in outgrower scheme. Foremost among these factors was the availability of ready market for cassava roots(97.0%). This implies cassava sale outlets are of paramount importance to farmers. This is in consonance with IFAD (2010) that asserted that use of improved cassava varieties has boosted cassava production in Nigeria and some other African countries but efficient market has been posing a critical challenge to farmers. Next in importance to farmers among factors determining their participation in outgrower scheme was the opportunity to sell cassava roots in large quantity(96.3%). Traditionally in Nigeria, cassava farmers patronized the local market where major buyers were either Gari, Fufu, Akpu, native starch or cassava flour (Lafun) processors. These local processors have a limit to the volume of cassava roots they can purchase. Hence, anytime supply in cassava roots picks up, there is usually a glut in cassava market, bringing about the cyclic trend of glut and consequent scarcity in cassava market.

The advent of user-companies using cassava in industrial scale automatically addressed the perennial challenge of cyclic trend of glut and scarcity in cassava market and this was a welcome development to cassava farmers. This informed the remark of outgrowers during FGD sessions that *"We are happy the market of cassava is changing for the better, though we desire greater improvement over the years, our recent experience is proving to us that with the emergence of cassava user-companies in our locality, cassava market is unlikely to turn as bad as it was in years past"*. The third in the list of factors determining farmers' participation in outgrower scheme was the provision of transport for cassava produce to the point of sale (factory) in advance(79.9%). This underscores the challenge of high cost of transportation farmers face especially in the rural area where road conditions and network are poor. So, the offer of user-companies to provide transport service in advance and yet at a subsidized rate comes as a great relief to farmers and this attracts many of them to the scheme.

Fourth in the list of factors determining participation of farmers in outgrower scheme is access to prompt and complete payment for cassava roots after delivery.Outgrowers

usually received payment immediately or latest within 72 hours after delivery of produce except under cases of peculiar challenges or unexpected irregularities which will be discussed later. This scenario is a sharp departure from cassava farmers' previous experiences, when many of them sold cassava roots to local processors on credit for their money to be paid later after processors have made their own profit. Other factors in their sequence of importance included increased income from transaction in the scheme (75.6%), provision of extension services (72.6%), assurance of better price (68.9%), provision of improved cassava cultivars in advance (67.7%), payment for ploughing operation in advance(61.6%), guarantorship opportunity in the bank (58.5%) and provision of agro-chemicals in advance (56.7%). A close examination of factors determining participation in cassava outgrower scheme as indicated from the foregoing revealed that market factors took precedence in farmers' rating,while financial and production factors followed respectively.

Table 19: Factors determining participation of farmers in cassava outgrower scheme

S/N	Items	Yes %	No %
1	Provision of improved cassava stem in advance	67.7	32.3
2	Provision of inorganic fertilizer in advance	50.6	49.4
3	Provision of organic fertilizer in advance	12.2	87.8
4	Payment for stumping operation in advance	34.1	65.9
5	Payment for ploughing operation in advance	61.6	38.4
6	Payment for harrowing operation in advance	33.5	66.5
7	Payment for ridging operation in advance	32.9	67.1
8	Payment for planting operation in advance	34.8	65.2
9	Provision of agro-chemicals in advance	56.7	43.3
10	Provision of spraying implements in advance	34.1	65.9
11	Provision of irrigation facilities in advance	3.0	97.0
12	Provision of cash in advance	4.9	95.1
13	Provision of children's school fees in advance	3.7	96.3
14	Availability of ready cassava market	97.0	3.0
15	Assurance of better price for cassava produce	68.9	31.1
16	Provision of extension services	72.6	27.4
17	Provision of guarantor opportunities in the bank	58.5	41.5
18	Increased income from transactions in the scheme	75.6	24.4
19	Payment for harvesting of cassava in advance	36.6	63.4
20	Payment for transportation of produce to factory in advance	79.9	20.1
21	Opportunity to sell cassava roots in large quantity	96.3	3.7
22	Access to prompt and complete payment after delivery	78.0	22.0

Source: Field survey, 2017.

4.12 Contribution of private extension workers to discontinuance in cassava outgrower scheme

Data in table 20 revealed that most (83.6%) of discontinued outgrowers in the study area attributed their discontinuance in the scheme to private extension workers. This implies the role a user-company's extension workers play is critical as they represent the company and the picture they portray goes a long way to determine the perception of farmers and the public about the user-company. Some of the actions discontinued outgrowers complained about were less concern about outgrowers' welfare(90.9%), only concern on getting cassava roots for the factory (87.3%), dishonesty in discharging their duties(85.5%).

Complaints in this regard included private extension workers falsifying farmers' record at the factory so as to short pay them, private extension workers also do personal on-farm payment to farmers but at a different rate to what obtains at the factory especially for farmers who want money for their produce on the spot. However, when such farmers later get to know the factory price, they turn around and begin to complain. Other reasons for outgrowers' discontinuance are failure of private extension workers to adequately facilitate farm inputs (78.2%). User-companies who want esteemed reputation among farmers and the public must play a good care on their extension workers' management. Efforts must be made to engage honest people as private extension workers, while a sound system must be in place to see to their welfare. Once private extension workers are either maltreated or dissatisfied, they will in turn maltreat outgrowers and this will consequently dent the user-company's image or reputation.

Table 20: Contribution of private extensionworkers to discontinuance in cassava outgrower scheme n=55

S/N	Items	Yes %	No %
1	Private extension workers caused my discontinuance in the scheme	83.6	0.37
2	Private extension workers offered useful advice in my cassava enterprise	14.5	0.36
3	Private extension workers did not adequately assist to get farm input	78.2	0.42
4	Private extension workers were changing cassava prices to cheat farmers	69.1	0.47
5	Private extension workers supported company's decision even when it hurt farmers	69.1	0.47
6	Private extension workers were less concern about the welfare of farmers	90.9	0.29
7	The only concern of private extension workers was to get cassava for the user-company	87.3	0.34
8	Private extension workers had good rapport with farmers	36.4	0.49
9	Private extension workers were not honest at discharging their duties	85.5	0.36
10	Private extension workers did not accord outgrowers the deserved respect	32.7	0.47

Source: Field survey, 2017.

4.13 Contribution of farm input suppliers to discontinuance in cassava outgrower scheme

The result in table 21 shows that most (92.7%) of discontinued outgrowers affirmed that farm inputs supplied to them were of good quality, 83.6% of them likewise admitted that prices of farm inputs supplied were not hiked, 81.8% confirmed sales on credit, while 65.5% of them posited that input supplied were not late. However, a good number (89.1%) of the discontinued outgrowers remarked that bulk purchase made no difference in prices of input supplied, while 74.5% of them disagreed to easy access of input and timely offer of technical advice from input suppliers. The reason for this unsatisfactory rating about input suppliers was because user-companies most of the times took over the role of input suppliers either for financial or logistic reasons. It is very unlikely that private extension workers who could be loaded with their own primary duty will be able to do justice to this additional responsibility of input suppliers.

Table 21: Contribution of farm input suppliers to discontinuance in cassava outgrowerscheme

S/N	Items	Yes %	No %
1	Input suppliers made farm inputs easily accessible to cassava outgrowers	25.5	74.5
2	Input suppliers offered inputs at reduced price once purchased in bulk	10.9	89.1
3	Input suppliers gave no inputs on credit to outgrowers under the scheme	18.2	81.8
4	Input suppliers offered no technical advice to outgrowers except when requested for	74.5	25.5
5	Input suppliers supplied low quality inputs to outgrowers under the scheme	7.3	92.7
6	Input suppliers hiked input price to outgrowers	16.4	83.6
7	Input suppliers delivered their products late to outgrowers	34.5	65.5

Source: Field survey, 2017.

4.14 Contribution of credit providers to discontinuance in cassava outgrower scheme

The contribution of credit providers to discontinuance in outgrower scheme as indicated by discontinued outgrowers was presented in table 22. Foremost among the factors (50.9%) is the failure of banks to disburse loans to outgrowers under the scheme. This was followed by difficulties associated with repayment plan (49.1%) and also high interest rate (43.6%). This result is similar to the findings of Agbo, Iroh and Ihemezie (2015), who identified factors such as high interest rate, stringent bureaucratic processes, high transaction costs, hidden charges and high administrative cost as constraints to vegetable farmers' access to credits in Owerri agricultural zone of Imo state, Nigeria.

Table 22:Contribution of credit providers to outgrowers' discontinuance

S/N	Items	Yes %	No %
1	Banks allowed user-companies to stand as guarantor for outgrowers	1.8	98.2
2	Banks requested for people/property as guarantee for loan under the scheme	5.5	94.5
3	Banks gave loans to outgrowers late	0.0	100.0
4	Banks never gave loans to outgrowers under the scheme	50.9	49.1
5	The interest rate on loans given to outgrowers was too high	43.6	56.4
6	Repayment plan of credit providers was difficult to cope with for outgrowers	49.1	50.9
7	Punishments laid down for not paying back on time was too strict	5.5	94.5
8	Outgrowers were encouraged to insure their cassava farms by credit providers	0.0	100.0
9	Outgrowersinsure their cassava farms easily through credit providers' help	0.0	100.0
10	Credit providers' procedures were long and difficult for outgrowers	16.4	83.6

Source: Field survey, 2017.

4.15 Contribution of user-companies to discontinuance in cassava outgrower scheme

Discontinued cassava outgrowers in the study area also attributed some of the reasons for their discontinuance to user-companies (Table 23). Top-most among these reasons (92.7%) was user-companies' practice of taking decisions affecting the scheme without carrying outgrowers along. Most times these decisions were connected with cassava off-take price. Next in weight to this reason (89.1%) was that user-companies offered low prices for cassava roots especially in times of glut, yet farmers' cost of production remained unchanged.Respondents subsequently rated their reason for discontinuance as failure of user-companies to off-take their cassava roots when ready for supply(76.4%). User-companies sometimes associate this failure to sudden break-down of their factory plants or unforeseen delay about some mechanical installations. However, reasons such as conflict between cropping time-table and outgrowers' other engagements (20.0%) and difficulty in coping with user-companies' demand and family food needs (3.6%) were respectively rated as least among reasons for discontinuance. This result implies that there is a limit to the level of dissatisfaction outgrowers will accommodate, many of them will be forced to quit the contract when the relationship is becoming unbeneficial to them.

Table 23:Contribution of user-companies to discontinuance in cassava outgrower scheme

S/N	Items	Yes %	No %
1	User-companies failed to off-take all cassava supplied by outgrowers	76.4	23.6
2	Prices were not paid as agreed upon after delivery of cassava produce	76.4	23.6
3	Production inputs were supplied late by the user-company	43.6	56.4
4	User-companies do not take prompt actions on outgrowers complaints	89.1	10.9
5	Process of price determination not fair to outgrowers	83.6	16.4
6	Conflict between cropping time-table and outgrowers' other engagements	20.0	80.0
7	Style of payment were not favourable	56.4	43.6
8	Difficulty in coping with the factory's cassava demand and family food needs	3.6	96.4
9	User-companies offer low prices for cassava especially in times of glut	89.1	10.9
10	Decisions are often taking without seeking outgrowers' opinion	92.7	7.3

Source: Field survey, 2017.

4.16 Participationlevel of discontinued outgrowers while in the cassava outgrowerscheme

Table 24 shows the participation level of discontinued outgrowers while in the scheme. As indicated on the table, farmer-management meetings were not regularly held(87.3%). Discontinued outgrowers were also less involved in fixing cassava price (85.5%). This implies user-companies unilaterally decided off-take price for cassava roots while, discontinued outgrowers were expected to accept it whether profitable for them or not.

Discontinued outgrowers were likewise not carried along when important decisions about the scheme were to be made (74.5%) and on the final analysis, discontinued outgrowers felt they were not treated as equal businesspartners in the scheme (72.7%). Little wonder they eventually discontinued their participation in the scheme. This implies farmers'voicesshould be actively heard in outgrower schemedecision making, if their participation will be sustained.

Table 24: Participation of discontinued outgrowers while in the scheme

S/N	Items	Yes %	No %
1	Cassava outgrowers were not carried along when decisions are to be made	74.5	25.5
2	Farmers were not treated as equal partners in the scheme	72.7	27.3
3	Outgrowers' leaders represent farmers' interest at the firm's board meetings	49.1	50.9
4	Farmers were involved in designing the cropping schedule for the season	1.8	98.2
5	Farmers were not involved in fixing cassava price for seasons in view	85.5	14.5
6	Outgrowers felt interested to invite other non-outgrowers to the scheme	29.1	70.9
7	Meetings with outgrowers and user-companies officials were not regular	87.3	12.7

Source: Field survey, 2017.

5.17 Compliance of user-companies to agreed terms with discontinued outgrowers while in the cassava outgrowerscheme

The findings in table 25 show the compliance of user-companies to agreed terms with discontinued outgrowers while they were in the scheme. Compliance to most of the items was generally low, except for a few items that improved slightly above others. Such items included payment for transportation of produce to factory in advance (52.7%), provision of agro-chemical in advance (36.4%), payment for ploughing operation in advance (36.4%) and payment for planting operation in advance (36.4%).

In like manner, items of farmers' interest were not well attended to as there was no effort to guarantee farmers in the bank (0.0%), farmers could not boast of increased income (0.0%) and availability of ready cassava market was also not sure (14.5%). These factors would no doubt have contributed to the discontinuance of outgrowers from the cassava outgrower scheme.

Table 25: Compliance of user-companies to agreed terms with discontinued outgrowers while in the scheme

S/N	Items	Yes %	No %
1	Provision of improved cassava cultivars in advance	25.5	74.5
2	Provision of inorganic fertilizer in advance	25.5	74.5
3	Provision of organic fertilizer in advance	0.0	100.0
4	Payment for stumping operation in advance	9.1	90.9
5	Payment for ploughing operation in advance	36.4	63.6
6	Payment for harrowing operation in advance	20.0	80.0
7	Payment for ridging operation in advance	0.0	100.0
8	Payment for planting operation in advance	36.4	63.6
9	Provision of agro-chemicals in advance	36.4	63.6
10	Provision of spraying tools in advance	25.5	74.5
11	Provision of irrigation facilities in advance	0.0	100.0
12	Provision of cash advance	25.5	74.5
13	Availability of ready cassava market	14.5	85.5
14	Assurance of better price for cassava roots	3.6	96.4
15	Provision of extension services	10.9	89.1
16	Guarantor opportunities in the bank	0.0	100.0
17	Increased income from transactions in the scheme	0.0	100.0
18	Payment for harvesting in advance	27.3	72.7
19	Payment for transportation of produce to factory in advance	52.7	47.3

Source: Field survey, 2017.

4.18 Values added to cassava by user-companies in the study area

Outgrowers interviewed served six different user-companies. These user-companies were (i) Thai farms International (ii) Matna Foods Company Limited (iii) Allied Atlantic Distilleries Limited (iv) Psaltry Company International (iv) Mokk Investment and (vi) Harvest Feed and Agro Processing Limited. While some outgrowers have discontinued engagement with their user-companies, others were still in active engagement. Various values were being added to cassava by each of these user-companies before transforming it into the final product. The values added by each user-company were as follows:

4.18.1 Thai farms International

This company transforms cassava into high quality cassava flour. The series of values added to cassava roots in the process are presented in figure 12 with some pictures of the process in Plate 5.

4.18.2 Matna Foods Company Limited

Matna Foods produces starch from cassava roots. In the process, values are added to cassava roots as presented in figure 13. The pictures of the final product and the factory building are shown in Plate 6.

4.18.3 Psaltry Company International

In this company also, cassava roots are transformed into starch, the values added to the commodity in Psaltry Company are quite similar to what obtains in Matna Foods where same end product is being produced. Plate7 presents the factory building and the end products in bags, while the series of values added to cassava roots in the process is shown in figure 13.

4.18.4 Allied Atlantic Distilleries Limited

Allied Atlantic Distilleries Limited (AADL) transforms cassava roots into ethanol. The ethanol so produced are used by other company in the conglomerate where AADL belongs to manufacture dry gins. The product (ethanol) is likewise used by other industries and laboratories for various other purposes.

4.18.5 Mokk Investments Limited

Mokk Investments Limited adds value to cassava roots by transforming it to cassava starch. The process undertaken to produce cassava starch is similar to those of other user-companies already mentioned. The starch here produced as end products in Mokk Investments Limited serves as raw material for other manufacturing firms like confectionery industries, paper mills, textile industries, brewery industries and the pharmaceutical industries in the Nigerian cassava value chain system.

