ECONOMIC ANALYSIS OF COTTON MARKETING UNDER THE FREE-MARKET SYSTEM IN NIGERIA

BY

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NOVEMBER 1993.

DECLARATION

I hereby declare that this thesis was written by me and that it is a record of my own research work. It has not been presented before in any previous application for a higher degree. All borrowed ideas have been duly acknowledged by means of references and quotation marks.

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The above declaration is hereby confirmed.

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CERTIFICATION

This thesis entitled: **"ECONOMIC ANALYSIS OF COTTON MARKETING UNDER THE FREE-MARKET SYSTEM IN NIGERIA"** by YAHYA AMIN ABDULHADI meets the regulation governing the award of the degree of Masters of Science of Ahmadu Bello University, Zaria, and is approved for its contribution to scientific knowledge and literary presentation.

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DEDICATION

This work is dedicated to my mother, Hajiya Sa'adatu Adamu, my father Alhaji Amin Tafarkin Zazzau, and my cousin, Alh. Salman Abdullahi, for doing so much for me, for so long.

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ABSTRACT

SJNCE the introduction of the Structural Adjustment Programme in 1986, the Federal Government has been introducing a series of measures aimed at stimulating increased agricultural production. One of such measures was the abolition of the seven commodity marketing boards which from 1977-1986 were responsible for organising the marketing of Nigeria's major agricultural produce Including cotton. This was informed by their identified Inefficiencies and inability to sustain expanded commodity production. Since L9.86 therefore, cotton marketing has been operating under the free-market system.

The objective of this study was to determine whether the new marketing system has eliminated the inefficiencies associated with the commodity board marketing system. To achieve this, data were collected from a total of 75 cotton farmers, 15 cotton buying agents, 12 cotton merchants, and 3 cotton ginning companies in Bauchi, Katsina, Kaduna and Sokoto states during the 1991/92 cotton season.

The data were analysed using descriptive statistics, gross and marketing margin analysis, marginal cost analysis, price index analysis, Efficiency Ratio and three measures of concentration namely: the Gini Coefficient, the Herfindahl Index and the Coefficient of Variability. The results showed that efficiency has been" increased under the free enterprise system.

The study observed that farmers were getting higher prices relative to the ultimate consumers' expenditure on the

commodity than tinder the previous system. Both average yield/ha for farmers and aggregate output of the commodity wore on the increase while the industry was expanding rapidly and was attracting investments in the areas of product ion, processing and merchanting.

The study however found that grading of cotton was no longer practised as buyers usually go after the produce at farmers' homes and farms. Farmers also faced shortage of capital and difficulties in acquisition of product ion input.

Part of the recommendations of the study was that to sustiin the level' of efficiency being achieved, government should intervene in the area of enforcing inspection and grading before sales and take decisive steps in ensuring that farmers got adequate inputs at reasonable prices as well as credit facilities in order to sustain attractive profit margin, thereby encouraging expanded production of the crop in the country.

CHAPTER ONE

1.0 INTRODUCTION

1.1 The Background

Agriculture has traditionally been the mainstay of the Nigerian economy. Prior the 1970's, agriculture was the nation's major source of food, foreign exchange earnings and the major employer of labour. However, with the emergence of petroleum as a new source of revenue, the agricultural sector began to decline in terms of its relative contribution to the provision of food for the teeming population and foreign exchange earnings. However, with dwindling oil revenue and decline in the country's foreign exchange earnings experienced in recent years, it has become evident that the development of the agricultural sector to once more boost the production of both food and cash crops is vital for sustainable growth and development of the economy (Anonymous, 1992 B)

Cotton is one of the most important cash crops in the Nigerian economy. At independence, it was the fifth most important source of foreign exchange to the budding national economy, when agriculture contributed well over 50% to the country's Gross Domestic Product (G.D.P.). Cotton also made substantial contribution to government revenue through taxes on export crops.

Furthermore, the cotton enterprise has been providing employment and income to many farming households in the country, and to those involved in the processing and

marketing of the crop. For example, in 1980, an estimated 0.8 million farmers grew cotton on between six to seven thousand hectares of land.

Similarly, cotton had been the main source of raw materials to Nigeria's biggest industrial sector, - the textile industry. Cotton accounts for about 90% of the raw materials of the industry, which once again is the largest employer of non-farm labour after the public sector. The number of persons employed by the industry was estimated at over 100,000 by 1982. Cotton could be said to be the crop "which provided the country with the only major opportunity towards agro-based industrialisation. For in both the 1950's and early 1960's the country saw the establishment of complex textile industries all over the country which depended almost exclusively on locally produced cotton" (Abdullah, 1989).

As far back as the Sixteenth Century, Leo Africanus, the renowned traveller, had seen cotton growing "in abundance" in the areas constituting the present northern Nigeria (Hogendorn, 1963). Cotton production in commercial quantity began in the first decade of this century, mainly due to the efforts of the British Cotton Growing Association (B.C.G.A.), (Harmer, 1959).

From the early decades of this century, the nation's cotton industry has developed from an "auxiliary" sector producing less than 10,000 tonnes and with a few ginneries, to one with complex textile industries and a production

Table 1.1: Cotton production in Nigeria, estimated demand, deficit and producer prices, 1972 - 1992.

Year	Production (Bales)[a]	Estimated Demand(Bales)	Deficit (Bales)	Price (₦/tonne)
1972	211,519	na	na	125
1973	267,002	na	na	133
1974	170,608	na	na	134
1975	281,965	na	na	202
1976	322,038	na	na	308
1977	443,195	117,138	326,057[b]	330
1978	204,596	228,153	23,557	330
1979	200,805	250,670	49,865	330
1980	157,280	284,000	126,720	330
1981	145,445	345,000	199,555	400
1982	119,006	469,045	350,039	465
1983	109,825	595,620	485,795	510
1984	64,486	618,495	554,009	560
1985	79,471	638,395	558,924	700
1986	54,417	660,567	606,150	850
1987	139,696	684,000	544,304	2,000[c]
1988	181,193	707,000	525,807	3,000[c]
1989	275,599	726,868	451,269	3,500[c]
1990	229,764	757,263	527,499	4,000[c]
1991	191,335	782,842	591,507	5,000[c]
1992	296,947	816,000	519,053	5,500

a. A bale is about 181.43kg
b. Surplus
c. Average per season

Sources: Cotton and Agricultural Processors Ltd., Nigerian Seedcotton Company Ltd.; and Zazzau Ginnery Ltd.

figure of over half a million bales in 1970, feeding both domestic and foreign markets (Yazid, 1989; Hogendorn, 1963).

From the early 70's however, the industry started to be confronted by numerous problems such that the production figures began a steady decline until they reached the very low figure of 54,417 bales in 1986, at a time when domestic demand alone was approaching one million.

1.2 The Problem Statement.

Previous attempts at organised marketing of agricultural produce dated back to the colonial era, when the West African Produce Control Board was established in 1939, by the erstwhile Colonial Administration. Prior to this, between 1900 - 1939, the agricultural produce market was not regulated. Independent firms particularly the B.C.G.A. purchased and ginned Nigerian cotton and exported to millers in Britain through their agencies or brokers. Producer prices were then very much subject to day-to-day variations. The Produce Control Board was established to organise marketing of agricultural produce including cotton in British West African Colonies on behalf of the Colonial Government (Harmer, 1957).

This was replaced by the Commodity Marketing Board (C.M.B.) in 1948, which was responsible for agricultural produce marketing until 1954. The C.M.B. was at the initial stages able to encourage increased cotton production mainly because it gave producers guaranteed prices and guaranteed purchase of all the commodity they produced.

In later years however, the Board paid very low producer prices to farmers and excessively taxed and impoverished them in order to accumulate surpluses for investment in other sectors of the economy. The Board also charged local processors very high prices for raw materials and operated inefficiently and on excessively high cost.

These were observed to have had detrimental effects on the nation's agricultural economy. According to Olatunbosun (1971), the C.M.B. had "almost destroyed the very foundation and superstructure of the nation's agricultural economy"

In October 1954, the C.M.B. was regionalised and cotton marketing was thereafter carried out by the Northern Regional Marketing Board, (N.R.M.B.). The Board was largely credited for expanding cotton production in the country by giving better producer prices to farmers, maintaining high standard of quality control and opening of cotton markets and rural roads.

The regional marketing boards were scrapped in 1977 and seven specialised commodity boards were established in their places. This put cotton marketing solely in the hands of one of the boards created - the Nigerian Cotton Board. The other boards were the Cocoa, Grains, Palm Produce, Groundnut, Rubber and Root/Tubber Crops Boards. These successive marketing arrangements under the government organised commodity marketing board system have failed to sustain commodity production in the country. They were said to be exploitative of the primary producers because the prices they paid were very low relative to cost of

production, average world prices and the prices of other crops. These hampered the farmers' income levels and hence the incentives and ability to expand production.

Under the N.C.B. for example, farmers suffered all forms of frustrations in marketing their crop such as transport difficulties, extortion by market functionaries, under-payment and delays in payment among many others.

Furthermore the Board was not cost-effective in its operations. As observed by Isitor (1985), both the N.C.B. and the farmers were operating at a loss while many L.B.A.s were not taking part in cotton buying because of lack of funds.

The net effect of these problems was a serious decline in aggregate output of cotton in the country from 443,195 bales in 1977 to 54,417 in 1986, representing a fall by over 800%. These negative developments were particularly disturbing because they were taking place at a time when domestic demand for lint was increasing because of increasing population and mill capacity, while the country's oil revenue and foreign exchange earnings were dwindling.

By 1986, it was obvious to government that if drastic measures were not taken to address the problems, cotton production and by extension, the textile industry would collapse.