4.18.6 Harvest Feed and Agro-processing Limited

Cassava roots are processed into high quality (food grade) cassava starch in Harvest Feed and Agro-processing Limited. The value addition process follows a similar path with others in the starch manufacturing sector. The cassava starch produced is supplied to top quality brands across multiple sectors in Nigeria.

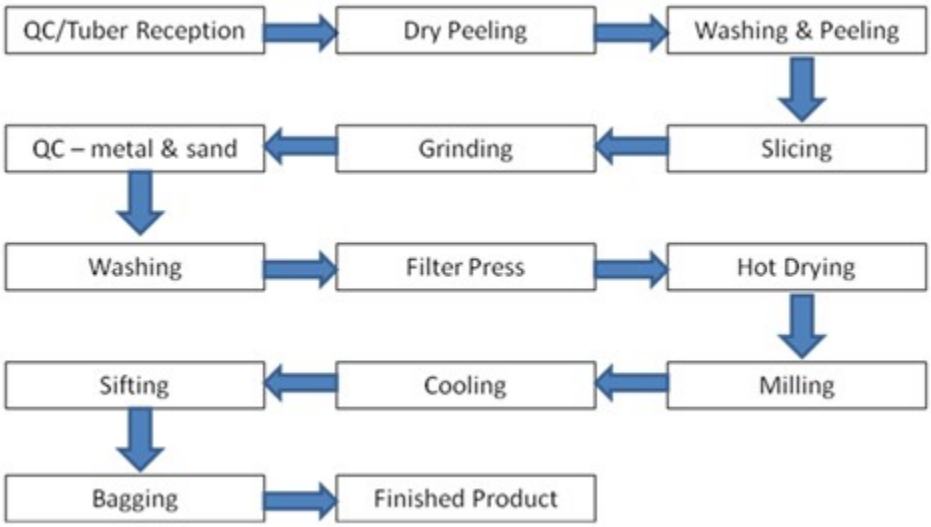

Figure 12: Series of value added to cassava roots before reaching finished product (HQCF). Source: Field survey, 2017.

The factory weighbridge

Trucks loaded with cassava roots

Loading into the factory hopper

Cassava roots in the factory engine

Bagging of HQCF

HQCF finished products

Plate5: Excerpts of Thai Farms International factory pictures
Source: Field survey, 2017.

Matna Foods factory building

Finished cassava starch

Plate 6: Matna Foods building and products

Source: Field survey, 2017.

Psaltry company factory building

Cassava starch end products

Plate7: Psaltry Company building and products
Source: Field survey, 2017.

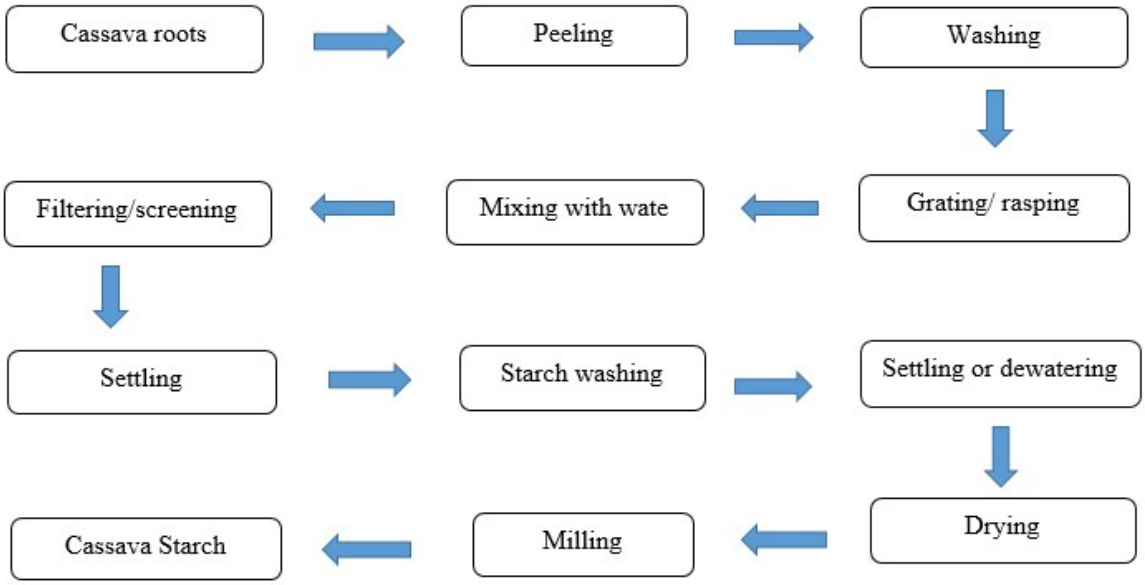

Figure 13: Value addition in cassava starch processing.
Source: Field survey, 2017.

Non-outgrowers sub-section

For the purpose of triangulation, non-outgrowers in the study area were likewise interviewed and table 27 shows their accessibility level to production services either from the public extension service or other non-governmental agencies. The idea is that for outgrowers, these services were expected to be provided in advance on the scheme's platform, however, for non-outgrowers who do not participate in outgrower scheme, are there platforms to access these services outside the scheme?

4.19 Accessibility level to services/operations in cassava farming enterprise

As indicated in table 26, accessibility to these production services was generally low with only access to extension services significantly high ($\overline{\chi} = 0.94$). This implies the public extension workers were frequently visiting non-outgrowers. Accessibility to other production services that were fairly high are provision of improved cassava cultivars ($\overline{\chi} = 0.56$), payment for ploughing operation in advance ($\overline{\chi} = 0.56$), connection to tractor hiring units ($\overline{\chi} = 0.54$) and connection to research institute ($\overline{\chi} = 0.51$). The agencies involved in the provision of these production inputs to non-outgrowers were the respective States ADPs, International Institute of Tropical Agriculture (IITA), the FADAMA project, the value chain development programme (VCDP/IFAD), the USAID, through MARKETS II project and some other NGOs.

Table 26: Accessibility level to services/operations in cassava farming enterprise n=71

S/N	Items	Always		Sometimes		Never		Mean	SD
		f	%	f	%	f	%		
1	Payment for land clearing in advance	9	12.7	13	18.3	49	69.0	0.44	0.71
2	Payment for stumping operation in advance	10	14.1	11	15.5	50	70.4	0.44	0.73
3	Payment for ploughing operation in advance	15	21.1	10	14.1	46	64.8	0.56	0.82
4	Payment for harrowing operation in advance	-	-	9	12.7	62	87.3	0.13	0.34
5	Payment for ridging operation in advance	-	-	11	15.5	60	84.5	0.15	0.36
6	Provision of improved cassava stem	9	12.7	22	31.0	40	56.3	0.56	0.71
7	Payment for planting operation in advance	6	8.5	7	9.9	58	81.7	0.27	0.61
8	Payment for agro-chemicals in advance	4	5.6	12	16.9	54	76.1	0.29	0.57
9	Provision of inorganic fertilizer in advance	2	2.8	10	14.1	59	83.1	0.20	0.43
10	Provision of organic fertilizer in advance	1	1.4	12	16.9	58	81.7	0.20	0.43
11	Payment for spraying operation in advance	4	5.6	7	9.9	60	84.5	0.21	0.53
12	Provision of irrigation facilities	-	-	1	1.4	70	98.6	0.01	0.12
13	Provision of cash in advance	-	-	11	15.5	60	84.5	0.15	0.36
14	Provision of loan through bank	1	1.4	14	19.7	56	78.9	0.23	0.45
15	Provision of extension services	27	38.0	12	16.9	31	43.7	0.94	0.92
16	Payment for harvesting operation in advance	4	5.6	9	12.7	58	81.7	0.24	0.55
17	Payment for transportation of produce to sale points in advance	13	18.3	4	5.6	54	76.1	0.42	0.79
18	Cassava off-take/sales	2	2.8	15	21.1	54	76.1	0.27	0.51
19	Connection to credit providers	-	-	15	21.1	56	78.9	0.21	0.41
20	Connection to agro-input dealers	11	15.5	9	12.7	51	71.8	0.44	0.75
21	Connection to tractor hiring units	10	14.1	18	25.4	43	60.6	0.54	0.73
22	Connection to research institutes	3	4.2	30	42.3	38	53.5	0.51	0.58

Source: Field survey, 2017.

4.19.1 Non-outgrowers' categorization by their accessibility level to production services

Table 27 presents the scores of non-outgrowers by their level of accessibility to production services in the study area. The minimum and maximum scores were 0.0 and 28.0 respectively, while the mean was 7.4±8.3. The result shows that more than half of the respondents (64.8%) had low level of access to production services in their cassava farming enterprise, while only 35.2% had high access. This is unlike the level of access to agri-support services enjoyed by outgrowers as earlier reported, where 54.3%, 61.6% and 58.5% respectively experienced high contribution of extension service, input providers and credit providers in their cassava farming enterprise. This implies cassava farmers who participated in outgrower scheme had better access to production services than their counterpart who did not participate.

Table 27: Categorization of non-outgrowers by their accessibility level to production services

Levels	Scores	Frequency	Percent	Mean	SD
Low	0.0 – 7.3	46	64.8	7.4	8.3
High	7.4 – 28.0	25	35.2		

Source: Field survey, 2017.

4.20 Access to production services between outgrowers and non-outgrowers

To provide a platform for comparison between outgrowers and non-outgrowers in the study area, Table 28 shows their level of access to array of production services. For outgrowers, these services are expected to be provided in advance under the scheme, but outside the scheme, non-outgrowers also can access these services through other platforms. As revealed in the table, outgrowers had higher access mean scores on production service items than their non-outgrowers counterpart showing that they fared better in access to production services.

Table 28: Access to services between outgrowers and non-outgrowers

		Items	Outgrowers n=164		Non-outgrowers n=71	
			Mean	SD	Mean	SD
1. Land preparation support 1.8±1.8; 1.2±2.1	i	Advance payment for land clearing	0.68	0.47	0.28	0.45
	ii	Advance payment for stumping	0.51	0.50	0.27	0.45
	iii	Advance payment for ploughing	0.12	0.33	0.33	0.47
	iv	Advance payment for harrowing	0.34	0.48	0.13	0.34
	v	Advance payment for ridging	0.62	0.49	0.18	0.39
2. Input provision support 0.4±0.5; 0.2±0.4	i	Provision of improved cassava stem	0.34	0.47	0.46	0.50
	ii	Advance payment for agro-chemicals	0.35	0.48	0.18	0.39
	iii	Provision of inorganic fertilizer in advance	0.57	0.50	0.14	0.35
	iv	Provision of organic fertilizer in advance	0.34	0.48	0.14	0.35
3. Production services support 0.2±0.3; 0.1±0.3	i	Advance payment for planting operation	0.33	0.47	0.14	0.35
	ii	Advance payment for spraying operation	0.30	0.17	0.11	0.32
	iii	Provision of irrigation facilities	0.05	0.22	0.01	0.12
4. Financial support 0.5±0.2; 0.1±0.4	i	Provision of cash in advance	0.04	0.19	0.15	0.36
	ii	Provision of loan through bank	0.97	0.17	0.13	0.34
5. Extension Support	i	Provision of extension services	0.69	0.46	0.58	0.50
6. Harvest & post-harvest support 0.7±0.9; 0.2±0.4	i	Payment for harvesting operation in advance	0.73	0.45	0.10	0.30
	ii	Payment for produce transport in advance	0.59	0.49	0.21	0.41
7. Mkt. Support	i	Cassava off-take/sales	0.76	0.43	0.49	0.50
8. Linkage support 0.73±0.4; 0.4±0.4	i	Connection to credit providers	0.37	0.48	0.11	0.32
	ii	Connection to agro-input dealers	0.80	0.40	0.51	0.50
	iii	Connection to tractor hiring units	0.96	0.19	0.48	0.50
	iv	Connection to research institutes	0.78	0.42	0.68	0.47

Source: Field survey, 2017.

4.21 Non-outgrowers' awareness of cassava outgrower scheme

Most (87.3%) of the non-outgrowers cassava farmers attested to their awareness of cassava outgrower schemes in the study area, while a few (12.7%) were not aware (Table 29). However, it is surprising that despite this awareness level, many of the farmers were yet to enroll in the scheme. When probed further, several reasons came to light as factors responsible for their non-participation in cassava outgrower scheme. Some of the reasons put forth in their sequence included: late payment, poor pricing, insincerity among private extension workers, insufficient information about the scheme, decision yet to be made, discouraging reports from participants, high cost of advanced transport service, lack of interest, unfriendliness of private extension workers to farmers, poor access to user-companies' extension workers, private extension workers' rough treatment to farmers, blockade from organised cassava middle men, participation is demanding as production quotas must be met, unsatisfactory style of payment, avoidance of exploitation, poor extension service provision and cassava variety demanded is scarce.

Table 29: Non-outgrowers' awareness about outgrower scheme inthe study area

S/N	Awareness status	f	%
1	Aware	62	87.3
2	Not aware	9	12.7

Source: Field survey, 2017.

4.22 Effectiveness of cassava outgrower scheme

Effectiveness of outgrower scheme is the dependent variable for this study and this was derived from the following indicators;

4.22.1 Guaranteed cassava market

Table 30shows data on guaranteed market as provided by cassava outgrowers in the study area. Respondents indicated as notable among the items measuring guaranteed market that chances of cassava off-take at the factory were very high ($\overline{\chi} = 1.90$) and all cassava roots supplied to factories were purchased without delay ($\overline{\chi} = 1.83$). This implies the probability of cassava roots rejection at user-companies' factories are very low, meaning that the market provided by user-companies for cassava farmers is quite stable.In the same vein, respondents remarked that their annual cassava sales increased since they joined the scheme ($\overline{\chi} = 1.70$). This suggests a boost to their cassava farming enterprise as a result of participation in the scheme. Respondents further attested to the transparency employed in the cassava starch content measurement at user-companies factories ($\overline{\chi} = 1.62$). They likewise noted the transportation of produce to the factory provided in advance for outgrowers($\overline{\chi} = 1.56$) and prompt payment ($\overline{\chi} = 1.43$) made within 48 hours after delivery of produce to user-companies.

However, respondents disagreed on the item that cassava price at the factory is higher than open market price as they scored it very low ($\overline{\chi} = 0.38$). Hence, it could be inferred that cassava market under the scheme is to a large extent guaranteed except that the price offered to outgrowers could be lower and does not at all times favourably compete with open market prices.

Table 30: Guaranteed cassava market

S/N	Items	Always		Sometimes		Never		Mean	SD
		f	%	f	%	f	%		
1	All cassava supplied is bought without delay	140	85.4	21	12.8	3	1.8	1.83	0.42
2	User-company arrange to transport cassava produce to the factory	109	66.5	38	23.2	17	10.4	1.56	0.68
3	Cassava price offered at factory is higher than open market price	6	3.7	50	30.5	108	65.9	0.38	0.56
4	Payment of cassava supplied is made latest 48 hours after delivery	85	51.8	64	39.0	15	9.1	1.43	0.66
5	Starch content measurement at the factory is transparent	111	67.7	44	26.8	9	5.5	1.62	0.59
6	The chances of off-take at the factory are very certain	150	91.5	13	7.9	1	0.6	1.90	0.31
7	The fear of cassava rejection at the factory constrains me from producing to optimal capacity	3	1.8	56	34.1	105	64.0	0.38	0.52
8	My annual cassava sales increased since I joined the scheme	133	81.1	12	7.3	19	11.6	1.70	0.67

Source: Field survey, 2017.

4.22.1.1 Respondents' categorization by their level of guaranteed cassava market

The scores of respondents based on how guaranteed was cassava market at user-companies' factories are shown on table 31. The minimum and maximum scores were 5.0 and 15.0 respectively, while the mean score was 10.8±2.0. The result reveals that more than half (59.1%) of respondents considered cassava market under the scheme as highly guaranteed. This means the scheme has substantively addressed the lingering market problem associated with cassava enterprise in the study area. If cassava outgrower scheme is sustained and also improved upon by attending to some identified weaknesses, it should be able to offer a permanent solution to cassava market problems in the study area. This assertion confirms the submission of discussants under one of the FGD sessions that:

"With this current development in cassava market as influenced by off-take from user-companies, it is highly doubtful that cassava market can ever experience the likes of glut it experienced in years past. For example, a congo of gari currently sells for ₦400, local buyers of cassava are finding it tough to get cassava roots to buy, and user-companies' demand is yet to be met, as it keeps increasing by the day. The kind of glut that made farmers abandon their cassava roots to the field is no more likely to occur".

Plates 8a-f show some focused group discussions and interview conducted in Ogun and Oyo states of Nigeria.

Table 31: Categorization of respondents by their level of guaranteed market

Levels	Scores	Frequency	Percent	Mean	SD
weakly guaranteed	5.0 – 10.7	67	40.9	10.8	2.0
Highly guaranteed	10.8 – 15.0	97	59.1		

Source: Field survey, 2017.

Plate 8a: FGD conducted with outgrowers at Thai Farms International factory, Ogun state, Nigeria.

Source: Field survey, 2017.

Plate 8b: FGD conducted with outgrowers in Ososa town, Odogbolu LGA, Ogun state, Nigeria.Source: Field survey, 2017.

Plate 8c: Interview with a cassava non-outgrower in Lanlate, Ibarapa-East LGA, Oyo state, Nigeria.
Source: Field survey, 2017.

Plate 8d: Interview with a cassava outgrower in Eruwa, Ibarapa-East LGA, Oyo state, Nigeria.Source: Field survey, 2017.

Plate 8e: FGD conducted with outgrowers in Igbo-ora town, Ibarapa-Central LGA, Oyo state, Nigeria.Source: Field survey, 2017.

Plate 8f:Interview with a cassava outgrower in Ayepe, Odogbolu LGA, Ogun state, Nigeria.Source: Field survey, 2017.

4.23 Outgrowers' access to farm inputs

The result on access to farm inputs as experienced by outgrowers under cassava outgrower scheme was summarised in table 32. As indicated by respondents, of the highest effect were the promises of user-companies to provide pesticides which were hardly fulfilled ($\overline{\chi} = 1.34$), this consequently implied that outgrowers most times had to source for herbicides ($\overline{\chi} = 1.25$) with no exception to other agro-chemicals on their own. Few instances of herbicide provision recorded under the scheme were scored low ($\overline{\chi} = 0.92$) by respondents, implying that it occurred occasionally.

Furthermore, data on the table revealed some farm inputs that were as well occasionally provided under the scheme, these include: mechanical implements for land preparation ($\overline{\chi} = 0.95$) and inorganic fertilizer ($\overline{\chi} = 0.92$), while inputs that were rarely provided are cassava planters ($\overline{\chi} = 0.74$), sprayers ($\overline{\chi} = 0.66$) and organic fertilizer ($\overline{\chi} = 0.51$). The result implies that some farm inputs were provided under cassava outgrower scheme in the study area but at a sub-optimal level except for improved cassava cultivars which were better provided ($\overline{\chi} = 1.19$).This result denotes that user-companies in the study area were making some efforts towards farm input provision for outgrowers, yet there remains a long way to go to sufficiently meet outgrowers expectations in this regard.

Table 32: Access to farm inputs by outgrowers

S/N	Items	Always		Sometimes		Never		Mean	SD
		f	%	f	%	f	%		
1	User-companies provide mechanical implements for land preparation	54	32.9	47	28.7	63	38.4	0.95	0.85
2	User-companies timely provide improved cassava cultivars	86	52.4	23	14.0	55	33.5	1.19	0.91
3	User-companies timely provide organic fertilizer	29	17.7	26	15.9	109	66.5	0.51	0.78
4	User-companies make cassava planters available	44	26.8	34	20.7	86	52.4	0.74	0.86
5	User-companies timely provide herbicides	51	31.1	49	29.9	64	39.0	0.92	0.84
6	Outgrowers source for herbicides on their own	87	53.0	31	18.9	46	28.0	1.25	0.87
7	Promises to provide pesticides are hardly fulfilled	84	51.2	51	31.1	29	17.7	1.34	0.76
8	User-companies timely provide sprayers	50	30.5	8	4.9	106	64.6	0.66	0.92
9	User-companies timely provide inorganic fertilizer	56	34.1	39	23.8	69	42.1	0.92	0.87

Source: Field survey, 2017.

4.23.1 Respondents' categorization by their access to farm input

As shown in table 33, the minimum and maximum scores of respondents based on their access to farm input under cassava outgrower scheme were 2.0 and 16.0 respectively, while the mean score was 10.8±2.0. More than half of the respondents (59.1%) rated access to farm input under the scheme as high, while 40.9% rated it as low. It is worth nothing that outgrowers' rating was based on a relative ground and essentially in comparison with non-outgrowers who had little or no access at all to farm inputs. While user-companies under the scheme cannot be described as providing no input at all, they as well cannot be scored as providing farm inputs sufficiently to outgrowers.

Table 33: Categorization of respondents by their access to farm input

Levels	Scores	Frequency	Percent	Mean	SD
Low	2.0 – 10.7	67	40.9	10.8	2.0
High	10.8 – 16.0	97	59.1		

Source: Field survey, 2017.

4.24 Outgrowers' perceived change in cassava productivity

As indicated on table 34, productivity of outgrowers changed positively owing to various production practices adhered to while participating in cassava outgrower scheme. Most (78.7%) of the respondents agreed to the fact that correct usage of production resources as taught by private extension workers under the scheme increased their cassava yield per hectare, while 78.0% of them agreed to attribute their increase in yield per hectare to reduction in planting spacing to make for optimum plant population. In like manner, 77.4 % of the respondents agreed that timeliness of farm operations brought increase to the cassava yield obtained per hectare, while 72.6% agreed that exposure to best agronomic practices led to increase in productivity. The mean cassava yield recorded among outgrowers was 19.9tonnes/ha which was higher than the national average of 12.3tonnes/ha as reported by Rahman and Awerije (2016).

Similarly, 64.0% of the respondents disagreed that productivity remained constant despite participation in cassava outgrower scheme. This result shows that outgrower scheme significantly contributed to capacity building in cassava farming enterprise which consequently resulted in increased productivity. This result corroborates the proposition of the Flow Theory of production adapted for this study which posited that increased demand in a commodity will serve as an impetus to produce more. Hence, the reason why outgrowers' productivity and by extension their production kept increasing with no fear of the market; because off-take at user-companies' factories was usually guaranteed.

Table 34:Perceived change in cassava productivity

S/N	Perceptional statements	SA		A		U		D		SD		*Mean*	SD
		f	%	f	%	f	%	f	%	f	%		
1	participation in outgrower scheme has helped to increase cassava yield per unit land area	61	37.2	76	46.3	-	-	27	16.5	-	-	4.04	1.02
2	Productivity appears the same despite participation in the scheme	4	2.4	32	19.5	4	2.4	105	64.0	19	11.6	3.6	1.00
3	Use of fertilizer (inorganic/organic) has raised outgrowers' productivity	35	21.3	81	49.4	-	-	44	26.8	4	2.4	3.60	1.17
4	Untimely supply of inputs has rather worsen outgrowers' yield/ha	4	2.4	67	40.9	16	9.8	52	31.7	25	15.2	3.16	1.19
5	Correct usage of production resources under the scheme has raised outgrowers' yield/ha	24	14.6	129	78.7	7	4.3	4	2.4	-	-	4.05	0.53
6	Timeliness of farm operations under the scheme has increased outgrowers' yield/ha	25	15.2	127	77.4	7	4.3	3	1.8	2	1.2	4.04	0.62
7	Constraints encountered under the scheme have rendered outgrowers' productivity unstable	5	3.0	66	40.2	7	4.3	75	45.7	11	6.7	3.13	1.11
8	Reduction in planting spacing as learnt under the scheme has raised outgrowers' yield/ha	17	10.4	128	78.0	15	9.1	3	1.8	1	0.6	4.00	0.57
9	Outgrowers now adhere to best agronomic practices which led to increase in yield/ha	34	20.7	119	72.6	7	4.3	3	1.8	1	0.6	4.11	0.61
10	Outgrowers needed to increase their cassava production to meet the demand of user-companies	51	31.1	102	62.2	-	-	10	6.1	1	0.6	4.20	0.76

Source: Field survey, 2017.

4.24.1 Respondents' categorization by their perceived change in productivity

Table 35 presents the scores of respondents based on their perceived change in productivity as outgrowers under cassava outgrower scheme. The minimum and maximum scores of respondents were 24.0 and 47.0 respectively, while the mean score was 37.8±4.6. In consonance with a priori expectation, more than half of the respondents (53.0%) attested to a positive change (increase) in their cassava productivity as a result of participation in the scheme. This result revealed that cassava outgrowers under the scheme had access to improved cassava technologies which consequently gave rise to improved capacity in their cassava farming enterprise.

Table 35: Categorization of respondents by their perceived change in productivity

Levels	Scores	Frequency	Percent	Mean	SD
Low	24 – 37.7	77	47.0	37.8	4.6
High	37.8 – 47.0	87	53.0		

Source: Field survey, 2017.

4.25 User-companies' compliance with cassava outgrower scheme agreements

The result on user-companies' compliance with outgrower scheme agreements (table 36) shows that the item of compliance mostly adhered to by user-companies under cassava outgrower scheme in the study area was agreement on cassava off-take (98.2%). This is in no way against a priori expectation as this item stands as the ultimate goal for the contract arrangements. User-companies look forward to timely and quality produce delivery, while outgrowers do same towards a successful buy-back. User-companies in the study area therefore could be commended for giving priority to off-taking outgrowers' produce. The next item in user-companies' order of compliance was the agreement on better price for cassava roots (84.1%), which was also closely followed by agreement on prompt payment after cassava roots delivery (79.3%). User-companies needed to manage the issue of pricing and payment of cassava carefully as this goes a long way to keep outgrowers in contract with them. Even though as reported earlier, off-take price were a times lesser than open market price, yet user-companies ensured the margin was not too wide so as not to discourage outgrowers.

Also, of attention for compliance by user-companies was the provision of extension services (75.6%). This proved important so as to follow-up on outgrowers about how best they were using recommended practices and to forestall cases of input diversion where farm inputs were provided in advance. Provision of extension services to crop farmers has been found to significantly raise farming households' crop productivity and impact positively on their gross farm revenue and profit (Yeyoung, Donghwan and Taeyoon, 2017, Hasan, Imai and Sato, 2013). Next to provision of extension services in the order of user-companies' compliance was transportation service in advance (70.1%), while transportation service was followed by provision of improved cassava cultivars (66.5%). On the contrary, there were some items of agreement that user-companies poorly complied with. The least complied item was provision of irrigation facilities (5.5%). This was so because cassava as a crop is strong at drought resistance. What user-companies do is to advise their outgrowers to plant before the dry season sets in. Next on the item of agreement poorly complied with was provision of cash advance (6.7%). Most of the user-companies opt for assistance in kind rather than in cash that diversion of cash might be

forestalled. Eaton & Shepherd (2001) posited that input diversion either in kind or cash is a frequent problem that farmers are tempted to indulge in but improved monitoring, training and issuance of commensurate quantities of inputs can serve as measures to overcome this.

Table 36:User-companies' compliance withoutgrower scheme agreements

S/N	Items	Yes %	No %
1	Provision of improved cassava stem	66.5	33.5
2	Provision of inorganic fertilizer	51.2	48.8
3	Provision of organic fertilizer	28.7	71.3
4	Payment for land clearing in advance	73.8	26.2
5	Payment for stumping operation in advance	29.3	70.7
6	Payment for ploughing operation in advance	59.8	40.2
7	Payment for harrowing operation in advance	38.4	61.6
8	Payment for ridging operation in advance	29.3	70.7
9	Payment for planting operation in advance	51.2	48.8
10	Payment for agro-chemicals in advance	41.5	58.5
11	Payment for spraying operation in advance	32.3	67.7
12	Provision of irrigation facilities	5.5	94.5
13	Provision of cash in advance	6.7	93.3
14	Provision of loan through bank	51.8	48.2
15	Provision of extension services	75.6	24.4
16	Payment for harvesting operation in advance	34.8	65.2
17	Payment for transport of produce to factory in advance	70.1	29.9
18	Agreement on cassava off-take	98.2	1.8
19	Agreement on better price for cassava produce	84.1	15.9
20	Agreement to link outgrowers to credit providers	35.4	64.6
21	Agreement to link outgrowers to agro-dealers	34.8	65.2
22	Agreement to link outgrowers to tractor hiring units	34.1	65.9
23	Agreement to link outgrowers to research institutes	43.3	56.7
24	Prompt payment after cassava delivery	79.3	20.7

Source: Field survey, 2017.

4.25.1 User-companies' categorisation by their level of compliance with cassava outgrower scheme's agreement

Respondents'categorisation scores based on user-companies' level of compliance with cassava outgrower scheme in the study area was presented in table 37. The minimum and maximum scores of respondents were 2.0 and 22.0 respectively, while the mean score was 11.0±5.6. As shown on the table, more than half of the respondents (60.4%) remarked that user-companies demonstrated high level of compliance with COS agreements, while 39.6% of them posited that user-companies' compliance was low. This implies that user-companies are not doing too badly as far as compliance with COS agreements is concern, but as earlier noted on table 5 and 35, they need to do better, especially on items of agreement that hinge on outgrowers' profitability and well-being.

Table 37: Categorization of user-companies by their level of compliance with cassava outgrowerscheme's agreement

Levels	Scores	Frequency	Percent	Mean	SD
Low	2.0 – 10.9	65	39.6	11.0	5.6
High	11.0 – 22.0	99	60.4		

Source: Field survey, 2017.

4.26 Supply flow of cassava from outgrowers to user-companies' factory

The most important rationale behind user-companies' involvement in COS is a regular and sufficient supply of cassava roots. As a result, user-companies' judgement about effectiveness of COS will be based on the supply flow of cassava roots to feed their factories' need. Respondents from user-companies (private extension supervisors, raw material managers and private extension workers) were such that had a working knowledge of how well outgrowers were performing in terms of cassava roots supply to their various factories. 88.9% of these respondents rated the supply of cassava roots from outgrowers as high, 11.1% of them rated it as moderate, while none considered it to be low. This implies that the supply flow of cassava from outgrowers to user-companies' factories was above average and commendable.

This is mostly the reason why user-companies already in the scheme are glued to it and up-coming ones are likewise showing interest to undertake COS. Field realities have shown that cassava based user-companies with no outgrower scheme back-up could be put off-balance at any time as regard cassava root supply because the guarantee of consistent outsourcing from the open market is not certain. Just like the transaction cost theory adopted for this study propounded; firms will usually weigh the transaction cost between in-sourcing (e.g. off-taking from their outgrowers) and outsourcing (e.g. buying from the open market) and stick to the option that is cost-effective. The outplay of user-companies' disposition to COS in the study area has clearly shown its cost-effectiveness.

4.27 Cassava price stability through outgrower scheme arrangements

The common cyclic trend in cassava glut and scarcity recurring within intervals of three years in the study area was a menace that strongly impacted on cassava market price stability. The emergence of COS in the study area came as a development much expected to stem this tide, hence, cassava price stability stands as a key variable to determine its effectiveness. From the analysis of data collected, 66.7% of respondents posited that COS has brought high stability to cassava price, while 33.4% maintained that cassava price stability was still low. The fact remains that instability sets in at periods when the open market price for cassava begins to appreciate and user-companies that are fond of offering

unattractive price stand the risk of losing outgrowers/farmers' patronage. As a result, they are forced to be adjusting their off-take price along changes in the open market price to get supply of cassava roots.

On the other hand, the ideal is for user-companies to consistently offer remunerative price for cassava roots, that outgrowers/farmers might find them as a place for solace even when prices are poor in the open market. These outgrowers/farmers will in turn be loyal to such user-companies, such that when cassava price is appreciating in the open market, a few of them will default from supplying cassava roots. Consequently, the pressure to be adjusting factory off-take price along changes in cassava open market price will be minimal.

4.28 Cassava outgrowers' capacity to keep to agreement terms

A well designed and managed outgower scheme supposed to be a symbiotic relationship that leads to a win-win situation between user-companies and outgrowers even though this goal most times is not fully realized. However, more often than not, the picture portrayed about outgrower scheme is that of two unequal partners which tend to indict farmers/outgrowers as being weak and lacking the sufficient capacity to keep to the rules of the game. Notwithstanding, the analysis of user-companies' respondents in the study area showed that most (66.7%) of them scored cassava outgrowers high in their capacity to keep scheme agreements, 22.2% rated them as having a moderate capacity, while 11.1% rated them to have low capacity. This implies cassava outgrowers in the study area were not weak, and therefore with more favourable treatment, they can significantly improve in performance.

4.29 Logistics challenges associated with COS arrangements

Under a typical outgrower scheme arrangement, farmers/outgrowers are saddled with the responsibility of crop cultivation, while user-companies/off-takers provide the necessary support to facilitate farmers' operations on the field. Outgrower scheme in particular is different from other modes of contract farming arrangements in that it usually deals with a large number of growers (farmers). This structure is usually laden with logistic responsibilities because outgrowers often spread across a large area of coverage must be

timely reached with needed inputs, implements and information. This undoubtedly can constitute a challenge. Respondents however differed in their views about COS logistic challenge in the study area as most of them (55.6%) posited that it was low, 33.3% claimed that it was moderate, while 11.1% opined it was high. In all, it could be inferred that user-companies have developed strategies to handle the logistics involved or they engaged less in it, in such a way that it was not proving burdensome to them in the long run.