Informed by this situation, the government abolished the commodity board marketing system in 1986 to give way to free and competitive produce marketing system for all

agricultural produce. Since then, cotton marketing has been entirely in the hands of the private sector where prices are left to be determined by market forces.

It is on the basis of the above, that this research was undertaken to assess the extent to which the deficiencies of the previous marketing arrangements have been eliminated under the present marketing system. In the light of this, the study addressed the following questions:

1. what is the structure of the new cotton marketing system?;
2. what roles do the various market participants play in the new marketing system?;
3. what is the role of government in the free marketing system?;
4. what is the nature of competition under the new system?;
5. how have farmers been adjusting to the new situation with respect to their production and marketing strategies?;
6. what have been the levels and behaviour of prices in the new system?
7. what is the cost - benefit relationship in cotton production for farmers under the new system?;
8. what is the cost - benefit relationship for middle men?; and
9. what are the inherent problems that prevail in the new system?

1.3 Objectives of the Study

The general objective of the study is to assess the impact of the abolition of the Nigerian Cotton Board on the structure and efficiency of the cotton market in Nigeria.

The specific objectives of the study are:

1. to analyse the structure and conduct of the private sector controlled seed cotton market;
2. to evaluate the efficiency and performance of the seed cotton market; and
3. to identify and appraise the problems of the new marketing system.

1.4 Justification of the Study

The importance of marketing in cotton production cannot be over-emphasised because, cotton is a non-food cash crop grown by farmers purely for profit motive. A commodity has value only if it is delivered to the consumer, at the appropriate time and place and in the desired form. The relevance of marketing in creating utility for a product increases as the economy develops and production becomes more specialised. In the case of Nigerian cotton, while the crop is produced mainly in the rural areas of the northern states, the consumers (mainly textile mills) are spread in all parts of the country, and in mainly urban centres and even overseas.

It is through marketing therefore, that the farmer and those involved in cotton marketing make their income, and it

is also through marketing operations that returns are made from capital invested in cotton production, processing and milling.

Thus, the standard of living of hundreds of thousand of cotton farmers, the survival of industries and investments in cotton processing and marketing, and the welfare of millions of Nigerians are largely dependent on the efficiency of the cotton marketing system. It is therefore important to make continuous efforts to identify and to find solution to problems that may prevail in cotton marketing. With the introduction of a new system six years ago, and with the policy of deregulation of the economy being vigorously pursued by government, it is pertinent to study the impact of the new system and to appraise how far the marketing policies are achieving the desired objectives.

It is believed that the findings of this research will provide a rational and empirical basis for policy formulation and adjustment, and management of not only marketing of cotton, but of other commodities as well. It is also expected that this research will be useful to investors in the cotton industry by identifying problem areas, new prospects and potential areas for improvements.

Finally, it is hoped that this work will be of benefit to researchers, who may identify other issues raised in here for more detailed case-studies in cotton marketing, or for studies on the long-term effects of the deregulation of the cotton market.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Problems of Agricultural Marketing in Less Developed Countries. (L.D.C.s)

Marketing is an agent of economic development. However, marketing under poor economic conditions creates a number of problems that inhibit the optimisation of the potential contributions it could make to economic development. Agricultural marketing in Less Developed Countries (L.D.C.s) of Africa, South East Asia and Latin America is plagued by very serious problems. These include inadequate transport, storage and processing facilities, inadequate finance and credit, poor management, inefficient pricing system and lack of standardisation of measures and quantity of product.

Transport is very central in agricultural marketing because commodities are produced mainly in the rural areas while consumption spreads throughout the country, and sometimes outside its borders. The importance of transport is even more in the L.D.C.s because farm production takes place on very many small holdings scattered in various locations.

Unfortunately, in these countries most of the rural roads are bad, seasonal, poorly maintained and in many areas practically unmotorable. The problem is worsened by shortage and high cost of vehicles as well as maintenance

while railway services are inadequate and very often do not reach the hinterland. The result of these are delays in moving produce to the point of consumption resulting in damage, theft and losses to the owners. For example, a survey conducted in 1970 in Ghana, to analyse food marketing problems from the point of view of farmers, showed that 58% of respondents had difficulty in moving their product to markets owing to poor vehicles, poor roads and high cost of transportation (Nyanteng and Van Apeldborn, 1971; Kotey and Gyekye, 1974).

Storage is another problem of agricultural marketing in the L.D.C.s. Agricultural products are seasonal, and for supply to be evenly spread over the whole year, a substantial portion of the product needs to be stored. Furthermore, special storage facilities are sometimes required because these products are perishable. Unfortunately, in these countries there is shortage or even complete absence of appropriate storage facilities. Often times, these result in usage of buildings that are not designed, or are not suitable for storage of farm produce. Such buildings may be cracked, have leakages, or low roofing heights. In more serious cases, open space has been commonly used for storage.

It was observed that in India, during some seasons, schools had to be closed in order to allow use of classrooms for storage purposes. The outcome of this situation is loss of produce through rotting, or insects damage or even theft. Secondly it forces surplus into the market immediately after

harvest leading to drastic fall in prices, losses to farmers and fall in their income while at the same time prices might soar at other periods due to shortage in supply (Anonymous, 1970; Kotey and Gyekye, 1974; Nyanteng and Von Apeldborn 1971; Habashy and Selwa, 1982).

Another problem of agricultural marketing in the L.D.C.s is lack of finance and credits for both production and marketing activities. In places where attempts have been made to channel credit to farmers through bank loans, lack of collateral from farmers prevents them from enjoying such facilities.

The negative result of inadequate finance is multi-dimensional. First, it prevents the emergence of big merchants who can organise the marketing of surplus on a large scale basis efficiently, so that commodities can be produced at the most economic locations and be made available to consumers wherever they are. In some countries, government had to fill the vacuum through its marketing corporations which have been criticised for inefficiency by many analysts.

Lack of capital also constrains optimum utilisation of resources and efficient production. It also forces farmers to borrow under most unfavourable conditions from unscrupulous traders, especially before harvest for purpose of self-maintenance. This leaves them at the mercy of lenders and often forces them to sell their produce at very low prices.

The problems highlighted above are aggravated by limited managerial skills among farmers and merchants. Because of lack of skills, many readily available production and marketing techniques cannot be used effectively. In marketing, "every step in the 'seed-to-consumer' process must be carried out at the proper time and in the proper manner including the sub-components such as packaging, transporting etc. Lest some seemingly insignificant action jeopadises the entire efforts" (Anonymous, 1970). An example of such case was given, of a delay in delivery of crates to be used for export of cucumber which resulted in a 40 per cent rejection in export quality of the product.

Another area of problem is lack of unified quality standards, variation in units of measurement and imperfection in dissemination of market information. Such situations create room for cheating, distortion, and other malpractices such as under-measuring, under-pricing, weight manipulation etc. Even where standards are imposed, they are usually for export crops only, and as such reduces incentives for high quality production of home-consumed produce (Habashy and Selwa, 1982; Nyanteng and Van Apeldborn, 1971).

Such irregularities are very much experienced even under government organised marketing. For example, Kotey and Gyekye (1974) observed in cocoa markets in Ghana, that:

> malpractices such as rigging of weighing machines, delays in weighing, naked stealing of farmers cocoa sent for

weighing, absence of produce clerks from stations for many days, delays in payment for cocoa weighed, wrong grading of cocoa and practice of discrimination etc., were meted out to farmers.

Agricultural processing is another problem area in L.D.C.s. Because of lack of technology, processing plants are very inadequate, while those available may either have two much produce to handle or operate at very high cost. A substantial portion of agricultural products have to be processed manually such that large amount of produce cannot be handled. Cost of processing is therefore high and the problem of erratic supply is thereby worsened.

In many countries among the L.D.C.s, prices of farm produce are fixed by government. This practice has been criticised and blamed for "distorted marketing", either because the prices are not based on sound economic principles or where they are, practical implementation is often faulty. It has been argued that fixed prices are not equilibrium prices and in many cases the prices fixed (e.g. in the Nigerian experience) were persistently very much lower than average per unit cost of production and world market prices. On the other hand, where prices are not fixed, poor marketing outlets and irregular supply result in erratic prices that fluctuate by the day (Olatunbosun, 1971; Anonymous 1970).

There are numerous other problems of agricultural

marketing in the L.D.C.s which are directly related to those discussed above. They include poor handling which result in loss of quality, poor and inappropriate packaging, monopsonistic tendencies among buyers, poor market information, lack of market facilities, etc.

2.2 Cotton Production and Marketing in Nigeria

2.2.1 Pre-Commodity Boards Period

For centuries indigenous cotton varieties had existed in Nigeria, and cotton was produced for hand spinning and weaving by the native textile industry. By 1880, there was a large hand loom weaving industry already attracting supply of home grown cotton. But the rise of cotton production in commercial quality could be traced to the American Civil war of 1861 - 66 (Cowley, 1966).

Before the war the American cotton belt produced up to a million tonnes of cotton lint; more than half of this was consumed by the Landcanshire textile mills in Britain. During the war years, American's export came to standstill and British textile industries suffered greatly.

Even though exports resumed after the war, it became inevitable for the Lancashire industries to look for alternative sources of cotton, in order to avoid dependence on a single source. This led to the formation of the British cotton Growing Association (B.C.G.A.) in 1902 and it was given a Royal Charter in 1904. The B.C.G.A. was a public utility corporation backed by the Landcanshire

cotton industry with the major objective of promoting cotton production in the British Empire.

Among the objectives/functions of the Association were:

1. to introduce improved varieties of cotton to the colonies and to provide widespread extension services;
2. to introduce cotton plantation in the colonies;
3. to provide ginneries in prospective production areas;
4. to set standard for ginning and baling; and
5. to undertake marketing of cotton product (Prentice, 1972; Cowley, 1966).

From the onset, the primary objective of colonisation was to develop sources of raw materials for the British industries. Cotton was the first of these raw material requirements because textile was Britiain's largest industrial sector (Hogendorn, 1968). According to Prentice (1972), "prospects for greater production of raw cotton was not the least of the arguments, ... put forward at the time of the scramble for Africa in the 1880's".

As far back as the 1860's, it was indicated that cotton was produced and exported from the southern parts of Nigeria. However much of the efforts at developing cotton production in Nigeria has been directed to the northern parts because the soil in some of its districts were classified as "the finest cotton soil in the world" (Hogendorn, 1968).

In 1904, the B.C.G.A. established experimental stations at Abeokuta and Ibadan (the Moor plantation). Similarly,

plantations, ginneries and buying stations were set up at Onitsha, Owu, Oyo, and Lokoja among others. The initial idea was for the Moor Plantation to be cultivated by local farmers with the B.C.G.A., providing technical assistance. The farmers were to acquire the necessary skills that would enable them grow cotton, thereby influencing other farmers to also grow the crop. It was hoped that ginneries and seed station would be established within a radius of 20 - 30 miles of the plantation. However, the project was later abandoned and was handed over to government for research (Yazid, 1989).

The B.C.G.A. successfully campaigned for extension of the railway line into the North in order to facilitate production and transportation of cotton and other commodities such as groundnuts. By 1910, the railway had reached Jebba and within the same period, the B.C.G.A. had established three large ginneries in parts of northern Nigeria while extensive campaign and extension services were carried out on foot and horse back. Furthermore, free cottonseeds were distributed to farmers, buying stations were established and seed cotton was sold at one penny per pound. This price however, was not a significant incentive because it was more or less the equivalent to the prevailing price paid by local weavers at Kano (Hogendorn, 1968).

The colonial government patronised the efforts of B.C.G.A. in many ways. Low rates were charged for freight of ginned cotton, and grants were approved for the B.C.G.A. to finance its activities. The government also launched a

propaganda to encourage farmers to grow cotton, especially through traditional rulers. For example, in one instance the Emir of Katsina instructed that every adult male in his emirate should plant at least an acre of cotton (Hogendorn, 1968).

By 1911, 3,500 tonnes of cotton was produced in Kano and 1,000 each was produced in Katsina and Zaria. By 1923/24 season, 45,000 tonnes of cotton was produced in the whole country (Hogendorn, 1968; Yazid, 1987). Within a fairly short period, a new cotton variety, the "Allen" rapidly replaced the indigenous type - the Gwandi. The introduction of the "Allen" gave a boost to cotton production because it matured earlier, had better yield and relatively higher price. Another reason for the boost in production was that many farmers found cotton to be suitable for animal traction cultivation, such that many were able to conveniently increase the size of their farms from about one to about three acres (Leach, 1938).

The prices of cotton fluctuated because it was marketed by private firms who sold directly to spinners in Britain. As such the prices were very much dependent on the World market forces. In 1931, for instance, producer price fell from one penny a pound to half a penny. Inspection and grading were done by government officials. The average cotton yield for farmers was put at between 140-200 lbs per acre (about 160-225kg/ha).

2.2.2. The Era of the Marketing Boards.

At the outbreak of the Second World War, the erstwhile Colonial Administration established the West African Produce Control Board to market agricultural produce on behalf of its Ministry of Supply. The firms that were exporting cotton became agents of the Produce Control Board (Harmer, 1957).

In 1948, the West African Produce Control Board was replaced by the Commodity Marketing Board, (C.M.B.) in order to ensure a more organised exploitation of the colony's agricultural resources including such produce as rubber, cocoa, groundnuts, and palm produce. The objectives of the C.M.B. were:

1. to stabilise producer prices by fixing a legal minimum buying prices for a whole season at a time, and by seeking to minimise price alterations between one season and the next;
2. to maintain and control an efficient organisation for the purchase of produce through appointment of Licensed Buying Agents (L.B.A.s) who would undertake the handling of produce under the Board's directions from point of purchase to the point of delivery and port of shipment;
3. to help maintain legally prescribed grades and standards of quality of export of produce by all means;
4. to allocate funds to the appropriate authorities by means of grants, loans, investments and endowments for

the purpose of economic development and research; and

5. to supply produce to local processors for processing in their plants (Olatunbosun, 1971).

In order to achieve these objectives the C.M.B. (like the other produce control Board) appointed the former exporting firms as L.B.A.s while the B.C.G.A. became ginning agent to the Board. Cotton production increased during the C.M.B. days because the Board gave guaranteed producer prices and guaranteed purchase of all the cotton produced by the farmers. For instance, the former Gombe Emirate, an area which was hitherto an insignificant cotton producer, became a big cotton producer after the establishment of the C.M.B, such that two ginneries were built within two years in order to cope with expanding output. During its years the C.M.B. also made it a policy to improve rural roads for easy evacuation of cotton (Harmer, 1957).

In spite of these achievements, the C.M.B. was heavily criticised for sacrificing the interest of the farmers by overtaxing and pauperising them on the alter of revenue generation. Secondly, the board was also blamed for destabilizing the prices paid to producers and that the prices it paid were persistently kept much lower than average world prices. As a result, farmers' ability to re-invest in commodity production was hampered (Olatunbosun, 1971). There was also accusation that the management of the Board was corrupt and unqualified, and that its operational cost was very excessive.

The C.M.B. was however viewed by many of its critics as

a necessary evil. It was argued that no other body could organise the purchasing, grading, standardisation, transportation, and shipment of agricultural commodities produced by large number of peasant farmers scattered over various locations. According to Kotey and Gyekye (1974), "it is doubtful if a number of private commercial organisational units competing with each other can improve markedly on this performance in terms of social cost and benefit".

The C.M.B. became regionalised in 1954 when a new constitution came into effect in October of that year. Cotton marketing (along with groundnuts and grains) was hence handled by the Northern Regional Marketing Board (N.R.M.B). In the first year of its operations, in the 1954/55 season, 97,000 tonnes of cotton was produced, which was the highest recorded so far. In terms of organisation, objectives and operation, the N.R.M.B. inherited much of those of the defunct C.M.B. The Board provided the overall co-ordination for financing, procurement and processing of cotton. The Board also appointed individuals, firms or co-operatives as L.B.A.s. The main functions of the agents were:

a. to purchase seed cotton at gazetted cotton markets at not less than the minimum buying prices established by the marketing Board;
b. to bag and arrange for storage according to instructions issued by the marketing Board; and
c. to finance the purchase and arrange for prompt

transport of seed cotton to the appropriate ginnery by the approved route.

The L.B.A.s were paid allowances based on the grade and quantity bought as well as transport overhead depending on distance from cotton markets to the ginnery and the condition of the roads. For example in 1957, they received six pounds for a tonne of cotton marketed and transport overhead of 10.5 pennies a tonne per mile for all season roads and 11 - 11.5 pennies for dry seasons roads (Harmer, 1957).

The most notable change in the L.B.A. system under the N.R.M.B. was that at the time the Board came into existence in 1954, there were only 13 L.B.A.s. By 1964, 10 years later, there were 174, out of which 167 were Nigerians.

Produce inspection was done by the Produce Inspection Service Unit of the Northern Regional Ministry of Agriculture and was also responsible for setting up cotton markets, and also for approval of the L.B.A.s that were expected to participate in the buying during each season, on the advice of the Committee of L.B.A. An average of 260 temporary and 40 steel markets were erected in each season. The Division also laid down three grades of seed cotton which were GI, GII, and GIII. In the gradings, the emphasis was basically on cleanliness, freedom from extraneous matter and staining, and freedom from insect pest. No account was taken of staple length and strength (Harmer, 1957).

Under the prevailing arrangement, the farmers took

their cotton to the gazetted markets for examination and grading, and afterwards they sold to buyers of the L.B.A. The activities in the markets were under the supervision of the produce inspection staff. In some cases farmers sold to middlemen who transported cotton in bulk to the cotton markets. In other cases, due to lack of cash, farmers were forced to sell in advance, for as low as a quarter of the harvest value. This practice was condemned as "illicit money lending" (Harmer, 1957).

Although the N.R.M.B. came under similar criticisms as the C.M.B. it had made significant contribution to the growth of Nigeria's cotton industry. According to Mustapha (1989) the rise in cotton production in the 1950's and 60's was largely due to more organised cotton purchase, opening of cotton markets, better prices, opening of the interior through feeder roads and vigorous campaign for cotton production, all of which were credited to the efforts of the N.R.M.B.

2.2.3. The Era of the Nigerian Cotton Board.

The Nigerian Cotton Board (N.C.B.) was established by Decree No. 29 of 1977 and was mandated with the responsibility of purchasing, shipment and sales of cotton lint, seed cotton, as well as disposing of cotton seed and seed pallets which have been declared as surplus of local need. The N.C.B. was established together with six other commodity boards to replace the regional marketing boards in

the handling of produce marketing. In practical terms however the N.C.B. inherited much of its predecessor's operational conduct. It was the responsibility of the N.C.B. to recommend producer prices of seed cotton for each season which was approved by the Technical Committee on producer prices. The N.C.B. also announced the opening and closing of buying seasons.

In respect of ginning activities the B.C.G.A. ginneries which later became Cotton and Agricultural Processors Limited (C.A.P), a limited liability company, was ginning agent of the Board, and the latter acquired 20% equity in the company. The C.A.P. maintained 12 ginneries in various parts of the country, while another one was owned by Kano State Government.

Like the defunct commodity Board, the N.C.B. also appointed L.B.A.s to assist the Board in its operations. However, in 1981/82 season, the N.C.B. introduced the Direct Buying Scheme, mainly in order to check alleged malpractices by the L.B.A.s and government officials at the cotton markets, and to introduce an element of competition in the market. Under the scheme, the N.C.B. went to the market and purchased seed cotton directly from farmers, especially in areas where there was excess supply. However, due to poor staff strength the scheme did not record any notable success (Gusau, 1989; Hassan, 1989).