4.30 Outgrowers' compliance with cassava outgrower scheme agreements

Compliance to scheme agreements either by user-companies or outgrowers is an important determinant to its success, as such, user-companies respondents were asked to rate outgrowers' level of compliance in the scheme. Most (77.8%) rated outgrowers high in their level of compliance on items such as timely delivery of cassava roots, abstinence from extra-contractual sales and delivery, adherence to agronomic practices and attendance at farmer-management meetings called. This shows that outgrowers were getting along well in the scheme. This is not against a priori expectations as outgrowers know quite well that the better the scheme, the higher their income will be and consequently the better their well-being will become.

4.31 Suitability of cassava outgrower scheme

The ultimate aim of organizing COS is to attain a level where there will be a regular supply of cassava roots that will feed user-companies' factories. So long as there are other cassava roots outsourcing options that user-companies can easily exploit, it is apt to inquire from user-companies' respondents if insourcing through COS appear suitable or otherwise. In response to this, most (88.9%) of the respondents opined that COS was highly suitable for the purpose it was arranged, while 11.1% rated its suitability as low. This implies the scheme is quite appropriate and whatever weakness observed for the moment needs to be better managed and improved upon. This further underscore the need for instituting an organ that can oversee existing and up-coming schemes arrangements in the bid to minimise its shortcomings and improve on its strength.

4.32 Categorisation of cassava outgrower scheme arrangements by their levels of effectiveness

Table 38 on the categorisation respondents by levels of COS effectiveness in the study area shows that respondents' minimum and maximum scores were 1.00 and 2.00 respectively, while the mean score was 1.6±0.5. As revealed on the table, more than half of the respondents (54.9%) adjudged the effectiveness of COS arrangements to be high, while 45.1% considered the effectiveness of these arrangements to be low. This implies COS arrangements in the study area to a large extent were achieving their objectives. This does not in any way mean areas of necessary improvements do not exist, but it does show that COS is a highly prospective model that has the potential to serve as a springboard for development in the Nigerian cassava sub-sector.

Table 38: Categorisation of cassava outgrower scheme arrangements by their levels of effectiveness

Levels	Scores	Frequency	Percent	Mean	SD
Low	1.00 – 1.54	74	45.1	1.55	0.50
High	1.55 – 2.00	90	54.9		

Source: Field survey, 2017.

4.33 Test of Hypotheses

4.33.1 Hypothesis 1

$H_0$1: There is no significant relationship between the level of conformity to cassava contractual agreements by user-companies and the effectiveness of cassava outgrower scheme in the study area.

Results of Pearson correlation in table 39 shows that a significant and positive correlation exists between conformity to contractual agreements by user-companies and the effectiveness of cassava outgrower scheme($r=0.649$, $\rho<0.05$).This implies the more user-companies conformed to contractual agreements with outgrowers under cassava outgrower scheme, the more effective the scheme became, meaning that outgowers were encouraged and therefore put in their best which translated to higher effectiveness for the scheme. Conformity is expected to bemaintained towards agreement elements such as off-take of cassava roots, advance provision of farm inputs and production services to farmers, advance payment for transportation of cassava roots to factory etc. Renege on contractual agreements has always been counter-productive, this was observed by Fadairo&Alarape (2019). An outgrower scheme arrangement that will operate successfully must place premium on conformity to agreed elements. This aligns with the submission World Bank (2003) that for contract farming arrangement to be successful, the aspect of effective contract elements enforcement and conflict resolution system must be taken seriously.

Table 39: Pearson correlation between conformity to contractual agreements and effectiveness ofcassavaoutgrower scheme

Variables	r-value	ρ-value	Remark
Conformity to contractual agreements	0.649	0.000**	Significant

Source: Field survey, 2017.

4.33.2 Hypothesis 2

$H_0$2: There is no significant relationship between the perception of cassava outgrowers to the scheme and its effectiveness

Table 40 reveals a significant and positive correlation between perception of outgrowers and effectiveness of cassava outgrower scheme ($r=0.674$, $\rho<0.05$). This implies the more favourable the perception of outgrowers to cassava outgrower scheme, the more effective the scheme became. The perception developed by outgrowers about the scheme is often a cumulative opinion crafted in their mindset based on various experiences encountered in the course of participating in the scheme. When user-companies treat outgrowers well, the resultant effect is usually a favourable perception which consequently elicit outgrowers' loyalty and commitment and this enhances the effectiveness of the scheme as a whole. This means user-companies must commit deliberate efforts to develop a favourable perception about the scheme in the minds of outgrowers as this will improve on the effectiveness of the scheme. Even though outgrowers' perception about the scheme is a cumulative outcome of various experiences they encountered, yet it does mean that when their expectations are largely and frequently met, it will go a long way to boost their perception favourably about the scheme which invariably will lead to higher effectiveness.

Table 40: Pearson correlation between perception of outgrowers and effectiveness of cassava outgrower scheme

Variables	r-value	ρ-value	Remark
Perception of cassava outgrowers	0.674	0.000**	Significant

Source: Field survey, 2017.

4.33.3 Hypothesis 3

$H_0$3: There is no significant contribution of key factors determining participation of outgrowers in cassava outgrower scheme in the study area.

The result of the logit model (tables 41a&b) shows that farmers' personal characteristics such as sex, farming characteristics (farming experience, total farm size, cassava farm size) and outgrower scheme related factors such as financial factors (provision of cash advance, bank guaranteeing, increased income, payment for harvest, payment for transport) and market factors (access to ready market, access to prompt payment) influenced farmers' decision to participate in cassava outgrower scheme.

Influence of farmers' personal characteristics

Table 41a presents the parameter estimates, standard error and the z-ratios from the logit model as it shows that being male increases the log likelihood of participation in outgrower scheme at 5% level of significance. This implies the higher the number of male farmers in the study area the more the log likelihood of participation in cassava outgrower scheme as male farmers seem to be more available and energetic to meet the demands of the scheme. In addition, men mostly serve as bread winners of their various households, hence the more reason why they will participate in cassava outgrower scheme. This is in consonance with the finding of Ragasa, Lambrecht and Kufoalor (2017) in Upper West Ghana who reported that maize scheme farmer households were better off in some indicators of wealth than their non-scheme households' counterpart.

Influence of farmers' farming characteristics

Under the farmers' farming characteristics, farming experience and total farm size decrease the log likelihood of participation in cassava outgrower scheme, while cassava farm size increases it, all at 5% level of significance. This implies the more the farmers' experience in farming, the less they are likely to participate in cassava outgrower scheme. This is not unexpected as most of the highly experienced farmers have graduated into medium orlargescale farmers who have been able to locate cassava market outside the scheme. In addition, increase in farming experience is also tantamount to increase in age.

As aging conditions set in some farmers try to cut down more strenuous activities among which engagement in outgrower scheme could be one.

Similarly, the larger the total farm sizes of farmers become the more is their log likelihood to disengage from cassava outgrower scheme. This in particular relates to increase in farm size with regards to diversification into other crops as the model predicted a positive relationship for the next variable which was specifically on cassava farm size. Hence, diversification into other crop can divert farmers' attention from the scheme. However, as farmers increase in the sizes of cassava farms the more is their log likelihood to be involved in cassava outgrower scheme because the scheme provides a better market outlet unto them where they can sell cassava produce in large volume.

Influence of outgrowerscheme related factors

Furthermore, provision of cash advance and extension services decreased the log likelihood of participation in the scheme at 1% and 5% levels of significance respectively. This implies the more cash advance and extension support made available to farmers the lesser was their log likelihood of participation in the scheme. This occurs when farmers perceive the attractive offers of user-companies as a bait to weaken their bargaining power at the point of sale. Farmers' submissions during FGD sessions revealed "*that there were user-companies who capitalized on advances to enforce low cassava prices on them*."

This corroborates the report of Eaton & Shepherd (2001) that farmers who place too much of reliance on user-companies for favours and assistance may have their bargaining power unconsciously weakened. However, availability of ready market, bank guaranteeing, increase in income and payment for transportation all increased the log likelihood of participation in cassava outgrower scheme at 1% levels of significance, while payment for harvesting operation was similarly significant at 5% level of significance. In agreement with a priori expectations, it implies as these factors (availability of ready market, bank guaranteeing, increase in income, payment for transportation and payment for harvesting operations) increase and are more accessible to farmers in the scheme, the more is the log likelihood of participation in the scheme.

Marginal effects of some significant variables

Table 41b further shows the marginal effects of some of the significant variables as predicted by the logit model. Cash advance decreases the log likelihood of participation in cassava outgrower scheme at 1% level of significance which implies a unit increase in cash (₦) offered under the scheme will decrease the probability of farmers' participation in the scheme by 93%. On the contrary, access to ready market and payment for transport increase the log likelihood of participation in cassava outgrower scheme at 5% and 1% levels of significance respectively. This implies a unit increase in ready market access will lead to 58% increase in farmers' enrolment in the scheme, while a unit increase in payment for transport will lead to 81% increase in farmers' enrolment in the scheme.

Table 41a: Factors determining farmers' participation in cassava outgrower scheme

S/N	Items	Coefficient	Std. Error	z	P>|z|
1	Age	.1476754	.0825486**	1.79	0.074
2	Sex	4.094152	1.79301**	2.28	0.022
3	Household size	.3139048	.17803*	1.76	0.078
4	Farm experience	-.1762193	.069131**	-2.55	0.011
5	Total farmsize	-.1798134	.080061**	-2.25	0.025
6	Cassava farm size	.243161	.118212**	2.06	0.040
7	Provision of organic fert. in advance	-.9348941	1.298288	-0.72	0.471
8	Payment for stumping in advance	-3.52474	2.631192	-1.34	0.180
9	Payment forploughing in advance	1.027434	2.014461	0.51	0.610
10	Payment for harrowing in advance	-12.85716	2903.996	-0.00	0.996
11	Payment for ridging in advance	.6576968	2.147278	0.31	0.759
12	Payment forplanting in advance	-7.851515	36.15029	-0.22	0.828
13	Provision of agro-chemical in advance	1.985591	2.252159	0.88	0.378
14	Provision ofspraying implements in advance	8.099623	2904.223	0.00	0.998
15	Provision ofirrigation facilities in advance	-1.294006	2.141167	-0.60	0.546
16	Provision ofcash advance	-7.086762	2.5783***	-2.75	0.006
17	Availability of ready cassava market	4.822885	1.389***	3.47	0.001
18	Provision ofextension services	-2.685474	1.23969**	-2.17	0.030
19	Provision ofguarantor opportunities in bank	5.629082	1.7039***	3.30	0.001
20	Increased income from transactions in scheme	3.644528	1.3744***	2.65	0.008
21	Payment forharvesting of cassava in advance	5.874876	2.5467**	2.31	0.021
22	Payment fortransportation of produce in adv.	8.156481	2.447***	3.33	0.001
23	Accesstopromptpayment	-1.049791	1.039519	-1.01	0.313
24	_cons	-12.62845	4.31718	-2.93	0.003

*** Significant at 1%; ** Significant at 5%; * Significant at 10%.

Table 41b: Factors determining farmers' participation in cassava outgrower: Marginal Effects

S/N	Items	dy/dx	Std. Error	z	P>|z|
1	Age	.0037962	.00338	1.12	0.261
2	Sex	.3818661	.26126	1.46	0.144
3	Household size	.0080693	.0083	0.97	0.331
4	Farm experience	-.0045299	.00374	-1.21	0.225
5	Total farmsize	-.0046223	.0037	-1.25	0.212
6	Cassava farm size	.0062507	.00505	1.24	0.216
7	Provision of organic fert. in advance	-.0342573	.07482	-0.46	0.647
8	Payment for stumping in advance	-.2213821	.32425	-0.68	0.495
9	Payment forploughing in advance	.0281401	.06481	0.43	0.664
10	Payment for harrowing in advance	-.9960044	7.34117	-0.14	0.892
11	Payment for ridging in advance	.0150122	.04438	0.34	0.735
12	Payment forplanting in advance	-.8784889	2.77559	-0.32	0.752
13	Provision of agro-chemical in advance	.0532399	.08286	0.64	0.521
14	Provision ofspraying implements in advance	.1974786	125.54	0.00	0.999
15	Provision ofirrigation facilities in advance	-.0617738	.16051	-0.38	0.700
16	Provision ofcash advance	-.9330951	.1003***	-9.30	0.000
17	Availability of ready cassava market	.5808536	.26021**	2.23	0.026
18	Provision ofextension services	-.0557232	.05056	-1.10	0.270
19	Provision ofguarantor opportunities in bank	.2499653	.16809	1.49	0.137
20	Increased income from transactions in scheme	.1977709	.13779	1.44	0.151
21	Payment forharvesting of cassava in advance	.1260624	.11808	1.07	0.286
22	Payment fortransportation of produce in adv.	.8102867	14816***	5.47	0.000
23	Accesstopromptpayment	-.0217045	.02516	-0.86	0.388

*** Significant at 1%; ** Significant at 5%; * Significant at 10%.

4.33.4 Hypothesis 4

$H_0$4: There is no significant relationship between the contribution of agri-support service providers to cassava outgrower scheme and the effectiveness of the scheme in the study area.

Table 42 indicates a significant and positive relationship between the contributions of agri-support service providers; extension workers ($r=0.698$, $\rho<0.05$), farm input suppliers ($r=0.829$, $\rho<0.05$), credit providers ($r=0.786$, $\rho<0.05$) and effectiveness of cassava outgrower scheme. Agri-support service providers play crucial roles in farmers' cassava farming enterprises, hence the more available and accessible their services are made, the more effective the scheme would be.This result is further corroborated by the finding of Ruml, Rasaga and Qaim (2020) in their study which compared simple marketing and resource-providing contracts in the Ghanaian oil palm sector. It observed that farmers under the resource-providing contract had higher productivity and profit than their simple marketing contract counterparts. This implies agri-support service provision in an outgrower scheme arrangement should not be under-estimated. It stands as a crux in the effective implementation of an outgrower scheme because many other expected outcomes such as productivity, quality standard, pest and disease control, farm operations financing etc. all depend on it. Failure in the aspect of agri-support service provision can mean a total failure of the scheme. Hence, the strong correlation between it and effectiveness of cassava outgrower scheme implementation.

Table 42: Pearson correlation between contributions of agri-support service providers and effectiveness ofcassavaoutgrower scheme

Variables	r-value	ρ-value	Remark
Contributions of private extension workers	0.698	000**	Significant
Contributions farm input suppliers	0.829	000**	Significant
Contributions credit providers	0.786	000**	Significant

Source: Field survey, 2017.

4.33.5 Hypothesis 5

$H_0$5: There is no significant contribution of factors determining outgrowers' effectiveness rating of cassava outgrower scheme in the study area.

The regression analysis on table 43 shows the determinants of COS effectiveness rating by respondents in the study area. It could be concluded that the determinant variables have strong predictive powers as they account for 99.4% (R-square=0.994) of the variation in effectiveness rating of cassava outgrowers under the scheme. The regression result reveals that participation of outgrowers in fixing cassava off-take price (ϐ = -0.101; ρ < 0.05), provision of inorganic fertilizer in advance (ϐ = 0.104; ρ < 0.05), provision of extension services (ϐ = 0.098; ρ < 0.05), guaranteed cassava market (ϐ = 0.251; ρ < 0.05), access to input (ϐ = 0.308; ρ < 0.05), perceived change in cassava productivity (ϐ = 0.249; ρ < 0.05) and user-companies' conformity to agreements (ϐ = 0.107; ρ < 0.05) all contributed significantly to outgrowers' rating of various COSs they participated in. A closer look at these determinants however, in consonance with earlier submissions revealed that the most prominent predictors of outgrowers' rating following their respective beta values were access to inputs (ϐ = 0.308), guaranteed cassava market (ϐ = 0.251) and increase in cassava productivity (ϐ = 0.249).

This further corroborates that fact that the average cassava farmer in the study area lack satisfactory access to production input, much value is therefore attached to timely access to production inputs because the output from all other efforts of the cassava largely rests on timely application of production inputs. This underscores the reason why it came as the strongest rating factor for COS effectiveness. Guaranteed market is likewise key as it determines the income farmers make from their cassava enterprise at the end of the day, while increase productivity determines more of the profit cassava farmers will make.