The N.C.B. worked hand in hand with the Produce Inspection Divisions (P.I.D.s) of the Ministries of Agriculture in the respective producing states. The P.I.D.s

was responsible for quality control through inspection and grading. They were also responsible for erecting of cotton markets, a responsibility which they later handed down to their respective Local Government councils. The P.I.D. also classed cotton into two grades, viz: NAI or G.I and N.A.II or G.II. NA I was described as seed cotton grown in Nigeria with less than 5% immature seeds, 1% damaged or stained seed cotton, insects, leaf trash, free from stalks, mineral salts and added moisture. NA II was described as cotton with less than 10% immature seed cotton, 10% damaged or stained seed cotton, insects and trash. It was also expected to be free from mineral salt or added moisture (Hassan, 1989).

From the inception of the N.C.B. and in spite of its activities, cotton production continued to decrease (Table 1.1) until it was later dissolved in 1986. The reasons attributed to this decline have been identified as outlined below.

2.2.3.1. **Production Problems**

The average farm size of cotton farmers was put at about 0.8 hectare with average yield of between 180 - 300 kg/ha, depending upon variation of rainfall (Kumar and Ogunlela, 1989). This was seen as very low considering that up to 2.5 - 3 tonnes/ha (about 10 times as much) yield was obtainable in research stations. This low yield has been attributed mainly to late planting and lack of fertiliser

application and spraying. Most cotton farmers planted their cotton crop between July and August instead of the recommended month ofJune.

This was because during the July - August labour peak they could devote their limited supply of labour to food crops before turning to cotton later by August - September period. Research results have shown that for every one week delay in planting there was a corresponding 10% loss in yield.

Secondly, owing to insufficient capital, many farmers did not adequately spray or apply fertiliser to their cotton crop. This also significantly reduced yield because research results have shown that yield of up to 800 - 1,000 kg/ha was obtainable for July sown cotton under optimum conditions (Kumar and Ogunlela, 1989; Gusau, 1989; Yazid, 1989).

Another cause of low yield of cotton was mixed planting practised by farmers. Most cotton farmers grow their cotton in mixture with other cereals in order to minimise risk of crop failure and for complementary use of resources. It has been found by some station however, that when cotton is grown in mixture with cereals, to obtain yield as good as for sole cotton crop, it must be planted early with the cereal crop. This is because experimental results showed that "sowing later than 3 weeks after the cereals suppressed the cotton to the extent that the crop was unable to recover when cereal was removed" (Kumar and Ogunlela, 1989).

Inappropriateness of technology was also identified as one of the principal causes of aggregate low output of cotton. Most of the technologies developed for optimum cotton production were not in harmony with farmers cultural practices. Most farmers lacked the resources and time to grow cotton under optimum conditions, rather, they tried to fit cotton into the existing pattern acceptable to them. For example it is most difficult for a small farmer to afford 40 man hours to spray one hectare of cotton, six times with the spring - type knapsack. At the same time it would be uneconomical to buy a motorised knapsack which is very costly, highly technical and difficult to maintain. Farmers therefore selected and adopted some components of the practice that they found suitable and left others. Since recommended package are not divisible, selective application would not normally lead to achievement of high yield (Etuk et. al. 1989 A; Norman, 1975; Mustapha, 1989).

This problem was aggravated by lack of resources at the appropriate time, place, and in the right quantity and quality. Cotton requires meticulous attention such as timely thinning, weeding, fertiliser application, spraying and picking. The logistic for distribution of the inputs required for these operations were inadequate, the delivery system was poor and was full of malpractices such as hoarding and monopoly. It was not encouraging for farmers to adopt certain recommendations on cotton readily in a situation where the necessary inputs and equipments were not

readily available at the appropriate time.

Acquisition of seeds for planting must also be mentioned as one of the bottlenecks in cotton production. Unlike most other crops farmers sold seed cotton without retaining the seed. The seeds were normally retained by the N.C.B. for dressing and disbursement to farmers. Distribution was however inefficient due to poor logistics (Mustapha, 1989; Gusau, 1989).

High cost of production was also identified as another reason for the decline of cotton production. Available evidence had shown that the profitability of cotton was lower relative to other cereals such as maize. An experiment carried out to determine the cost of production of cotton under optimum conditions showed that the cost of production of one tonne of seed cotton was twice that of an equivalent quantity of maize, while the return for seed cotton was much lower (Gusau, 1989). Isitor (1985) showed that the average farmer spent ₦741.25 to produce a tonne of seed cotton which was sold at ₦560.

Production cost is high because of the high input requirements of cotton in respect of seeds, chemicals, fertiliser and labour. Cost of labour is an important component of the cost of production of cotton, due to large amount of labour required for farm operations especially picking. Since wage rate is determined by market forces, it tended to be high when demand for it is high (Etuk et. al., 1989 B; Ogunbile and Kyari, 1989).

Research findings have shown that even under large

scale production, cost advantage is negligible. This is because economy of scale is beneficial to producer only when bulk purchase of inputs reduces cost. However, in Nigeria, most inputs cost the same in spite of the quantity being purchased.

These problems of cotton production were aggravated by prevalence of pest and diseases on the crop as well as shortage of capital especially to small producers. Farm operations such as spraying demand money, usually at a time when cash resources were limited. Without credit, farmers encountered hardship and losses. Isitor (1985) observed that less than 10% of the farmers that were studied benefited from loans.

2.3.3.2 **Marketing Problems.**

In the area of marketing, there were bottlenecks which also contributed to the continued decline of cotton production during the years of the N.C.B. The most prominent among these problems was poor prices. At the inception of the N.C.B. in 1977, prices were fixed at the level of ₦330 for four consecutive seasons, before going up to ₦400 in 1981. It was later increased to ₦465 in 1982, ₦510 in 1983, ₦560 in 1984, ₦700 in 1985 and ₦850 in 1986.

An analysis showed that cotton had the lowest price increases relative to maize, sorghum, millet and groundnuts. From 1977 - 1980, cotton prices were static while prices of the other commodities increased by between 15 - 21%. In 1981 prices of maize, millet and sorghum attracted increases

of between 33 - 67% against cotton which increased by 21%. This unfavourable price situation had contributed to the shift in interest away from cotton production to other cereals, especially maize (Etuk et. al. 1989A; Gusau 1989).

The structure and logistics of the N.C.B. was also a source of problem for cotton marketing. The N.C.B. was the only buyer of cotton, thereby acting as a monosponist. Farmers had no alternative outlets of selling their produce, therefore, they must accept the price offered by the Board, unlike other cereals where relevant commodity Boards were considered by farmers only as buyers of last resort (Etuk et. al. 1989A).

Secondly, lack of permanent cotton markets and delay in construction of temporary ones caused unnecessary difficulties to farmers. In 1982 for instance, only 71 cotton markets existed out of the 660 required. For this reason, farmers were forced to travel long distance under condition of poor transport in order to get to cotton markets. Furthermore, buying seasons might open in November but actual transactions might start as late as January because temporary markets were yet to be constructed. Consequently farmers resorted to selling to middle men at lower prices (Etuk et. al. 1989A; Gusau, 1989).

Lack of other facilities especially for storage of seed cotton such as warehouses, bags etc. caused a great deal of loss to the N.C.B. The board had to transfer the responsibility of stockholding to the L.B.A.s in a

situation where the agents were burdened by shortage of funds and lack of credit. According to Isitor (1985), only 55% of registered L.B.A.s participated in cotton purchases in 1983/84 season due to lack capital. For reason of lack of fund, the L.B.A.s practised "delay tactics". They purchased cotton on credit and gave promissory notes to farmers, but did not pay easily. Farmers, therefore preferred to sell at much lower prices to opportunistic middlemen men (Etuk et. al. 1989A, Gusau, 1989; Yazid, 1989).

Large scale malpractices, especially by market functionaries was evidently an obstacle in cotton marketing. Such malpractices included under payment of farmers, down-grading and under-weighing of produce and arbitrary charges. of farmers on grading. Etuk et. al., (1989A) observed that in some markets farmers were charged for grading, and were generally extorted for seeds meant to be distributed freely. In a particular market in Zaria area, a rate of 2kg of cotton per bag was deducted from farmers as condition for purchase. In some markets, buyers leave station at the peak of buying season which made it impossible for farmers to sell. With all these obstacles, it was not suprising that cotton production declined over the years, as more farmers abandoned cotton in favour of other enterprises.

2.2.4 The Free-Market System

From the time cotton marketing started operating under the free-market system, three categories of participants

have been identified in the system. These are: the farmers, the merchants and the processors.

Cotton merchants were registered by state governments for a prescribed fee charged by respective state governments. They employed the services of commissioned agents who purchased cotton on their behalf in the rural areas. The merchants have grouped themselves under an association: Cotton Marketers Association (COTTMAN).

Since the free-market system came into operation, cotton production started increasing tremendously. For instance there was bumper harvest of cotton in the 1991/92 season in some of the cotton producing states (Anonymous, 1992A).

One of the problems that have manifested under the new marketing system was lack of good quality seeds at reasonable prices. The reason for this was that a number of cotton merchants were refusing to abide by the standing order which requires them to surrender between 5 - 25% of cotton seed to state governments for dressing and onward distribution to farmers at low prices. Most merchants sold seeds directly to farmers at higher prices and some of the seeds sold were not dressed.

Secondly, under the free-market situation, it was difficult to keep an accurate record of how much seed cotton was produced in the country because buyers handle cotton individually which they could process anywhere, as more ginneries are springing up (Anonymous, 1992; Olukosi and Isitor, 1990).

2.3 Theoretical Framework for Analysing Efficiency of Marketing

Scholars have postulated various analytical frameworks for the study of marketing. The various theoretical frameworks are generally attempts "to breakdown marketing system into parts which can be understood more readily" (Barker, 1981). These approaches include the functional approach, the institutional approach, the analytical approach, the problem identification approach, the commodity approach, the performance criteria approach and the structure - conduct - performance approach.

The functional approach attempts to understand marketing through classifying the activities which occur in the market process by breaking them into functions. Marketing function is referred to as "a major specialised activity performed in accomplishing the marketing process" (Baker, 1981).

Different bases have been applied in order to classify marketing functions. Kohls and Downy (1972) classified them into: exchange function which is buying and selling; physical functions which include storage, transportation and processing; and facilitating functions which include standardisation, financing, risk bearing and market intelligence.

Barker (1981) grouped the market functions under 'major' and 'subsidiary' functions. The major functions are assembly, equalisation and distribution while subsidiary

functions comprises processing, packaging, grading and specification, transport, storage, risk bearing, demand creation, price determination, financing, buying, selling, and provision and use of market information. Generally, however, each of the above attempts to identify how and what functions are carried out in the marketing process (Hills, 1965).

The institutional approach analyses markets by studying the various institutions, agencies and business structures which carry out the marketing process. For as Barter (1981) has argued, marketing institutions are a "wide variety of business organisations which have been developed to operate the marketing machinery". This approach studies the nature of the various middlemen and related agencies as well as the arrangement of the market (Kohls and Downey, 1972). Marketing institutions can be broken into 'marketing channels' (Baker 1981). These are: merchants, agents, speculators and processors. Merchants are bulk purchasers of products and normally hold title to the product they handle while agents are representatives of their clients, and do not own the product they handle. Agents could either be brokers or commissioned agents. Speculators are merchants who buy products with the major purpose of profiting from price fluctuation and therefore bear the risks associated with any unfavourable changes in prices. Processors are agents who change the product into a more desired form on behalf of the owners. They also take title

to products in some cases. Wholesalers, retailers and jobbers are also important marketing institutions under the above classification.

The problem identification approach attempts to identify specific problems and bottlenecks that are inherent in the marketing system and relate these problems to the structure, organisation and functions of the marketing system with a view to finding solutions to the problems (Kohl and Downey, 1972).

Another approach to market study is the analytical approach. This approach seeks to study market problems by breaking them down into their economic elements such as demand and supply, price mechanisms and costs (Barker, 1981).

Similar to the above is the performance criteria approach. In this approach, certain criteria such as efficiency, industrial stability, growth, consumer preference and product development are used as basis for comparison between marketing systems. This is more or less a comparative market analysis.

One of the most popular approaches to market analyses is the *structure - conduct - performance approach*. Several studies in agricultural marketing based on the assessment of free-market system have been conducted using this appraoch (Williams, 1981).

The basic assumption of this approach is that the performance of any market is the result of the conduct of participants which in turn is determined by the market

structure. A structure - conduct - performance causal relationship is assumed to exist, even though in the view of some analysts, the relationship could occur in the reverse direction: performance - conduct - structure (Pickering, 1974).

Market structure, essentially relates to the degree of competition in the market, that is, whether the number of firms producing a product is large or small, whether the firms are of equal size or a small group predominates, whether entry of new firms is easy or not, and whether the buyers of the product are few or many. Structure also relates to degree of market information that is available to participants (Williams, 1971).

Clodius and Mueller (1961) see structure as relating to market channels and facilities, to geographical and temporal relationships and to the value of coefficients of elasticity in agricultural markets. Tomek (1972) also views market structure as number, size and distribution of firms, degree of product differentiation and barrier to entry. According to Bain (1968), organisational characteristics of the market determine the relationships among and between buyers and sellers and also potential new entrants.

In a typical agricultural product market, number of buyers are usually lower than number of sellers, and concentration is high amongst buyers as opposed to the manufacturing industry where concentration is high among sellers (Bateman, 1971). Similarly market information is imperfect in

agriculture, first because of inelasticity of demand and supply and second, because of natural conditions, neither quantity nor quality of the product is under full control of the producer.

Conduct refers to pattern of behaviour of firms in adjusting to market conditions. It concerns such issues as collusive or restrictive practices such as price rings and other methods of determination of prices and output, tactics against established and potential rivals, product policy, etc.

Performance refers to the economic results that are achieved in the industry. Common criteria of assessing performance include whether returns to capital are excessively high or excessively low, whether all potential economies of scale in the industry are being exploited and whether prices are optimum (Williams, 1971; Bain, 1968; Clodius and Mueller, 1961).

According to Habashy and Christensen (1982) a market is performing efficiently if it satisfies the conditions of pricing and productive efficiency. Pricing efficiency refers to exchange mechanism which produces prices that conform to competitive standards. Productive efficiency on the other hand is achieved when firms adequately use their capacity and take full advantage of economies of scale.

This study did not restrict itself to any one of the above approaches. Rather, an appropriate mix was used as it suited the research objectives and the study environment. While marketing institutions were classified based on the

functions they performed or according to certain specified characteristics, it was necessary to break down some problems into economic elements for better analyses.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Area of Study

This study was carried out in five cotton producing areas across four states. These are Funtua and Malumfashi in Katsina State, Gusau in Sokoto State, Zaria in Kaduna State and Gombe in Bauchi State. These areas were selected because they constitute the core of the country's cotton production areas. For example, from 1977 to 1983 a total of 761,615 metric tonnes of seed cotton was produced in the country. Of this, 486,758 tonnes or 64% was produced in these five areas. Funtua had the highest of 17% followed by Gusau with 14.06%, Malumfashi 11.9%, Gombe 10.1% and Zaria 9% (Isitor, 1985). It was assumed for this reason that these areas are likely to experience very high level of marketing activities of cotton produce.

These four states are located within the Savanna region which covers the entire northern part of Nigeria. Cotton is almost entirely grown in this region which stretches between 7^{o} to 14^{o}N latitude and 4^{o} to 13^{o}E longitude. The area is characterised by pronounced fluctuations in local and seasonal climatic conditions, especially rainfall. Various soil types exist within this area, however, cotton is not very particular in its soil requirement (Kumar and Ogunlela, 1989).

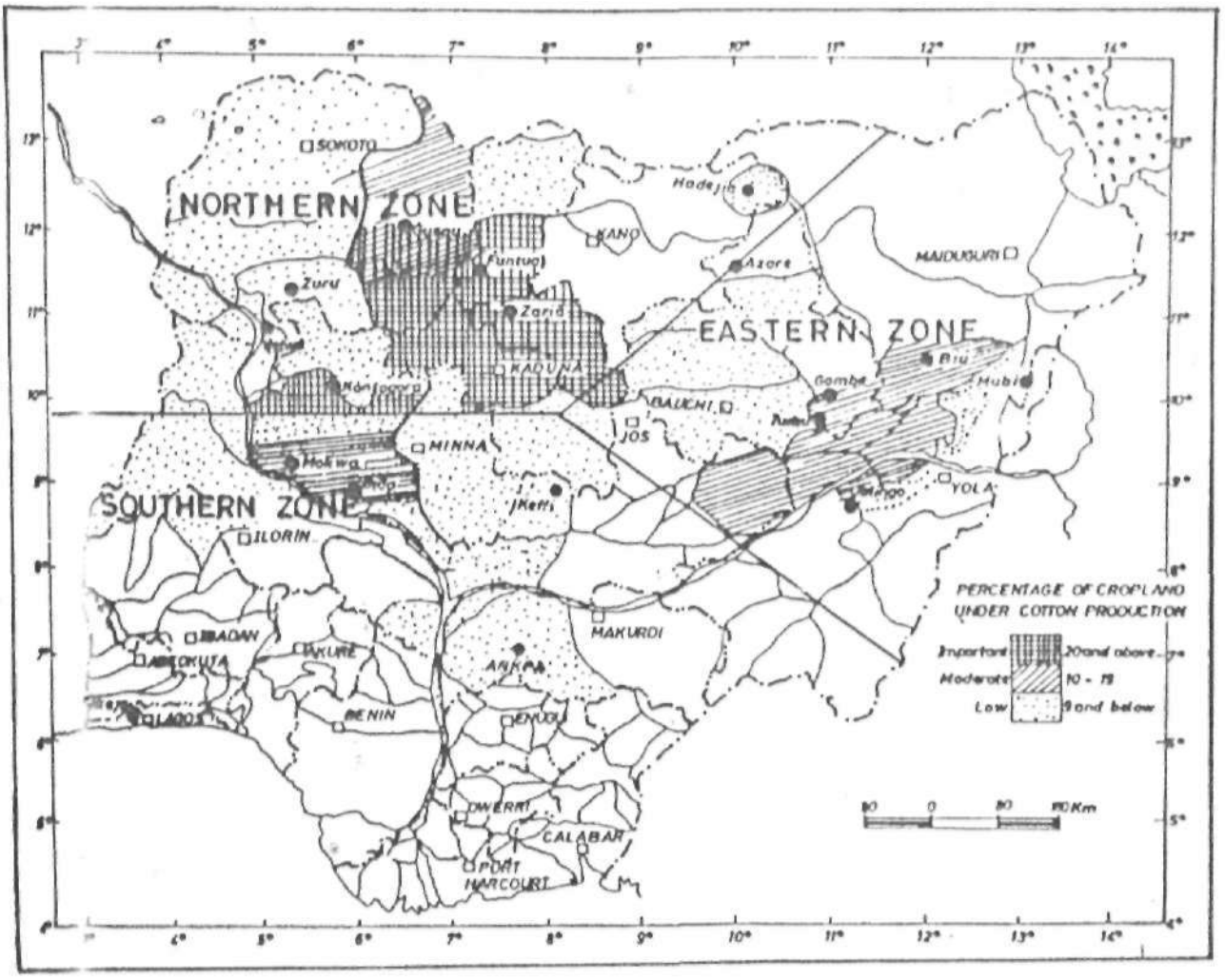


Figure 3.1: Cotton growing zones in Nigeria (Adapted from Kumar and Ogunlela 1989)

The Savanna region is divided into the Sudan Savannah in the north and Guinea Savanna in the south on the basis of climatic factors. On the other hand, the area is divided into three zones on the basis of cotton production (Figure 3.1). These are the northern, southern and eastern zones (Kumar and Ogundela, 1989; Mustapha, 1989; Lekwa and Nto, 1989).