Table 43: Determinants of COS effectiveness rating

Variables	β	t-ratio	ρ-value
farmers take part in fixing cassava price	-.101	-3.037	.003**
Organic fertilizer in advance	-.011	-.524	.601
payment for planting in advance	.058	.931	.354
Inorganic fertilizer in advance	.104	3.411	.001**
provision of extension services	.098	4.321	.000**
payment for ploughing in advance	.064	1.012	.314
payment for harrowing in advance	.006	.117	.907
Guaranteed cassava market	.251	16.595	.000**
Inputs access	.308	12.525	.000**
Perceived change in productivity	.249	13.348	.000**
Irrigation facilities in advance	-.006	-.621	.536
provision of cash in advance	-.018	-.942	.348
User-companies' conformity	.107	2.936	.004**

R=0.997, R-square=0.994, Adjusted R-square=0.991, df=51, F=370.918, **Significant at 5%

4.33.6 Hypothesis 6

$H_0$6: There is no significant difference in the effectiveness of outgrower scheme across user-companies in the study area.

The result on table 44 shows that a significant difference ($F=77.394$, $\rho<0.05$) exists in the effectiveness of cassava outgrower scheme across the sampled user-companies in the study area. This implies that outgrower scheme management under some user-companies was more effective than others. This was so because user-companies in the study area differed in policies guiding outgrower scheme and their commitments to its workability. This reality corroborates the need to develop a framework for overseeing the activities of cassava outgrower scheme actors. If differences in performances and by implication effectiveness will exist, it should be monitored not to be too wide from one another all in the bid to protect farmers who are weaker in the partnership.

Table 44: ANOVA of cassava outgrower scheme's effectiveness across sampled user-companies in the study area

	Sum of Squares	Df	Mean Square	F	ρ-value	Remark
Between Groups	1691.114	6	281.852	77.394	.000	Significant
Within Groups	571.757	157	3.642			
Total	2262.870	163				

Source: Field survey, 2017.

Post Hoc analysis on table 45a further revealed details about existing differences in effectiveness of cassava outgrower scheme across sampled user-companies in the study area. The result shows that there was a significant difference in effectiveness of outgrower scheme between Allied Atlantic Distilleries and Thai Farms International (0.16), Psaltry Company International (-0.64), Mokk Investment (-0.79) and Harvest Feed & Agro processing (-0.84). There was also a significant difference between Thai Farms and Allied Atlantic (-0.16), Psaltry (-0.80), Mokk Investment (-0.95), and Harvest Feed (-1.00). Similarly, a significant difference existed between Psaltry and Allied Atlantic (0.64), Thai Farms (0.80), Mokk Investment (-0.15) and Harvest Feed (-.20). While significant difference further existed between Mokk Investment and Allied Atlantic (0.79), Thai Farms (0.95), Psaltry (0.15) but no significant difference existed between Mokk investment and Harvest Feed. In a similar vein, there was a significant difference between Harvest Feed and Allied Atlantic (0.84), Thai Farms (1.0), Psaltry (0.20), while no significant difference existed between Harvest Feed and Mokk Investment. The differences were informed by user-companies' varying performances along applicable performance items as shown in table 45b which have been categorized into supports in kind or cash and scheme management activities/items.

Table 45a: Post Hoc analysis of cassava outgrower scheme's effectiveness across sampled user-companies

User-companies (I)	User-companies (J)	Mean Difference (I-J)	Std. Error	ρ-value
Allied Atlantic Distilleries Ltd	Thai farms	.15789**	.07338	.033
	Psaltry	-.63756**	.07410	.000
	Mokk Inv.	-.79211**	.07521	.000
	Harvest feed	-.84211**	.09508	.000
Thai farms	Allied Atlantic	-.15789**	.07338	.033
	Psaltry	-.79545**	.05662	.000
	Mokk Inv.	-.95000**	.05807	.000
	Harvest feed	-1.00000**	.08219	.000
Psaltry	Allied Atlantic	.63756**	.07410	.000
	Thai Farms	.79545**	.05662	.000
	Mokk Inv.	-.15455**	.05897	.010
	Harvest feed	-.20455**	.08283	.015
Mokk Investment	allied atlantic	.79211**	.07521	.000
	thai farms	.95000**	.05807	.000
	Psaltry	.15455**	.05897	.010
	harvest feed	-.05000	.08382	.552
Harvest feed	Allied Atlantic	.84211**	.09508	.000
	Thai Farms	1.00000**	.08219	.000
	Psaltry	.20455*	.08283	.015
	Mokk Inv.	.05000	.08382	.552

** The mean difference is significant at the 0.05 level.

Table 45b: Analysis of user-companies' performance

Names of user-companies		**Allied Atlantic Distilleries Ltd**	**Thai Farms International**	**Psaltry Company Int.**	**Mokk Investment**	**Harvest Feed**	**Matna Foods Company**
Performance items		*Perform-ance rating*	*Perform-ance rating*	*Perform-ance rating*	*Perform-ance rating*	*Perform-ance rating*	*Perform-ance rating*
Support [In cash/ kind]	*Production inputs like cultivars, agro-chemicals, pesticides etc.*	Not provided	Sometime provided	Always provided	Always provided	Always provided	Always provided
	Production services like land preparation	Not provided	Not provided	Always provided	Always provided	Always provided	Always provided
	Extension support by farm visits to advise and disseminate technologies	Aimed at sourcing cassava & support to outgrowers done if possible	Scarcely provided	Always provided	Always provided	Always provided	Always provided
	Cash advance	Not provided	Not provided	Not provided	Not provided	Not provided	Always provided
	Linkage to credit sources	Not provided	Scarcely provided	Sometime provided	Always provided	Sometime provided	Not provided
	Linkage to research	Not provided	Sometime provided	Sometime provided	Not provided	Not provided	Sometime provided
	transportation service	Always provided	Always provided	Not provided	Always provided	Always provided	Always provided
Scheme management items	*Agreement component*	Not used	Not used	Used	Used	Used	Used
	Outgrowers' participation	Low	Medium	Medium	Medium	Low	High
	Conformity to scheme expectations	Low	Low	Medium	medium	Medium	High
	Compliance with scheme agreements	None	None	High	High	High	High
	Price fixing	Outgrowers not involved	Outgrowers not involved	Outgrowers sometimes involved	Outgrowers sometimes involved	Outgrowers not involved	Outgrowersalways involved
	Market guarantee	High	high	High	High	High	High
	Payment timeliness	Sometimes timely	Always timely	Always timely	Always timely	Always timely	Always timely

This research assessed the effectiveness of cassava outgrower scheme as been operated among cassava farmers in Southwestern Nigeria. Three sets of respondents which are the outgrowers, discontinued outgrowers and non-outgrowers were examined.The study found the mean ages ofoutgrowers, discontinued outgrowers and non-outgrowers to be 47.5 years, 55.4 years and 48.9 years respectively, while most of them were married, fairly educated and predominantly christians and muslims. Most outgrowers (31.1%), discontinued outgrowers (38.2%) and non-outgrowers(25.4%) obtained their farmland through rent and had their cassava farm sizes ranging between 1 and 10 ha with an average yield of 19.9, 11.3, and 18.6tonnes respectively. The mean period for contract engagement for outgrowers so far was 4 years and each of them cultivated between 1 and 5ha.

Most user-companies had policies and a defined organizational structure guiding their COS operations andconformed more to agreement elements that directly served their interest than otherwise. Under-pricing cassava during times of glut ($\overline{\chi} = 1.83$), unilateral decision making ($\overline{\chi} = 1.75$) and renege on agreements ($\overline{\chi} = 1.65$) topped the list of constraints originating from user-companies. Prominent among benefits derived by outgrowers in the scheme were guaranteed cassava market, exposure to improved technologies, access to extension services and opportunity for bulk sales. Hence,outgrowers' participation in scheme management was found to be high, while most (65.2%) of them had a favourable perception towards COS in the study area. Notable among factors that determined participation of farmers in COS were guaranteed market($\overline{\chi} = 0.97$), opportunity for bulk sales ($\overline{\chi} = 0.96$) and advance for transport service ($\overline{\chi} = 0.80$).

Most (83.6%) of discontinued outgrowers attributed their discontinuance in the scheme to misdeeds from private extension workers and most (89.1%) were as well not satisfied with the performance of input suppliers and credit providers. Accessibility of non-outgrowers to production services was low but ironically, though most (87.3%) of them were aware of COS, they were yet to join for reasons like late payment, poor pricing, insincerity of private extension workers, insufficient information and discouraging reports from participants.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary as well as conclusions and recommendations made based on the findings of this study. It further highlights contributions to knowledge generated from the study and areas for further research.

5.1 Summary

Outgrower scheme brings farmers and buyers together aspartners in business under a forward agreement specifying obligations of each party. It stipulates farmers' (sellers') obligations to supply produce in volumes and qualitiesspecified, and the buyers' (processors'/traders') obligations to provide production services such as inputs, finance, extension, training, transports and logistics, while also off-taking the produce and make payments as agreed upon. It facilitates a specially designed trade agreement between producers, processors and traders leading to a vertical integration of the agricultural value chain.

For decades now in Nigeria, the British American Tobacco Company has been using this model to service her raw material need of tobacco produce, while the same model is being applied to the cassava sub-sector in other countries such as Thailand. This has contributed to Thailand becomingthe highest exporter of cassava products in the world. Nigeria as the largest producer of cassava in the world can benefit a lot by efficiently deploying the outgrower scheme model in her cassava sub-sector. An appreciable number of cassava-based agro-allied industries is coming on board in the country and the industrial demand for cassava root is steadily rising. Many of these industries are opting for outgrower scheme arrangements to guarantee stable and continuous supply of cassava roots. However, the efficiency and equity with which the model is been implemented is

yet to be ascertained. Hence, this study assessed the effectiveness of cassava outgrower scheme among cassava farmers in Southwestern Nigeria.

Some specific objectives critical to the achievement of the main objective of this study as generated from literatures and relevant theories were formulated. Hence, the study specifically examined the operational structures of cassava outgrower scheme in the study area, the perception of cassava outgrowers, the benefits they derive from the scheme and factors affecting their participation in cassava outgrower scheme among other things. A number of research hypotheses were tested in the null form. These were formulated to test the significant relationship between effectiveness of outgrower scheme as the dependent variable and other variables of the study such as perception, conformity to contractual agreements and contribution of agri-support service providers. Key factors determining outgrowers' participation and their scheme effectiveness ratings were also regressed against the dependent variable, while the difference in scheme effectiveness across user-companies was tested.

A conceptual framework postulating the network of inter-relationship among independent variables of the study and how these relationships dovetail into effectiveness of outgrower scheme which is the dependent variable was developed. Two theories were reviewed and extensive literature review was likewise conducted on key concepts of the research study. This included concepts on outgrower scheme, contract farming, cassava production, cassava productivity and agricultural development in Nigeria.The study was conducted in Southwestern Nigeria which is made up of six states; Ekiti,Lagos, Ogun,Ondo, Osun and Oyo states with a population of 27,511,992persons and a population density of 349 persons per km^2 according to the 2006 Census.The population of the study comprised cassava outgrowers, discontinued outgrowers and non-outgrowers in the study area, while multi-stage sampling procedure was used to select 166 outgrowers and 88 non-outgrowers. Snow-ball sampling technique was also used to select 55 discontinued outgrowers; in all, 307 respondents were used for the study.

The dependent variable (effectiveness of outgrower scheme) was measured usingeffectiveness indicators such as guaranteed market, access to farm input, perceived

change in productivity, compliance of user-companies to COS agreements as captured under cassava outgrowers' domain, while under user-companies' domain these were supply flow of cassava roots to factories, cassava price stability, outgrowers' capacity to keep agreements, logistic challenges associated with COS, compliance of outgrowers to COS agreements and cassava outgrower scheme suitability.Effectiveness indicators scores from both cassava outgrowers and user-companies were standardised and pooled together. A mean score was afterward obtained, which was used to categorise respondents into high or low effectiveness levels for COS arrangements.Primary data used for the study were obtained through both quantitative and qualitative methods by the use of pre-tested and validated interview schedules,Focused Group Discussion (FGD) and In-depth Interview (IDI)guides. Data were analysed using descriptive statistics and inferential statistics such as Pearson Product Moment Correlation (PPMC), Multiple regression, Logit function and ANOVA.

5.2 Conclusion

The study concludes that COS provided a better cassava sale outlet for farmers as well as a better supply chain for agro-allied industries. It further facilitated better access to production services for outgrowers leading to higher productivity and by implication a reduced per unit cost of production. However, existing cassava market information system is still near non-existent. There is yet to be an organised market information system that cassava farmers can access to know where best to sell their produce. Nevertheless, effectiveness of COS in the study area was rated as high even though there are areas in need of improvements. These include consistency in off-take prices in spite of glut periods, dignified and appropriate treatment of contracting parties as business partners among contracting parties and compliance to scheme agreements.

Most cassava outgrowers had favourable perception towards COS and consequently derived benefits such as guaranteed market and bulk sales of cassava roots. Agri-support services like extension service, farm input supply and credit provision substantially contributed to COS effectiveness such that, the more available they were in quality and frequency, the more effective COS became. The number of women in the scheme was low

as many of them specialised in cassava processing. A number of factors such as guaranteed market, outlet for bulk sales, transport service in advance and production inputs in advance served as determinants for farmers' participation in the scheme. While on the contrary, factors such as poor concern for outgrowers' welfare, dishonesty of field workers and poor access to inputs were reasons why discontinuance in the scheme occurred

5.3 Recommendations

Based on the findings of this study, the following recommendations are put forth for the development of cassava sub-sector in Nigeria;

1. The study found that access to ready cassava market and increased income significantly influence farmers' participation in COS. Hence government should formulate policies that will promote COS arrangements as a veritable tool to arrest the cyclical market problem in Nigerian cassava sub-sector and boost farmers' income which invariably will reduce poverty among them.

2. User-companies interested in deploying outgrower scheme should place high premium on conformity to contractual agreements with farmers as it can make or mar the arrangement; because it was revealed in the study that the higher the conformity to contractual agreements the more effective COS became. Hence,the backbone of every successful outgrower scheme is about contractual trust which always takes time to build and to reap from.

3. User-companies should invest prudently into cassava outgrower scheme arrangements for all inputs and services advances as availability of agri-support services correlated positively with COS effectiveness.

5.4 Contribution to knowledge

The study contributes to the body of knowledge as follows:

1.It developed a model for rating the performance of user-companies based on components of operational structures in COS such as organizational, conformity to scheme agreements and participation of outgrowers.

2. The study made use of the Multiple regression model to empirically show that Cassava Outgrowers Scheme effectiveness rating was influenced by extension provision, guaranteed market, input access, perceived change in productivity and conformity to scheme agreements.

3. The study further deployed the use of the logit regression model to empirically show that outgrowers participation in Cassava Outgrower Scheme is influenced by age, cassava farm size, guaranteed market, increased income and advance payments for harvesting and transportation.

4. The study equally provided empirical evidence that conformity of user-companies and out growers perception positively correlated with the effectiveness of Cassava Out growers Scheme.

5. It empirically revealed that underpricing during glut, unilateral decision by user - companies and breach of agreements from both parties were major constraints faced by Cassava Out growers Scheme.

6. An empirical evidence of the perception of cassava outgrowers about the scheme was also documented.

7. Factors determining farmers' participation or discontinuance in COS were likewise identified.

8. The study also empirically revealed that Cassava Outgrower Scheme enhanced the access of cassava farmers to production inputs and services.

5.5 Areas of further study

The following can be further studied as areas not covered by this study;

1. A study could be carried out to quantitatively determine the change in productivity of farmers who participated in cassava outgrower scheme,

2. The contribution of outgrower scheme to farmers' income and well-being,

3. Effective management of negative extra-contractual practices in outgrower scheme operations.

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APPENDIX I

University of Ibadan

Department of Agricultural Extension and Rural Development

Dear respondent,

I am a post-graduate student of the University of Ibadan conducting a research on the effectiveness of outgrower scheme among cassava farmers in South West Nigeria. The objective is to find out how effective has outgrower schemes been operated in your locality. The outcome of this study will inform policy and make outgrower scheme more farmer-friendly and beneficial to all who are involved in it. Please feel free to respond to the questions as they apply to you.

The information collected is strictly for research purpose and will be treated with utmost confidentiality. Thank you for your anticipated cooperation.

Abegunde B.O.