The northern cotton zone lies in the northern Guinea Savannah and the southern part of the Sudan Savannah between 10°30′ and 13°00′N. The length of the rainy season in the area range from 170 days in the Guinea area to less than 120 days in the Sudan area, while the annual rainfall is about 900 - 1100mm. The soils are mainly deep, well drained, fine and medium textured. The surface range from fine sand to sandy loam, over sandy loam, sandy clay loam to clay loam or loam sub-soils. The ferrunginous soils of the area are capable of producing high yields of cotton if a high standard crop husbandry is maintained. This area accounts for some 65% of the cotton produced in the country. Politically, this area covers the present Sokoto, Kebbi, Kaduna, Katsina, Kano and Jigawa states as well as parts of Plateau and Niger states (Kumar and Ogunlela , 1989; Lekwa and Nto, 1989).

The eastern cotton zone comprises of mainly northern Guinea Savannah and a small fraction of the Sudan Savannah between latitude 8°00′ and 13°30′N. The mean annual rainfall like in the northern zone range between 900 - 1100mm. The length of the rainy season varies from 180 days in the south

to 150 days in the north. The soils are typically vertic in character, without marked holormophic tendencies. The main areas are on topographic vertisols of the Gongola and Benue trough. The soils are heavy clays throughout the profile and are derived from basalt, primarily on the Biu Plateau where the true vertisols occur. The soils vary from ferriginous to more fertile vertisols. This area which covers Adamawa, Taraba, Yobe, Borno and Bauchi states produces 30% of the nation's cotton product (Kumar and Ogunlela, 1989; Lekwa and Nto 1989).

The southern zone is made up of Benue, Kogi, Kwara and parts of Niger and Plateau states. The soils in this area are shallow, deep and well-drained and over iron pan. The mean annual rainfall range between 1100-1400mm. The length of the rainy season is between 170-210 days while rainfall distribution is bimodal and the risk of rain damage at harvest is high. Infestation by weeds and insects diseases is also greater in this area than in other zones. About 5% of the total cotton output in the country is produced in this zone (Kumar and Ogunlela , 1989; Lekwa and Nto, 1989).

3.7 Sampling and Data Collection

Information for this study were collected between January and May of 1992 from a sample of 75 cotton farmers, 15 cotton buying agents, 12 cotton merchants and three cotton ginning companies in the five selected areas across four States.

The data were collected by means of personal interview

using structured questionnaires. The questionnaires were administered in equal proportions among farmers and cotton buying agents in 15 villages in the selected areas of study.

The merchants sampled purposely comprised a mix of individual (sole proprietor) merchants and corporate merchants of various sizes in terms of their tonnage of seed cotton purchases. The merchants were selected purposely as random selection was not possible because many of the merchants were inaccessible to the researcher, and where they were, many more were very unwilling to release what they might consider as sensitive information regarding their business. Secondly, it was not possible to zone the merchants according to respective areas of study because their operations cut across various parts of the cotton producing areas of the country.

The three cotton ginning companies were also selected purposely for similar reasons as enumerated in respect of the merchants. Efforts were however made to select those companies that have ginning plants distributed all over the cotton growing zones of the country.

Data were collected from farmers regarding their production and marketing activities such as: farm size, crop yield, output, crop husbandry practices, costs, sources of inputs, harvesting and storage activities, modalities of sale, prices realised, and their experiences and assessment of the new marketing system. The data collected from the merchants and agents included tonnage of purchase, sales,

prices and exports. Information collected from ginners included tonnage of operation, capacity utilisation, ownership structure, ginning charges and problems of ginning.

3.3 Analytical Tools

The analytical tools employed for this study were as follows:

3.3.1 Descriptive Statistics

Simple descriptive statistics such as percentages, means, frequency distributions, standard deviations were used to group responses according to specific criteria. Correletion Coefficient was also used to decribe the relationship between variables. This aided the achievement of oojectives one, two and three.

3.3.2 Measures of Market Structure Analysis

Three measures of market structure analysis were used to analyse the structure and measure the efficiency of the market. They are:

3.3.2.1 The Gini Coefficient and the Lorenz Curve

The Gini coefficient was used along with the Lorenz curve to measure the level of buyer and seller concentration in the market in order to determine the degree of competition or monopoly in the market.

The Gini Coefficient (G) is given by:

$$G = (\tfrac{1}{2}n^2u) \sum_{i=1}^{n} \sum_{j=1}^{n} [Yi - Yj] \quad \ldots (3.1)$$

where: G = value of the Gini Coefficient,

n = number of observations,

u = arithmetic mean of observations,

y_i = purchases/output of observations i, and

y_j = purchases/output of observation j.

The G has a possibility of values ranging from 0 to 1 expressing the extent to which the market is concentrated. The value of G equals to 0 when there is perfect equality in the size distribution of buyers or sellers, as the case may be. The G equals to 1 when there is perfect monopoly in the market.

The Lorenz Curve figuratively displays the level of concentration in the market.

The value of the Gini coefficient is the same as the ratio of the area between the Lorenz curve and the 45^0 line to the total area above or below the line (the shaded area). Accordingly, when there is perfect equality of size distribution of buyers (or sellers) in the market, the curve coincides with the 45^0 line.. The further away the curve is from the 45^0 line, the greater the level of concentration in the market.

3.3.2.2. **The Herfindahl Index**

The Herfindahl Index (H) represents the sum of the squared ratios of purchase/output of each individual participant to the total purchases/output of all the participants in the sample. The highest possible value for H is 1 where the market is perfectly concentrated, and the

lowest possible value is 1/n when there is perfect equality. The H is given by:

$$H = \sum_{i=1}^{n} \left[\frac{Xi}{X} \right]^2 \qquad \ldots (3.2)$$

where:

H = the value of Herfindahl Index,

Xi = volume of output/purchases of the ith market participant,

X = total purchases/output in the sample, and

n = total number of observations.

3.3.2.3 The Coefficient of Variability

The Coefficient of Variability expresses standard deviation of a distribution as a ratio of its mean. It gives the extent to which a set values are dispersed about their mean. The standardised measure of the Coefficient of Variability denoted as C^* equals to 0 when there is perfect equality in the size distribution of data and approaches unity, the greater the level of concentration.

The C^* is given by:

$$C^* = \left[\frac{\left[\frac{V^2}{U} \right]}{\left[\left[\frac{V^2}{U} \right] + 1 \right]} \right] \qquad \ldots (3.3)$$

where:

C^* = standardised value of the Coefficient of Variability,

V = standard deviation of the distribution, and

U = arithmetic mean of the observations.

For all the above three models, the closer the values obtained are to 1, the greater the monosponic tendencies in the distribution which implies the greater the power of one or few individuals in influencing prices and, therefore, the less the efficiency of the market.

On the other hand, the lower the values obtained the greater the equality in competition and thus the less the power of a few to influence prices. Such a market will therefore be more efficient. The three models aided the achievement of objectives one and two.

As a measure of size distribution, the Herfindahl Index (H) tends to more accurate with larger data. Similarly, the Coefficient of Variability (C) is found to be most sensitive in discriminating distribution with extreme inequality in the high range of values while the Gini Coefficient (G) is particularly sensitive to inequalities in the middle range of the distribution (Olukosi, 1982).

3.3.3 Marketing Margin

The marketing margin shows the fraction of the consumers expenditure on a commodity that is received by the producer and each of the marketing agents. The marketing margin is a very useful indicator of marketing efficiency

(Olukosi and Isitor, 1990). It allows comparison between the benefits received by each of the market participants in relation to their cost. The margin also allows for identification of costly sectors in the system and areas where savings can be made (Habashy and Christensen, 1982).

The marketing margin can be expressed either in nominal terms or in percentages. The percentage was used in this study to aid the achievement of objective two. It was given by:

$$M = \left[\frac{P_1 - P_2}{P_2} \right] \times 100 \qquad \ldots (3.4)$$

where:

M = percentage of margin,

P_1 = selling price, and

P_2 = supply price.

3.3.4 Efficiency Ratio

Efficiency ratios are coefficients that are used to estimate the efficiency of marketing by measuring the ratio of benefits to cost for a particular marketing system or commodity. There are various models for this measure. The one used in this study follows after Habashy and Christensen (1982). It was given as:

$$E = 100 - \left[\frac{C_1 + C_2}{V} \right] \times 100 \qquad \ldots (3.5)$$

where:

E = Efficiency ratio,

C_1 = total cost of production,

C_2 = total cost of marketing, and

V = total value of the commodity marketed.

The (E) represents the ratio of the net value added to the commodity (resulting from marketing services) to its final value. The ratio was used to compare with what obtained under the commodity board marketing system.

3.3.5 **Gross Margin Analysis**

This tool was used to measure the cost - benefit relationship in cotton enterprise for both producers and marketers. The gross margin is a useful tool of analyses of profitability of farm enterprise, when fixed cost is negligible (Olukosi and Erhabor, 1988). The limitation of the tool is that while it shows enterprise profitability, it does not give the point where profits are maximised.