Interview schedule for cassava outgrowers

Survey instrument identification number	
Place of interview	
Local Government Area	
State	

A. Farmers' personal characteristics [Complete or tick (√) as appropriate]

1. How old are you? ---------- years

2. What is your sex? Male **[ ]** Female **[ ]**

3. Indicate your marital status: Single **[ ]**Married **[ ]** Divorced **[ ]** Widowed **[ ]** Separated **[ ]**

4. Indicate your household size in number: ----------

5. What is your highest level of education: No formal education **[ ]** primary education **[ ]** Secondary education **[ ]** NCE **[ ]** Polytechnic [ ] University [ ]

6. Indicate your religion: Christianity [ ]Islam **[ ]** Traditional **[ ]** Others (specify) ---------

7. Do you belong to any association? Yes **[ ]**No**[ ]**

8. If yes, which type of association? All Farmers' association [ ] Cassava growers association [ ] Others (specify) ----------

B. Farming characteristics [Complete or tick (√) as appropriate]

9. Indicate your farming experience (in years) ----------

10. For how long have you been cultivating cassava? ----------

11. Indicate your land ownership status: Purchased **[ ]**Inherited [ ] Family land **[ ]** Communal land **[ ]** Rented land **[ ]** Leased land **[ ]** Association land **[ ]** Borrowed land **[ ]** Others (specify) ---

12. If you rented/leased your land, how much do you pay per acre in a year? ₦ ----------

13. What is your present total farm size? (in acres) ----------

14. List other types of crops you grow aside cassava 1.---------- 2. ----------3.--------

4. ---------- 5. ---------- 6. ---------- 7. ---------- 8. ----------

15. What is your present total cassava farm size? (in acres) ----------

16. Indicate your average cassava yield per acre----------

17. Which source of labour do you use to cultivate cassava? Family labour**[ ]**Hired labour**[ ]** Self labour**[ ]** All of the above [ ]

18. Which type of labour do you mostly use to cultivate cassava? Manual labour only **[ ]**Mechanised farming only **[ ]**Both**[ ]**

C. Outgrower scheme engagement [Complete or tick (√) as appropriate]

19. For how long have you been in cassava outgrower scheme? (in years) ----------

20. How many acres of cassava farm do you grow on contract? ----------

21. Which user-company are you presently growing cassava for? Allied Atlantic Distilleries Ltd [ ]Ekha Agro [ ] Matna Foods [ ] Thai Farms [ ] Others (Specify) -------

22.Are female cassava farmers under the scheme as many as male cassava farmers? Yes **[ ]**No **[ ]**

23.If no, please indicate which of the following factors could be responsible for the low involvement of female cassava farmers in the scheme

D. Involvement of female farmers in outgrower scheme [Tick (√) as appropriate]

S/N	Items	Yes	No
1	Women have limited access to farmland		
2	Female farmers face more difficulties to access fund than male farmers		
3	Women lack the energy needed for hard task required from outgrowers		
4	No time for women due to family responsibilities hinder their involvement		
5	Women are assumed to be incapable by the user-companies		

6	Husband often discourage involvement of their wives in the scheme		
7	Women get discouraged due to frequent cheatings by men in the scheme		
8	Women are not allowed to participate in key decisions about the scheme		
9	Payment is made to husbands instead female outgrowers who did the work		

E. Contribution of extension to cassava outgrower scheme

[Tick (√) as appropriate]

S/N	Items	Yes	No
1	User-companies' field staff regularly visit outgrowers on the farm		
2	User-companies' field staff introduced me to cassava outgrowers scheme		
3	User-companies' field staff always offer useful advice in cassava enterprise through the scheme		
4	User-companies' field staff regularly assist to get farm input under the scheme		
5	User-companies' field staff have been severally fighting for better cassava prices on behalf of farmers with the user-company		
6	User-companies' field staff always side the user-company's decision to the disadvantage of farmers		
7	The only interest of User-companies' field staff is to get cassava for the user-company		
8	User-companies' field staff have good relationship with farmers		
9	User-companies' field staff are not straight forward in the discharge of their duties within the scheme		

F. Contribution of farm input suppliers to success of cassava outgrower scheme

[Tick (√) as appropriate]

S/N	Items	Always	Sometimes	Never
1	User-company link outgrowers to input suppliers			
2	Involvement of farm input suppliers makes access to farm inputs easy for cassava outgrowers			
3	Farm input suppliers offer inputs at reduced price due to large quantity bought by outgrowers			
4	Farm input suppliers give inputs on credit to outgrowers under the scheme			
5	Farm input suppliers give useful advice to outgrowers under the scheme			
6	Farm input suppliers supply low quality inputs to outgrowers under the scheme			

7	Farm input suppliers raise input price for outgrowers			
8	Farm input suppliers deliver inputs late to outgrowers			

G. Contribution of credit providers to success of cassava outgrower scheme

[Tick (√) as appropriate]

S/N	Items	Always	Sometimes	Never
1	User-company links outgrowers to bank for loan access			
2	Banks accept user companies as guarantor for cassava outgrowers			
3	People/properties are requested for to guarantee loan repayment			
4	Banks give loans to outgrowers as at when due under the scheme			
5	Interest rate on loans given outgrowers is lower than prevalent rate in commercial banks			
6	The repayment plan of banks is easy to cope with by cassava outgrowers			
7	There are strict punishments for outgrowers who fail to repay			
8	Banks deduct insurance payment from loans given to outgrowers			
9	Outgrowers easily benefit from insurance services whenever the need arises			

H. Conformity of user-companies to outgrower scheme agreements

[Tick (√) as appropriate]

S/N	Items	Always	Sometimes	Never
1	All production quotas of farmers are purchased by user-companies at the end of each growing season			
2	Farm inputs are timely provided by user company as agreed			
3	Technical services are timely provided by the user company			
4	Cassava prices are paid as agreed upon after delivery to user-companies			
5	Transportation services are timely provided by the user-companies			
6	User-companies take prompt actions on outgrowers complaints			

I. Constraints due to user-companies on outgrower scheme operations
[Tick (√) as appropriate]

S/N	Items	Severe constraint	Mild constraint	Not a constraint
1	User-companies breaking agreements guiding the scheme			
2	Complexity in cassava pricing used by user-companies			
3	Conflict between farm operations time-table and socio-cultural activities of outgrowers			
4	Loss of linkages with former cassava buyers			
5	Style of payment arrangements			
6	Difficulty in coping with both companies' demand and the family food needs			
7	Under-pricing cassava tubers especially in times of glut			
8	Frequent delay through official process			
9	Taking decisions without seeking farmers' views			
10	User-companies' field staff becoming bossy			
11	User-companies' management showing little or no interest about farmers' welfare			
12	User-companies provide insufficient inputs in advance			
13	Under-pricing cassava roots at all seasons			
14	Guaranteed market but with lesser profit			

J. Benefits derived from the scheme [Tick (√) as appropriate]

S/N	Items	Yes	No
1	Involvement in cassava outgrower scheme has made access credit easy		
2	I now have better access to extension services on my cassava enterprise due to involvement in outgrower scheme		
3	I enjoy insurance benefit in my cassava enterprise under the cassava outgrower scheme		
4	Cassava price in the open market is often higher than the company's price		
5	I prefer selling cassava to the company because of the stable market		

6	Involvement in the scheme has raised my revenue from cassava enterprise		
7	Involvement in the scheme has exposed me to several improved technologies in cassava enterprise		

K. Outgrowers' perception towards cassava outgrower scheme [Tick (√) as appropriate in response to the list of options provided; SA- Strongly Agree; A- Agree; U- Undecided; D- Disagree; SA- Strongly Disagree]

S/N	Perceptional statements	SA	A	U	D	SD
1	Cassava outgrower scheme appears to be a means to exploit farmers					
2	Involvement in cassava outgrower scheme brings stability to farmers' income					
3	Cassava outgrower scheme can help ready access to farm inputs for farmers					
4	User-companies' staff could be described as being always honest when dealing with farmers					
5	Selling to user-companies commands higher price than in the open market					
6	User-companies intentionally delay uptake of cassava to their own advantage and to the loss of outgrowers					
7	User-companies offer outgrowers little or no provision of farm inputs					
8	User-companies hardly keep to terms of agreement					
9	User-companies' field staff obviously display partiality in favour of the firm					
10	To a large extent outgrower scheme offers farmers a stable cassava market					
11	Cassava outgrowers get farm inputs under this scheme once-in-a-while					
12	User-companies hardly treat farmers as equal business partners					
13	Cassava outgrower scheme in reality is aimed at assisting farmers					
14	Involvement in outgrower scheme can seriously increase farmers' income					
15	The provision of production inputs promised under the scheme cannot be said were fulfilled					
16	User-companies staff are sometimes partial in farmers selection for the scheme					
17	User-companies always keep to terms of agreement					
18	Under cassava outgrower scheme farmers only get occasional provision of production inputs					
19	User-companies staff cannot be said were completely honest in their dealings with farmers under the scheme					
20	User-companies to a large extent treat farmers as equal business partners					

21	User-companies' field staff often act in favour of the outgrowers					
22	User-companies are never ready to treat farmers as equal business partners					
23	Cassava outgrower scheme makes available to farmers ready access to production inputs					
24	User-companies staff are always impartial in farmers selection for the scheme					

L. Level of outgrowers' participation in running the scheme

[Tick (√) as appropriate]

S/N	Items	Yes	No	Frequency			
				Monthly	**Bi-annually**	**Annually**	**Specify others**
1	Outgrowers take part in making decisions about the scheme						
2	Farmers are treated as equal business partners in the scheme						
3	Outgrowers are represented in board of management meetings of the firm						
4	Farmers take part in planning of cropping time-table						
5	Farmers take part in fixing cassava price						
6	Farmers discuss and invite other non-contract farmers to the scheme						
7	Outgrowers attend meetings with the company officials punctually and regularly.						
8	Farmers keep to all conclusions arrived to in meetings						

M. Factors determining involvement of farmers in outgrower scheme

[Tick (√) as appropriate]

S/N	Items	Yes	No
1	Provision of improved cassava stem in advance		
2	Provision of inorganic fertilizer in advance		
3	Provision of organic fertilizer in advance		
4	Payment for stumping operations in advance		
5	Payment for ploughing operation in advance		
6	Payment for harrowing operation in advance		
7	Payment for ridging operation in advance		

8	Payment for planting operation in advance		
9	Provision of agro-chemicals in advance		
10	Provision of spraying implements in advance		
11	Provision of irrigation facilities in advance		
12	Provision of cash in advance		
13	Provision of children's school fees in advance		
14	Availability of ready cassava market		
15	Assurance of better price for cassava produce		
16	Provision of extension services		
17	Provision of guarantor opportunities in the bank		
18	Increased income from transactions in the scheme		
19	Payment for harvesting of cassava in advance		
20	Payment for transportation of produce to factory in advance		
21	Opportunity to sell cassava roots in large quantity		
22	Access to prompt and complete payment after delivery		

N. Guaranteed market [Tick (√) as appropriate]

S/N	**Items**	**Always**	**Sometimes**	**Never**
1	All cassava roots supplied to the factory is bought without delay			
2	The user-companies arrange to transport cassava produce to the factory site or pay for it in advance			
3	Cassava price offered at the factory site is higher than the open market price			
4	Payment of cassava supplied is made latest 48 hours after delivery			
5	Starch content measurement at the factory is transparent			
6	The chances of uptake at the factory are very certain			
7	The fear of cassava rejection at the factory constrains me from producing to my optimal capacity			
8	My annual cassava sales increased since I joined the scheme			

O. Access to farm inputs [Tick (√) as appropriate]

S/N	**Items**	**Always**	**Sometimes**	**Never**
1	User-companies make appropriate mechanical implements available for land preparation			
2	Timely provision of improved cassava cultivars is made by user-companies			
3	User-companies timely provide organic fertilizer to be used in the cassava plots			
4	User-companies make planters available for cassava			

	planting operations			
5	User-companies timely provide herbicides for weed control in the cassava plots			
6	Outgrowers source for herbicides on their own			
7	Promises to provide pesticides are hardly fulfilled			
8	User-companies timely provide sprayers for chemical application			
9	User-companies timely provide inorganic fertilizer to be used in the cassava plots			

P. Perceived change in cassava productivity [Tick (√) as appropriate in response to the list of options provided; SA- Strongly Agree; A- Agree; U- Undecided; D- Disagree; SA- Strongly Disagree]

S/N	Perceptional statements	SA	A	U	D	SD
1	Involvement in outgrower scheme has helped to increase cassava yield per unit land area					
2	Productivity appears the same despite involvement in the scheme					
3	Use of fertilizer (inorganic/organic) has raised outgrowers' productivity					
4	Untimely supply of inputs has rather worsen outgrowers' yield/acre					
5	Correct usage of production resources under the scheme has raised outgrowers' yield/acre					
6	Timeliness of farm operations under the scheme has increased outgrowers' yield/acre					
7	Constraints encountered under the scheme have rendered outgrowers' productivity unstable					
8	Reduction in planting spacing as learnt under the scheme has raised outgrowers' yield/acre					
9	Outgrowers now adhere to best agronomic practices which led to increase in yield/acre					
10	Outgrowers needed to increase their cassava production to meet the demand of user-companies					

Q. User-companies keeping to outgrower scheme agreements
[Tick (√) as appropriate]

S/N	Items of agreements	Yes	No	Extent of agreement keeping		
				Fully kept	Partially kept	Poorly kept
1	Provision of improved cassava stem					
2	Provision of inorganic fertilizer					
3	Provision of organic fertilizer					
4	Payment for land clearing in					

	advance					
5	Payment for stumping operation in advance					
6	Payment for ploughing operation in advance					
7	Payment for harrowing operation in advance					
8	Payment for ridging operation in advance					
9	Payment for planting operation in advance					
10	Payment for agro-chemicals in advance					
11	Payment for spraying operation in advance					
12	Provision of irrigation facilities					
13	Provision of cash in advance					
14	Provision of loan through bank					
15	Provision of extension services					
16	Payment for harvesting operation in advance					
17	Payment for transportation of produce to factory in advance					
18	Agreement on cassava uptake					
19	Agreement on better price for cassava produce					
20	Agreement to link outgrowers to credit providers					
21	Agreement to link outgrowers to agro-dealers					
22	Agreement to link outgrowers to tractor hiring units					
23	Agreement to link outgrowers to research institutes					

APPENDIX II

University of Ibadan

Department of Agricultural Extension and Rural Development

Dear respondent,

I am a post-graduate student of the University of Ibadan conducting a research on the effectiveness of outgrower scheme among cassava farmers in South West Nigeria. The objective is to find out how effective has outgrower schemes been operated in your locality. The outcome of this study will inform policy and make outgrower scheme more farmer-friendly and beneficial to all who are involved in it. Please feel free to respond to the questions as they apply to you.

The information collected is strictly for research purpose and will be treated with utmost confidentiality. Thank you for your anticipated cooperation.

Abegunde B.O.

Interview schedule guide for cassava farmers [Non-outgrowers]

Survey instrument identification number	
Place of interview	
Local Government Area	
State	

A. Farmers' personal characteristics [Complete or tick (√) as appropriate]

1. How old are you? ---------- years

2. What is your sex? Male **[ ]** Female **[ ]**

3. Indicate your marital status: Single **[ ]**Married **[ ]** Divorced **[ ]** Widowed **[ ]** Separated **[ ]**

4. Indicate your household size in number: ----------

5. What is your highest level of education: No formal education **[ ]** primary education **[ ]** Secondary education **[ ]** NCE **[ ]** Polytechnic [ ] University [ ]

6. Indicate your religion: Christianity [ ]Islam **[ ]** Traditional **[ ]** Others (specify) ---------

7. Do you belong to any association? Yes **[ ]**No**[ ]**

8. If yes, which type of association? All Farmers' association [ ] Cassava growers association [ ] Non-farmer association [ ] Others (specify) ----------

B. Farming characteristics [Complete or tick (√) as appropriate]

9. Indicate your farming experience (in years) ----------

10. For how long have you been cultivating cassava? ----------

11. Indicate your land ownership status: Purchased **[ ]**Inherited [ ] Family land **[ ]** Communal land **[ ]** Rented land **[ ]** Leased land **[ ]** Association land **[ ]** Borrowed land **[ ]** Others (specify) ----------

12. If you rented/leased your land, how much do you pay per hectare in a year? ₦ ----------

13. What is your present total farm size? (in acre) ----------

14. List other types of crops you grow aside cassava 1.---------- 2. ----------3.--------
4. ---------- 5. ---------- 6. ---------- 7. ---------- 8. ----------

15. What is your present total cassava farm size? (in acre) ----------

16. Indicate your average cassava yield per hectare or acre----------

17. Which source of labour do you use to cultivate cassava? Family labour**[ ]**Hired labour**[ ]** Self labour**[ ]**

18. Which type of labour do you mostly to cultivate cassava? Manual labour only **[ ]**Mechanised farming only **[ ]**Both**[ ]**

19. How do you get the following services/operations in your cassava farming enterprise? [Tick (√) as appropriate]

S/N	Production services	Yes	No	Accessibility level			Source	
				Always	Some times	Never	Public Extension	Other relevant agency
1	Payment for land clearing in advance							
2	Payment for stumping operation in advance							
3	Payment for ploughing operation in advance							

4	Payment for harrowing operation in advance							
5	Payment for ridging operation in advance							
6	Provision of improved cassava stem							
7	Payment for planting operation in advance							
8	Payment for agro-chemicals in advance							
9	Provision of inorganic fertilizer in advance							
10	Provision of organic fertilizer in advance							
11	Payment for spraying operation in advance							
12	Provision of irrigation facilities in advance							
13	Provision of cash in advance							
14	Provision of loan through bank							
15	Provision of extension services							
16	Payment for harvesting operation in advance							
17	Payment for transportation of produce to points of sale in advance							
18	Cassava uptake/sales							
19	Connection to Credit providers							
20	Connection to agro-input dealers							
23	Connection to tractor hiring units							
24	Connection to research institutes to get improved cassava stems and other technologies							

20. Are you aware of the existence outgrower scheme in your community? Yes [ ] No []
21. If yes, list reasons why you are yet to join them
    i.
    ii.

APPENDIX III
University of Ibadan
Department of Agricultural Extension and Rural Development

Dear respondent,

I am a post-graduate student of the University of Ibadan conducting a research on the effectiveness of outgrower scheme among cassava farmers in South West Nigeria. The objective is to find out how effective has outgrower schemes been operated in your locality. The outcome of this study will inform policy and make outgrower scheme more farmer-friendly and beneficial to all who are involved in it. Please feel free to respond to the questions as they apply to you.

The information collected is strictly for research purpose and will be treated with utmost confidentiality. Thank you for your anticipated cooperation.

Abegunde B.O.

Interview schedule for discontinued cassava outgrowers

Survey instrument identification number	
Place of interview	
Local Government Area	
State	

A. Farmers' personal characteristics [Complete or tick (√) as appropriate]

1. How old are you? ---------- years
2. What is your sex? Male **[ ]** Female **[ ]**
3. Indicate your marital status: Single **[ ]**Married **[ ]** Divorced **[ ]** Widowed **[ ]** Separated **[ ]**
4. Indicate your household size in number: ----------
5. What is your highest level of education: No formal education **[ ]** primary education **[ ]** Secondary education **[ ]** NCE **[ ]** Polytechnic [ ] University [ ]
6. Indicate your religion: Christianity [ ]Islam **[ ]** Traditional **[ ]** Others (specify) ---------

7. Do you belong to any association? Yes **[ ]**No**[ ]**

8. If yes, which type of association? All Farmers' association [ ] Cassava growers association [ ] Others (specify) ----------

B. Farming characteristics [Complete or tick (√) as appropriate]

9. Indicate your farming experience (in years) ----------

10. For how long have you been cultivating cassava? ----------

11. Indicate your land ownership status: Purchased **[ ]**Inherited [ ] Family land **[ ]** Communal land **[ ]** Rented land **[ ]** Leased land **[ ]** Association land **[ ]** Borrowed land **[ ]** Others (specify) ----------

12. If you rented/leased your land, how much do you pay per hectare in a year? ₦ ----------

13. What is your present total farm size? (in ha or acre) ----------

14. List other types of crops you grow aside cassava 1.---------- 2. ----------3.--------
4. ---------- 5. ---------- 6. ---------- 7. ---------- 8. ----------

15. What is your present total cassava farm size? (in ha or acre) ----------

16. Indicate your average cassava yield per hectare or acre----------

17. Which source of labour do you use to cultivate cassava? Family labour**[ ]**Hired labour**[ ]** Self labour**[ ]** All of the above [ ]

18. Which type of labour do you mostly to cultivate cassava? Manual labour only **[ ]**Mechanised farming only **[ ]**Both**[ ]**

C. Outgrower scheme engagement experience [Complete or tick (√) as appropriate]

19. For how long were you involved in cassava outgrower scheme? (in years) ----------

20. How many hectares of cassava farm did you grow on contract? ----------

21. Which user-company were you engaged with in cassavaoutgrower scheme? ----------

D. Contribution of user-companies' field staff to outgrowers' discontinuance
[Tick (√) as appropriate]

S/N	Items	Yes	No
1	User-companies' field staff have caused my discontinuance in cassava outgrowers scheme		
2	User-companies' field staff offered useful advice in cassava enterprise under the scheme		
3	User-companies' field staff did not adequately assist to get farm input		

	under the scheme		
4	User-companies' field staff were changing cassava prices to cheat farmers		
5	User-companies' field staff supported user-company's decision even when it hurts farmers		
6	User-companies' field staff were less concern about the welfare of farmers		
7	The only concern of User-companies' field staff was to get cassava for the user-company		
8	User-companies' field staff had good rapport with farmers		
9	User-companies' field staff were not honest at discharging their duties under the scheme		
10	User-companies' field staff did not accord farmers in the scheme the deserved respect		

E. Contribution of farm input suppliers to outgrowers' discontinuance

[Tick (√) as appropriate]

S/N	Items	Yes	No
1	Input suppliers made farm inputs easily accessible to cassava outgrowers		
2	Input suppliers offered inputs at reduced price when bulk purchase is made by outgrowers		
3	Input suppliers gave no inputs on credit to outgrowers under the scheme		
4	Input suppliers offered no technical advice to outgrowers except when requested for		
5	Input suppliers supplied low quality inputs to outgrowers under the scheme		
6	Input suppliers hiked input price to outgrowers		
7	Input suppliers delivered their products late to outgrowers		

F. Contribution of credit providers to outgrowers' discontinuance

[Tick (√) as appropriate]

S/N	Items	Yes	No
1	Banks allowed user-companies to stand as guarantor for outgrowers		

2	Banks requested for people/property as guarantee for loan under the scheme		
3	Banks gave loans to outgrowers late		
4	Banks never gave loans to outgrowers under the scheme		
5	The interest rate on loans given to outgrowers was too high		
6	The repayment plan of credit providers was difficult to cope with for outgrowers		
7	Punishments laid down for not paying back on time was too strict		
8	Outgrowers were encouraged to insure their cassava farms by credit providers		
9	Outgrowers get their cassava farms insured easily through credit providers' help		
10	Credit providers' official procedures were too long and difficult for outgrowers		

G. Contribution of user-companies to outgrowers' discontinuance

[Tick (√) as appropriate]

S/N	Items	Yes	No
1	User-companies failed to uptake all cassava supplied by outgrowers		
2	Prices were not paid as agreed upon after delivery of cassava produce		
3	Production inputs were supplied late by the user-company		
4	User-companies do not take prompt actions on outgrowers complaints		
5	Process of price determination not fair to outgrowers		
6	Conflict between cropping time-table and outgrowers' other engagements		
7	Style of payment were not favourable		
8	Difficulty in coping with the factory's cassava demand and family food needs		
9	User-companies offer low prices for cassava especially in times of glut		
10	Decisions are often taking without seeking outgrowers' opinion		

H. Discontinued outgrowers' level of participation while in the scheme

[Tick (√) as appropriate]

S/N	Items	Yes	No
1	Cassava outgrowers were not carried along when decisions are to be made		
2	Farmers were not treated as equal partners in the scheme		
3	Cassava outgrowers' leaders represent farmers' interest at the board of management meeting of the firm		
4	Farmers were involved in designing the cropping schedule for the season		
5	Farmers were not involved in fixing cassava price for seasons in view		
6	Outgrowers felt free and interested to invite other non-outgrowers to the scheme		
7	Meetings with outgrowers and user-companies officials were not regularly		

I. Which of the following expectations were attended to by your user-company?
[Tick (√) as appropriate]

S/N	Items	Yes	No	Frequency of occurrence		
				Always	Sometimes	Never
1	Provision of improved cassava cultivars in advance					
2	Provision of inorganic fertilizer in advance					
3	Provision of organic fertilizer in advance					
4	Payment for stumping operations in advance					
5	Payment for ploughing operation in advance					
6	Payment for harrowing operation in advance					
7	Payment for ridging operation in advance					
8	Payment for planting operation in advance					
9	Provision of agro-chemicals in advance					
10	Provision of spraying implements in advance					
11	Provision of irrigation facilities in advance					
12	Provision of cash advance					
13	Availability of ready cassava market					
14	Assurance of better price for cassava produce					
15	Provision of extension services					
16	Provision of guarantor opportunities in the bank					
17	Increased income from transactions in the scheme					

18	Payment for harvesting of cassava in advance					
19	Payment for transportation of produce to factory in advance					

APPENDIX IV

University of Ibadan

Department of Agricultural Extension and Rural Development

Dear respondent,

I am a post-graduate student of the University of Ibadan conducting a research on the effectiveness of outgrower scheme among cassava farmers in South West Nigeria. The objective is to find out how effective has outgrower schemes been operated in your locality. The outcome of this study will inform policy and make outgrower scheme more farmer-friendly and beneficial to all who are involved in it. Please feel free to respond to the questions as they apply to you.

The information collected is strictly for research purpose and will be treated with utmost confidentiality. Thank you for your anticipated cooperation.

Abegunde B.O.

Questionnaire for user-companies field staff (Private extension workers)

Survey instrument identification number	
Location of respondent	
Local Government Area	
State	

1. How old are you? ---------- years

2. What is your sex? Male **[ ]** Female **[ ]**

3. Indicate your marital status: Single **[ ]**Married **[ ]** Divorced **[ ]** Widowed **[ ]** Separated **[ ]**

4. What is your highest level of academic qualification or its equivalence from the following: Secondary school cert. **[ ]** NCE cert. **[ ]** OND cert. [ ] HND cert. [ ] B.Sc/B.Tech cert. [ ] M.Sc/M.Tech cert. [ ] Ph.D cert. [ ] Specify others----------

5. Indicate your religion: Christianity [ ]Islam **[ ]** Traditional **[ ]** Others (specify) ---------

6. For how long have you been involved in overseeing an outgrower scheme? ----------

7.When did you begin to oversee an outgrower scheme in this company? ----------

8. Indicate your area of coverage ----------

9. How many outgrowers do you oversee? ----------

10. Do you engage in any process of field selection before choosing your production area? Yes [ ]No [ ]

11. If yes, which of the following criteria is usually considered? Easy accessibility to the factory site [ ] Weather pattern around the farming area [ ]Land tenure system [ ] Availability of water [ ]Availability of feeder roads [ ] Labour [ ] Tractorable land [ ] Farming community [ ] Availability of basic amenities and rural infrastructure [ ]

12. Through which of the following mediums do you source for cassava outgrowers? Public advertisement [ ] Individual contact [ ]Community leaders [ ]Farmer cooperatives/groups [ ] Cassava growers associations [ ]Local Government office of Agric department [ ]

13. Are there shortfalls you discovered about any of these farmer selection medium? Yes [ ]No [ ]

14. If yes, please list the medium and its shortfall(s)

i. ----------

ii. ----------

iii. ----------

iv. ----------

15. What is your minimum cassava farm size for admitting farmers into the scheme?.....

16. Which type of land tenure system do you consider for admitting a farmer into your cassava outgrowerarrangement?Purchased/inherited [ ]Family land [ ]Communal land [ ]Rented land [ ] Leased land [ ]Association land [ ] Borrowed land [ ]Any of the above [ ] None of the above [ ] Others(specify) ----------

17. Do you give services in advance to your outgrowers? Yes [ ] No [ ]

If yes please indicate which of the following services you make available to your outgrowers? [Complete or tick (√) as appropriate]

S/N	Material/logistical	Yes	No	Frequency of availability	Measure/ ha. where

	Advances						applicable
				Always	Sometimes	Never	
18	Payment for land clearing in advance						
19	Payment for stumping operation in advance						
20	Payment for ploughing operation in advance						
21	Payment for harrowing operation in advance						
22	Payment for ridging operation in advance						
23	Provision of improved cultivars in advance						
24	Payment for planting operation in advance						
25	Provision of agro-chemicals in advance						
26	Provision of inorganic fertilizer in advance						
27	Provision of organic fertilizer in advance						
28	Payment for spraying operation in advance						
29	Provision of irrigation facilities in advance						
30	Provision of cash advance						
31	Provision of loan through bank						
32	Provision of extension services						
33	Payment of harvesting operation in advance						
34	Payment for transportation of produce to points of sale in advance						
35	Payment of children school fees in advance						
36	Linkages to financial institutions						
37	Linkages to agro-dealers						
38	Linkages to tractor hiring units						

39	Linkages to research institutes to access improved cultivars and other technologies						

40. Do you allocate definite tonnage of cassava for outgrowers to produce? Yes [ ] No []

41. If Yes, please indicate which of the following criteria you use to allocate production quota to farmers? Farmers' farm size [ ]Farmer's farming history [ ]Farmer's previous performances [ ]Recommendation from influential people [ ]Others (**s**pecify) ----------

42. About what percent of your outgrowers can you say have been delivering their allocated quotas without defaulting? 100% [ ]75% [ ] 50% [ ]25% [ ] Less than 25% [ ]

43. How frequently do you visit your outgrowers' fields? Once a week [ ]Once a fortnight []Once in three weeks [ ]Once in a month [ ]Specify others **----------**

44. From your monitoring efforts which of the following misdeeds have you discovered among your outgrowers? Diversion of inputs [ ]Poor management practices [ ]Extra-contractual delivery [ ]Extra-contractual sales [ ] Others (**s**pecify)----------

45. Do you organize your outgrowers into groups? Yes [ ]No [ ]

46. If yes, how many groups of farmers do you have under your area of coverage? -------

47. How many outgrowers are there in each of your groups? ----------

48. Indicate how many male outgrowers you oversee in all ----------

49. Indicate how many female outgrowers you oversee in all ----------

50. List some observed constraints discouraging the involvement of female outgrowers in the scheme i.---------- ii.---------- iii.---------- iv.---------- v.---------- vi.----------

51. Do you organize farmer-management meetings with your outgrowers? Yes [ ]No [ ]

52. If Yes, how often do you organize farmer-management meetings? Once in two seasons [ ]Once in a season [ ]Twice in a season [ ]Thrice in a season [ ]Specify others --------

53. How will you describe the level of your outgrowers' attendance in meetings you hold together? High [ ] Low [ ]

54. How will you describe the level of your farmers' participation in decision making on key issues related to the outgrower scheme? High [ ] Low [ ]

55. Do you involve your outgrowers in any form of training? Yes [ ]No [ ]

If yes, please indicate in which of these areas you train your outgrowers and how frequently? [Complete or tick (√) as appropriate]

Types of training	**Yes**	**No**	**Frequency of training in a season**					
			Five times	**Four times**	**Thrice**	**Twice**	**Once**	**Not certain**
56. Site selection								
57. Land preparation								
58. Training on planting operation								
59. Soil fertility management								
60.Weed control								
61. Agro- chemical spraying								
62. Harvesting								
63. Post-harvest handling								

64. Please fill this table below on outgrowers turnover rate since you got to your area of work [Complete as appropriate]

1st season	**2nd season**		**3rd season**			**4th season**			
No. of outgrowers recruited (1st batch)	No. of outgrowers who continued from the 1st batch	No. of outgrowers recruited afresh	No. of outgrowers who continued from the 1st batch	No. of outgrowers who continued from the 2st batch	No. of outgrowers s recruited afresh	No. of outgrowers who continued from the 1st batch	No. of outgrowers who continued from the 1st batch	No. of outgrowers who continued from the 1st batch	No. of outgrowers s recruited afresh

65. Please complete these tables on the performance of your outgrowers

a. Regular flow of cassava raw material to the industry [Tick (√) as appropriate]

S/N	Items	Yes	No
1	Contracting with outgrowers has increased the flow of cassava raw material supply to the industry		
2	Supply of cassava raw material from outgrowers scheme usually meets the demand of the industry's raw material		
3	Farmers often fail to deliver their allocated production quotas		
4	Under outgrower scheme arrangement, the cyclic trend of cassava glut and scarcity challenge is well taken care of		
5	Outsourcing cassava raw materials through outgrower scheme has increased the volume of cassava our plant processes per day		
6	We receive daily supply of cassava root from outgrowers at the factory		
7	An average of three supplies come from outgrowers to the factory per week		
8	The supply of cassava raw materials from outgrowers to the factory come only seasonally		
9	The flow of cassava to the industry through outgrower scheme is by far higher than the open market		
10	Cassava price fluctuations in the open market drastically affects inflow of cassava at the factory		