The gross margin is defined as:

$$GM = GR - TVC \quad \ldots (3.6)$$

where:

GM = gross margin,

GR = gross return, and

TVC = total variable cost.

3.3.6 **Price Index Analysis**

Simple index ratios (i.e. price relatives) were employed to analyse the behaviour of prices under the free-market system. Both intra- and inter-seasonal price changes

were measured and were compared to changes in costs. The price indices show by what percentage the prices have changed over the price in the base year. This aided the achievement of objective two.

The price relative is defined as:

$$P = \frac{P_t}{P_o} \times 100 \qquad \ldots (3.7)$$

where:

P = price relative,

P_t = price in given year/month, and

P_o = price in base year/month.

3.3.7 Marginal Cost Analysis

The marginal cost (MC), was compared to marginal revenue of cotton producers (MR) or price (P) in order to assess the level of efficiency of resource utilisation in the system. The MC is defined as change in total cost which results from change in unit output (i.e. dTc/dY). The MC was derived from the farmers' cost function which was estimated from the data collected.

Different functional forms were applied, and the best fit was selected on the basis of the magnitude of the coefficient of determination (R^2), the significance of the t and F values and the conformity of the signs of the coefficients with a priori expectactions.

The firm maximises its short-run profits when MC = MR at a point where the slope of the MC is greater than the

slope of the MR. If MC is less than MR, total profits have not been maximised and it would pay the firm to increase production, while profits would be reducing if MC is greater than MR, and it would pay to cut down production.

3.4 Limitations of the Study

3.4.1 Limitation of Sample

The sample size of 75 farmers was not an adequate representation of an estimated 800,000 cotton growers. While attempts were made to draw sample from across the major cotton producing areas, the size of the sample was limited to conform with available resources. This imposes a degree of limitation on whatever generalisation can be made about the population. Chances of bias were likely to be high in the sampling of merchants which was largely determined on the basis of those who were willing to respond.

3.4.2 Limitation of Data

The research relied greatly on information supplied by farmers, merchants and other market participants. The accuracy of the information largely depended on the honesty of the respondents, and their willingness to reveal sensitive information about their business and on memory recall ability of farmers, who hardly kept any record of their farm activities.

3.4.3 Limitation of Analytical Tools

Some tools of analyses used in this study are based on assumptions of perfect competition, which do not hold in 'real life' situation. This limits the extent to which the tools can provide adequate and practical descriptions of the parameters being studied. Secondly, some efficiency measures used are best interpreted when two markets or situations are being compared. In that case, attempt was made to draw comparison from findings of other relevant studies.

In spite of the above limitations, it is expected that the findings of this study are useful and relevant in describing the trend in the production and marketing of cotton in the areas of the northern Nigeria under the prevailing marketing system.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSIONS

4.1 The Market Participants

The principal participants in cotton marketing identified by this study were the producers, commissioned agents, processors, merchants, brokers and speculators.

4.1.1 The Producers

The producers were mainly small holders who grow cotton for cash to supplement other food crops such as maize, millet, guinea corn, cowpea, yam, rice, vegetables and spices.

The age of farmers sampled ranged between 20-70 years while the mean age was 41.2 years. Table 4.1 shows that the age groups of 40-49 had the highest frequency of 24, which represents 32% of the studied farmers. This meant that energetic middle-aged population constituted the core of cotton producers.

In terms of experience in cotton production, at least 40 (53.3%) of sampled farmers had been growing cotton for between 30 to 35 years. Although experienced farmers constituted the bulk of the respondents, 13 (17%) were found to have started growing cotton after 1986. This showed that new entrants have started engaging in cotton production business, probably as a result of the new marketing arrangement for the crop after the deregularation unlike in the early 1980's when many farmers were found to

be abandoning cotton in favour of other enterprises (Gusau, 1989).

TABLE 4.1: Distribution of farmers according to their age groups

AGE GROUP	NO. OF FARMERS	% OF FARMERS
20 - 29	11	14.6
30 - 39	20	26.7
40 - 49	24	32.0
50 - 59	18	24.0
60 - 70	2	2.6
TOTAL	75	99.9

Source: Survey Data, 1992.

The average family size of the sampled farmers was estimated to be 19. The large family size was mainly due to the polygamous practice, that is very common in the area of study. The main farm activity of women in cotton production was observed to be the picking of the produce and fertiliser application.

With regard to off-farm employment, majority of the farmers studied had other sources of income in addition to crop production. This additional sources of income include farm related activities (such as fishing and herd keeping), petty trading, artisanship and other forms of self employment and wage earning.

Only 8 (10.7%) of the sample farmers depended only on

crop production as a source of income. Table 4.2 gives the distribution of farmers according to their major sources of income besides crop production.

In terms of level of education, only 12 (16%) of the respondents never attended any school while 39 (52%) had attended either primary or secondary school. Three of the respondents were graduates, one of whom had a masters degree. This was an indication that educated young men have begun go into cotton production (among other crops) as an avenue for self-employment.

The general educational level of the respondents showed that a large number of them could read and write in at least Hausa language using either English or Arabic letters. With intensive extension education, many could easily learn and apply improved farming practices.

TABLE 4.2: Distribution of farmers according to their off-farm employment.

TYPE OF EMPLOYMENT	NO. OF FARMERS	% OF FARMERS
Private business	22	29.3
Produce marketing	21	27.9
Working	12	16.0
Herding	11	14.7
Fishing	1	1.3
Nil	8	10.7
TOTAL	75	99.9

Source: Survey Data, 1992.

TABLE 4.3: Distribution of farmers by levels of education

LEVEL OF EMPLOYMENT	NO. OF FARMERS	% OF FARMERS
Nil	12	16.0
Islamic education	11	14.7
Adult education	7	9.3
Primary school	22	29.3
Secondary	17	22.7
Advanced level	3	4.0
Graduate	3	4.0
TOTAL	75	100.0

Source: Survey Data, 1992.

4.1.2 **The Merchants**

The merchants constituted those who undertook the purchase of seed cotton from the producers and sold to the consumers of the two main seed cotton products - the textile mills (for the lint), and the oil mills (for the cotton seed). The merchants studied were private individuals and corporate bodies that went into cotton trade following the scrapping of the Nigerian Cotton Board in 1986. The sample comprised both those who started the cotton business as early as the 1986/87 season, and those who started as late as 1991/92 season.

The merchants could be broadly categorised on the basis of their organisational structure as: individual and corporate merchants. The individual merchants were the

wealthy local traders who engaged in cotton business and personally ran their business (mainly from their homes) with the assistance of few staff, usually their relations.

Corporate merchants were well organised limited liability companies with broad shareholding and directorship among experienced members of the organised private sector. They operated in registered offices and many had branch offices at various buying locations. They employed trained personnel in the field of management, marketing and finance.

The sources of finance for corporate merchants were share capital and bank loans, and sometimes advance payments from textile firms while most individual merchants used their personal savings to finance their businesses.

In terms of their scales of operation measured by the volume of their purchases and sales, it ranged between just a little less than 100 and 10,000 tonnes of seed cotton per merchant in the 1991-92 season. Using the estimated ₦7,500 average cost of marketing one tonne of seed cotton, as found in the course of this study, their turnover might range between ₦750,000 to 75 million naira.

The operational activities of the merchants in addition to buying and selling of cotton included processing, transportation, supply of agricultural inputs and extension services. The merchants supplied the funds for performance of marketing services and bore the responsibility for organising and supervising the execution of the services, namely: purchase, storage, transport, processing, insurance, handling and delivery to the final

users.

Another category of cotton merchants identified in the study were the speculators. These were middlemen who took advantage of price increases by purchasing seed cotton at the beginning of the season when prices were low, and sold at the later part of the season when they were high. Since 1986, prices of seed cotton have shown an average increase rate of 106% between the beginning and end of each season. With good timing this category of merchants could make very substantial profits during any cotton marketing season.

4.1.3 The Commissioned Agents

This study found that cotton merchants employed the services of commissioned agents to source and purchase seed cotton from various nooks and corners of the farming rural areas. The agents purchased the produce and took charge of handling and transport to various points as may be demanded by the merchants. Usually most merchants required their agents to deliver seed cotton purchased to the ginneries or their own private dumps.

Most of the buying agents were found to be resourceful cotton farmers. Out of the 15 agents sampled, 13 were cotton farmers, and some of them grew the crop in substantial quantities. Many of them also had years of experience in produce buying. While 9 of them had been in produce buying business under the N.R.M.B., the N.C.B. and the L.B.A.s for between 25-30 years, only 6 of them joined

the business within the last 6 years.

A commissioned agent might purchase seed cotton on behalf of many merchants at the same time. For example 7 of the studied agents purchaseed cotton on behalf of one merchant, 4 on behalf of 2 and 4 others on behalf of 3 and above. Similarly the activities of some agents extended across state boundaries.

The agents enjoyed some privileges from merchants such as securing of loans for cotton production, seeds and other inputs. This is because of the confidential relationship that existed between merchants and their agents.

The agents received a commission of between N200 - N300 /tonne, usually after the cotton was ginned and the quality and quantity of what they delivered was fully ascertained. In the case of shortage, the value of cotton lost was deducted from their commission by the merchants. Although the commissioned agents had little financial commitment, they bore responsibility for any loss of seed cotton in their care.

The agents employed sub-agents to assist them in carrying out their assignments. The sub-agents were younger men, and those farmers who did not win enough trust and confidence from merchants as to be employed by them.

Another category of agents were brokers who earned commission by bringing buyers and sellers together. Brokers normally located owners of seed cotton and helped them to enter into contract with buying agents or merchants

without physically handling the commodity. Skilful brokers often got their commission from both buyers and sellers.