Additional information on the above……..

b. Cassava price stability [Tick (√) as appropriate]

S/N	Items	Yes	No
1	Contracting with outgrowers affords better stability to cassava price than dealing with the open market		
2	Cassava price at the factory is adjusted alongside price fluctuation in open market to forestall occurrences of extra-contractual sales		
3	Cassava price at the factory remains fixed regardless of what happens to open market price		
4	Cassava price at the factory is reviewed and upgraded at the beginning of each season		
5	The supply flow of cassava raw material from outgrower scheme remains constant even if the open market price is higher		
6	Dealing with outgrowers facilitates annual budgeting as cassava		

	raw material price remains constant all through the year		
7	Outgrowers do not mind prices lower than what obtains in the open market so long as assured regular market is provided at the factory		

Additional information on the above ……

c. Outgrowers' capacity to keep to agreement terms [Tick (√) as appropriate]

S/N	Items	Always	Sometimes	Never
1	Cassava outgrowers engage in acts of extra-contractual sales			
2	Cassava outgrowers engage in acts of extra-contractual delivery			
3	Cassava outgrowers make judicious use of inputs advanced to them			
4	Cassava outgrowers deliver their produce to the factory as at the agreed time			
5	Cassava outgrowers follow all agronomic practices given by the user-company field staff			
6	Cassava outgrowers plant and deliver the exact variety of cassava requested by the user-company			
7	Outgrowers deliver even if they have to source for inputs by themselves			

Additional information on the above ……

d. Logistic challenges [Tick (√) as appropriate]

S/N	**Items**	**Yes**	**No**
1	Organizing farmers into groups makes management functions with outgrowers easier		
2	Coordinating a large number of outgrowers slows down operations at the factory site		
3	Distribution of inputs to outgrowers in their various fields poses a lot of challenges to management		
4	Field visits to outgrowers in their various fields is always regular and poses no challenge		
5	Transporting cassava produce from outgrowers' fields to the factory site is often challenging		
6	The cost of mobility to visit outgrowers in their various fields proves burdensome to management		
7	Cost of communication with outgrowers is always enormous		

Additional information on the above ……

e. Compliance of outgrowers with outgrower scheme agreement [Tick (√) as appropriate]

S/N	Items of agreements	Yes	No	Extent of compliance		
				Full compliance	Partial compliance	Poor compliance
1	Adherence to all recommended agronomic practices					
2	Efficient and optimal use of inputs collected in advance					
3	Quantity of cassava produce to deliver					
4	Cassava variety to deliver					
5	Time for cassava delivery					
6	Regular attendance of meetings with company officers					

Additional information on the above ...……

f. Suitability of the scheme [Tick (√) as appropriate]

S/N	**Items**	**Yes**	**No**
1	Outgrowers scheme is meeting the factory's cassava raw material need in quantity		
2	Cassava outgrowers scheme is cost effective compared to other means of raw material sourcing		
3	outgrowers scheme helps to reduce the risk of asset specificity		
4	Through cassava outgrower scheme the well-being of the rural farm families is been improved		
5	Outgrower scheme is helping the user-company to fulfil her social responsibility to the community		
6	Desired cassava variety is easily obtained through outgrower scheme's medium		
7	Dealing with outgrowers in group ease management functions		

Additional information on the above …..……

APPENDIX V

University of Ibadan

Department of Agricultural Extension and Rural Development

Dear respondent,

I am a post-graduate student of the University of Ibadan conducting a research on the effectiveness of outgrower scheme among cassava farmers in South West Nigeria. The objective is to find out how effective has outgrower schemes been operated in your locality. The outcome of this study will inform policy and make outgrower scheme more farmer-friendly and beneficial to all who are involved in it. Please feel free to respond to the questions as they apply to you.

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Abegunde B.O.

Questionnaire for public extension workers (ADP)

Survey instrument identification number	
Location of respondent	
Local Government Area	
State	

[Complete or tick (√) as appropriate]

1. How old are you? ---------- years
2. What is your sex? Male **[ ]** Female **[ ]**
3. Indicate your marital status: Single **[ ]**Married **[ ]** Divorced **[ ]** Widowed **[ ]** Separated **[ ]**
4. What is your highest level of academic qualification or its equivalence from the following: Secondary school cert. **[ ]** NCE cert. **[ ]** OND cert. [ ] HND cert. [ ] B.Sc/B.Tech cert. [ ] M.Sc/M.Tech cert. [ ] Ph.D cert. [ ] Specify others----------
5. Indicate your religion: Christianity [**]**Islam **[ ]** Traditional **[ ]** Others (specify) ---------

6. Indicate your area of coverage ----------

7. How many farmers do you oversee? ----------

8. Are you aware of the outgrower scheme operations of some cassava user-company in your locality? Yes **[ ]**No**[ ]**

9. Do you have outgrowers as farmers under your coverage? Yes **[ ]**No**[ ]**

10. As a public extension worker, do you encourage your farmers to be involved in outgrower scheme? Yes **[ ]**No**[ ]**

11. If Yes, please list ways by which you encourage farmers to be involved in outgrower scheme

i……

ii……

iii……

iv……

12. How frequently do you visit your farmers' fields? Once a week [ ]Once a fortnight [ ]Once in three weeks [ ]Once in a month [ ]Specify others ----------

13. Indicate your perception about outgrower scheme operation on the scale below; [Tick (√) as appropriate from the list of options provided; SA- Strongly Agree; A- Agree; U- Undecided; D- Disagree; SA- Strongly Disagree]

S/N	Perceptional statements	SA	A	U	D	SD
1	Cassava outgrower scheme was designed to exploit farmers					
2	Cassava outgrower scheme assists outgrowers to access farm inputs easily					
3	User-companies' field staff have been honest when dealing with farmers under the scheme					
4	Cassava purchase at user-companies' factory commands higher price than in the open market					
5	User-companies refuse to buy cassava from outgrowers at some points					
6	User-companies under the scheme offer farmers little or no provision of farm inputs					
7	User-companies hardly keep agreement with their outgrowers					
8	User-companies' field staff appear to display partiality in favour of the firm					

9	To a large extent outgrower scheme seems to offer outgrowers a stable cassava market					
10	Only occasional access to farm inputs can be guaranteed under scheme					
11	User-companies often cheatoutgrowers under their scheme					
12	Cassava outgrower scheme in reality appears to be a programme aimed at assisting farmers					
13	Involvement in cassava outgrower scheme can highly increase farmers' income					
14	User-companies field staff are sometimes partial in farmers selection for the scheme					
15	User-companies field staff cannot be said to be completely honest in their dealings with farmers under the scheme					
16	User-companies to a large extent treat farmers under the scheme well					
17	User-companies' field staff often act in favour of the outgrowers					
18	User-companies are never ready to treat farmers as equal business partners					
19	Cassava outgrower scheme makes available to farmers ready access to production services					
20	User-companies field staff appear to be impartial in farmers selection for the scheme					

APPENDIX VI

University of Ibadan

Department of Agricultural Extension and Rural Development

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I am a post-graduate student from the University of Ibadan conducting a research on the effectiveness of outgrower scheme among cassava farmers in South West Nigeria. The objective is to find out how effective has outgrower schemes been operated in your environs. The result of this study will assist policy makers to formulate policies that will bring about effective operation of outgrower schemes. It is will also make the scheme more farmer-friendly and beneficial to all who are involved in it.

Please feel free to respond to the questions and give as accurate and comprehensive information as possible. The information collected is strictly for research purpose and will be treated with utmost confidentiality. I am grateful for your time given to participate in this interview and I will like to record your responses so that I do not forget any of them. Thanks.

Abegunde B.O.

Focus Group Discussion Guide for outgrowers

Date of Focus Group Discussion …… Location……..…….
Local Government Area…… State…….
User-company engaged with…….. Interviewer's Name……

Gender distribution: ……..Adult males …….Adult Females ……Youths

Other descriptive characteristics of the respondent:……...
…….

1. Please describe the land ownership status of your group members...……

2. What is the average farm size members devoted to contract engagement?.....

3. Explain whether outgrowers combine contract and family farm plots or otherwise……

4. Please describe the source and types of labour mostly used among group members…

5. What is the average cassava yield per ha/acre obtained among group members?.....…

6. Please describe women involvement level in this scheme and factors associated with

it…….....

7. Describe the roles of field staff and extension workers in the operation of the scheme

User-companies' field staff:……

Public extension workers:..…….

8. Describe the roles Played by credit providers in the operation of the scheme.....

9. Describe the roles played by input suppliers in the operation of the scheme.....

10. How will you describe the conformity of your user-company to agreed terms?……..

11. Please list the challenges usually encountered with your user-company under the outgrower scheme?.....

12. Describe the benefits members have been deriving from the outgrower scheme.....

13. Describe members' participation in the outgrower scheme's management.....

14. List observed constraints to members' participation in the outgrower scheme's management……

15. List factors observed to motivate members' involvement in the outgrower scheme.....

16. Describe how assured is cassava market under the outgrower scheme……..

17. Describe how satisfactory are cassava prices offered under the outgrower scheme.....

18. Please describe the influence of the outgrower scheme on members' productivity…….

…….

19. Please describe other issues bothering on the outgrower scheme?.....

APPENDIX VII

University of Ibadan

Department of Agricultural Extension and Rural Development

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Please feel free to respond to the questions and give as accurate and comprehensive information as possible. The information collected is strictly for research purpose and will be treated with utmost confidentiality. I am grateful for your time given to participate in this interview and I will like to record your responses so that I do not forget any of them. Thanks.

Abegunde B.O.

In-depth interview guide for user-companies' field staff supervisors

Date of In-depth Interview…… Location ……..……
Local Government Area…… State……
Position of Respondent…… Sex……

Name of user-company…….. Interviewer's Name……

Other descriptive characteristics of the respondent: …….....

1. Please describe your position in this company and the responsibilities attached to it.....
2. For how long have you been serving in this position?……
3. What are the series of value you add to cassava and the products you process it to?.....
4. Could you please list your markets for these products and how stable they are?.....

Please describe how you operate your outgrower scheme following the points below?

5. Your organisational policy for the scheme…….
6. Your total number of field staff with their qualifications…….....
7. Your field staff gender distribution…….....
8. The field staff-farmer ratio you maintain currently……
9. Transportation of your field staff……

10. Training and motivation for field staff……

11. outgrower scheme's percent in your total budget…….

12. The cropping schedule designed for your farmers if any…….

13. The pricing arrangement you employ with your outgrowers……..

14. The total number of outgrowers you transact with and their gender distribution……..

15. Please mention all gender-related roles and constraints you observe among your outgrowers.....

16. The capacity of your cassava processor in tonnage/day……...

17. Your cassava tonnage supply from outgrower scheme per week?.....

18. The commitment of your cassava outgrowers…….

19. Your social responsibility activities……..

20. Other service providers you partner with in the scheme?.....

21. Please complete these tables on the performance of your outgrowers

a. Regular flow of cassava raw material to the industry [Tick (√) as appropriate]

S/N	Items	Yes	No
1	Contracting with outgrowers has increased the flow of cassava raw material supply to the industry		
2	Supply of cassava raw material from outgrowers scheme usually meets the demand of the industry's raw material		
3	Farmers often fail to deliver their allocated production quotas		
4	Under outgrower scheme arrangement, the cyclic trend of cassava glut and scarcity challenge is well taken care of		
5	Outsourcing cassava raw materials through outgrower scheme has increased the volume of cassava our plant processes per day		
6	We receive daily supply of cassava root from outgrowers at the factory		
7	An average of three supplies come from outgrowers to the factory per week		
8	The supply of cassava raw materials from outgrowers to the factory come only seasonally		
9	The flow of cassava to the industry through outgrower scheme is by far higher than the open market		
10	Cassava price fluctuations in the open market drastically affects inflow of cassava at the factory		

Additional information on the above……

b. Cassava price stability [Tick (√) as appropriate]

S/N	Items	Yes	No
1	Contracting with outgrowers affords better stability to cassava price than dealing with the open market		
2	Cassava price at the factory is adjusted alongside price fluctuation in open market to forestall occurrences of extra-contractual sales		
3	Cassava price at the factory remains fixed regardless of what happens to open market price		
4	Cassava price at the factory is reviewed and upgraded at the beginning of each season		
5	The supply flow of cassava raw material from outgrower scheme remains constant even if the open market price is higher		
6	Dealing with outgrowers facilitates annual budgeting as cassava raw material price remains constant all through the year		
7	Outgrowers do not mind prices lower than what obtains in the open market so long as assured regular market is provided at the factory		

Additional information on the above……

c. Outgrowers' capacity to keep to agreement terms [Tick (√) as appropriate]

S/N	Items	Always	Sometimes	Never
1	Cassava outgrowers engage in acts of extra-contractual sales			
2	Cassava outgrowers engage in acts of extra-contractual delivery			
3	Cassava outgrowers make judicious use of inputs advanced to them			
4	Cassava outgrowers deliver their produce to the factory as at the agreed time			
5	Cassava outgrowers follow all agronomic practices given by the user-company field staff			
6	Cassava outgrowers plant and deliver the exact variety of cassava requested by the user-company			
7	Outgrowers deliver even if they have to source for inputs by themselves			

Additional information on the above ...……

d. Logistic challenges [Tick (√) as appropriate]

S/N	Items	Yes	No
1	Organizing farmers into groups		
2	Coordinating manyoutgrowers slows down operations at the factory site		
3	Distribution of inputs to outgrowers in their various fields		
4	Field staff visits to outgrowers in their various fields		

5	Transporting cassava produce from outgrowers' fields		
6	The cost of transportation to visit outgrowers in their various fields		
7	Cost of communication with outgrowers		

Additional information on the above ...……

e. Compliance of outgrowers with outgrower scheme agreement [Tick (√) as appropriate]

S/N	Items of agreements	Yes	No	Extent of compliance		
				Full compliance	Partial compliance	Poor compliance
1	Adherence to all recommended agronomic practices					
2	Efficient and optimal use of inputs collected in advance					
3	Quantity of cassava produce to deliver					
4	Cassava variety to deliver					
5	Time for cassava delivery					
6	Regular attendance of meetings with company officers					

Additional information on the above……

f. Suitability of the scheme [Tick (√) as appropriate]

S/N	Items	Yes	No
1	Outgrowers scheme is meeting the factory's cassava raw material need in quantity		
2	Cassava outgrowers scheme is cost effective compared to other means of raw material sourcing		
3	outgrowers scheme helps to reduce the risk of asset specificity		
4	Through cassava outgrower scheme the well-being of the rural farm families is been improved		
5	Outgrower scheme is helping the user-company to fulfil her social responsibility to the community		
6	Desired cassava variety is easily obtained through outgrower scheme's medium		
7	Dealing with outgrowers in group ease management functions		

Additional information on the above .....

APPENDIX VIII

University of Ibadan

Department of Agricultural Extension and Rural Development

Dear respondents,

I am a post-graduate student from the University of Ibadan conducting a research on the effectiveness of outgrower scheme among cassava farmers in South West Nigeria. The objective is to find out how effective has outgrower schemes been operated in your environs. The result of this study will assist policy makers to formulate policies that will bring about effective operation of outgrower schemes. It is will also make the scheme more farmer-friendly and beneficial to all who are involved in it.

Please feel free to respond to the questions and give as accurate and comprehensive information as possible. The information collected is strictly for research purpose and will be treated with utmost confidentiality. I am grateful for your time given to participate in this interview and I will like to record your responses so that I do not forget any of them. Thanks.

Abegunde B.O.

In-depth interview guide for credit providers

Date of In-depth Interview…… Location ……..……
Local Government Area…… State……
Position of Respondent…… Sex……

Name of financial institution…….. Interviewer's Name……

Other descriptive characteristics of the respondent: …….
……

1. Can you please describe your position in this institution and responsibilities attached to it? ……

2. For how long have you been serving in this position?……

3. What are the services you provided for cassava outgrowers in the scheme?.....

4. To what extent did the user-company guarantee their outgrowers?.....

5. Can you list some specific concessions your organisation granted outgrowers under the user-company's guarantee to enable them perform under the scheme……..

6. How have user-companied followed up such concessions to avoid default from outgrowers? .....……

7. How many outgrowers have obtained loan from your financial institution? …….

8. Please describe the challenges your institution encountered in your dealings with the outgrowers……

9. How will you describe the repayment rate of the outgrowers you dealt with?……

10. Please describe the challenges your institution encountered with the user-company…….....

11. Can you please describe what are the steps of action that could not work out as agreed and the reasons for such…….