4.1.4 The Cotton Processors

Seed cotton was usually processed into cotton seed and cotton lint by cotton ginners located in different parts of the cotton growing areas. Before deregulation, there were 2 ginning companies that owned 13 ginneries. During the time of this study however, there were 9 companies and 20 ginneries in the country. The location and ownership of these ginneries are discussed in section 4.4.6.

4.2 Production Activities

4.2.1 Cotton Production

This study found that average yield of cotton has increased from about 800kg/ha (Isitor, 1985) to a little more than one tonne/ha during 1991-92. It was also found that 60 (79.9%) of sampled farmers planted their cotton crop within the months of May and June (Table 4.4). This might have contributed to the observed increase in yield.

Similarly, early planting also implied higher cost of production because farm operations such as early weeding were carried out during July - August when labour demand was highest.

Generally, farmers tried to give their cotton crop the desired attention, within the limit of the resources available. Virtually all farmers sampled showed that they undertook all the necessary farm operations required for

cotton production, from land preparation to spraying and fertiliser application. Only one of the respondents said he did not earthen up in order to minimise cost, and 2 others said they did not apply fertiliser, one because of lack of funds and the other because he used farm yard manure. These indicated that farmers were beginning to recognise the importance of adequate crop management in cotton production.

TABLE 4.4: Distribution of farmers by their time of planting

TIME OF PLANTING	NO. OF FARMERS	% OF FARMERS
April	2	2.7
May	25	33.3
May/June	4	5.3
June	31	41.3
June/July	1	1.3
July	9	12.0
August	3	4.0
TOTAL	75	99 9

Source: Survey Data, 1992.

There have been substantial increases in average farm size and output of cotton farmers. The average farm size of sampled farmers was 3.553 hectares, while average output per farmer was 3.162 tonnes of seed cotton. The farm sizes ranged between 0.5 hectare for the very small farmers to 45 hectares for the biggest farmer sampled while their output also ranged from 0.5 tonne to 31 tonnes of seed cotton.

The average yield for the sampled farms was 1.0395 tonnes/hectare with lowest of 400 kg/ha while the highest yield was 2.12 tonnes/hectare. The variation in yield was significant with a standard deviation of 0.4469. This variation was largely due to variation in intensity of land use and the ability of farmer to carry out all the required farm operations adequately.

TABLE 4.5: Distribution of farmers by the sizes of their cotton farms.

SIZES OF FARMS (HECTARES)	NO OF FARMERS	% OF FARMERS
Less than 1	3	4.0
1 - 4	56	74.6
4.1 - 8	12	16.0
8.1 - 12	2	2.7
Over - 12	2	2.7
TOTAL	75	100.0

Source: Survey Data, 1992.

In order to measure the relationship between intensity of land use and yield, correlation analyses were ran between farmers' cost per hectare and yield per hectare. The cost per hectare of the sampled farmers ranged from ₦963 to ₦9,385. It was assumed that cost incurred was a reflection of the degree to which farm operations were carried out intensively. The value of the correlation coefficient (r) was 0.772, indicating a strong linear positive relationship between cost incurred and yield obtained.

It was observed in the course of this study that farmers still preferred to grow cotton in mixtures. The sampled farmers grew cotton both solely and in mixtures with maize, beans, groundnuts, and millet. Cotton/maize was about the most popular mixture among the respondents. There were a few farmers that grew cotton as a sole crop. Table 4.7 shows that 17 farmers (22.7%) grew sole cotton exclusively, while 10 (13.3%) grew both sole and mixed cotton, either on different parts of the same plot or on different plots.

TABLE 4.6: Distribution of farmers according to their output of seed cotton.

OUTPUT (TONNES)	NO. OF FARMERS	% OF FARMERS
Less than 1	4	5.3
1 - 2	32	42.7
2.1 - 4	28	37.3
4.1 - 6	5	6.3
6.1 - 8	4	5.3
8.1 - 10	1	1.3
Over 10	1	1.3
TOTAL	75	99.9

Source: Survey Data, 1992.

TABLE 4.7: Distribution of farmers by their cropping pattern

CROP PATTERN	NO. OF FARMERS	% OF FARMERS
Sole cotton	17	22.7
Cotton/maize	27	36.0
Cotton/maize and sole cotton	10	13.3
Cotton/maize and cotton/beans	9	12.0
Cotton/maize and cotton/G.nuts	5	6.7
Cotton/maize and cotton/millet	2	2.6
Other mixtures	5	6.7
TOTAL	75	100.0

Source: Survey Data, 1992.

Farmers obtained their farm inputs (seeds, fertiliser and chemicals) from three major sources: government agencies (all governmental departments whose functions include supply of agricultural inputs) the open market, and cotton merchants. The distribution of farmers' sources of inputs showed that merchants were predominantly the main source of seeds followed by the open market (Table 4.8). Government sources were more or less supplementary, because of the 14 respondents that obtained seed through it, only one said he relied on it exclusively. The open market was the main source of fertiliser and farm chemicals, while the other two sources were complementary.

Generally, farmers expressed satisfaction with the

quality of the inputs obtained. However, 2 of them (2.6%) said the seeds they bought were of such poor quality that they had to re-plant because the initial seeds did not germinate while 11 farmers (14.7%) complained of poor quality farm chemicals.

TABLE 4.8: Distribution of farmers by sources of farm inputs.

	SEEDS		FERTILISER		CHEMICALS	
SOURCES	NO.	%	NO.	%	NO.	%
1. Government	1	1.3	1	1.3	3	4.0
2. Market	9	12.0	56	74.7	61	81.3
3. Merchants	40	53.3	-	0	1	1.3
4. 1 and 2	2	2.7	4	5.3	6	8.0
5. 2 and 3	12	16.0	6	8.0	4	5.3
6. 1 and 3	4	5.3	8	10.7	-	0
7. 1, 2 and 3	7	9.3	-	0	-	0
TOTAL	75	99.9	75	100	75	100

Source: Survey Data, 1992

Cotton was harvested by means of picking manually, although some very big farmers used machine pickers. All the sampled farmers picked their cotton between October and February. The produce was picked once, or more times depending on time of planting, husbandry practices and yield. Farmers who planted in May - June started picking cotton as early as September - October and the exercise ran

into a couple of months if yield was high. While 19 (23.3%) of the respondents harvested within a month, 35 (46.7%) within two months, 21 (28%) harvested within three to four months.

4.2.2 **Production Financing**

Cotton production is a very capital intensive enterprise. Accordingly, a lot of capital is required to be gainfully employed in its production, but supply of capital was found to be grossly inadequate. All the respondents indicated that they needed more capital to expand their production capacity or to adequately maintain existing ones. Insufficient capital inhibited farmers from giving the maximum attention required to their crops. For example, 27 (36%) sprayed their crops only once instead of 4 to 6 times required because they had ran out of cash.

Cotton merchants were the most important source of credit for farmers and they neither took collateral nor charged interest for the loans they gave out as attested by the farmers that borrowed from them. The benefits the merchants got from giving out loans to farmers was guaranteed supply of seed cotton from the loan beneficiaries. Personal savings was still the major source of funding for farmers as 54 (72%) financed their production using only their savings while all those who borrowed money indicated that they still used their personal savings to support the loans. Similarly, bank loans remained an insignificant source of credit to farmers because only 3

(4%) of the respondents benefited from bank loans out of the 7 (9%) that had applied (Table 4.9).

TABLE 4.9: Distribution of farmers by their sources of capital.

SOURCES	NO. OF FARMERS	% OF FARMERS
Personal savings	54	74.0
Banks	3	4.0
Merchants	16	21.3
Friends/Relations	2	2.6
TOTAL	75	99.9

Source: Survey Data, 1992.

4.3 Marketing Activities

4.3.1 Organisation of Cotton Markets

Buying and selling activities of cotton were scheduled to be conducted at gazetted cotton markets. The government maintained its responsibility for erecting and maintaining of the gazetted cotton markets all over the cotton producing areas in the country. Farmers were required to take their produce to respective gazetted markets for sale to private merchants or their agents after inspection and grading by produce inspection officers.

The study however found that farmers were not willing to bear the burden of transporting their produce to the gazetted market nor to face unnecessary harassment by

inspection officers. They, therefore, sold their produce at their houses or farm gates, as there was no way of enforcing the stipulated marketing arrangements. The buyers followed farmers to their farms or homes in order to transact business. Table 4.11 shows that none of the sampled farmers sold his produce at any of the gazetted markets.

4.3.2 **Storage Activities**

Storage affects the time and place of sale of seed cotton. Storage was found to be very common among cotton farmers because it permitted them to take advantage of price increases. This was because the prices of seed cotton were always lowest at the beginning season and increased steadily towards the middle and end of the season.

Table 4.10 shows that at least 31 (41.3%) of the sampled farmers store their produce for between 1-2 months while only 3 (4%) sold at the farm gates without storing. Many of the farmers that sold their produced soon after harvest were those who either used borrowed money to finance their production or those who had collected payments in advance. Those that borrowed money were not allowed by their respective creditors to hold cotton for a long time.

The cost of storage was observed to be negligible and was far less than the benefits. The cost was incurred mainly because of handling (loading and off loading) and sometimes re-packaging. Farmers sampled considered the cost to be so negligible that only 26 (34.7%) of them actually accounted for the cost. The average cost of storage for a

tonne or seed cotton was about ₦30.00 representing about 1% of the total cost. Of this, the farmers spent an average of about ₦10.00 being cost incured mainly for loading and off-loading while they lose between ₦16.00 to ₦22.00 representing the loss of weight of between 3 to 4kg of cotton per tonne of seed cotton as a result of shrinkage.

TABLE 4:10 Distribution of farmers by length of time of storage.

PERIOD OF STORAGE	NO. OF FARMERS	% OF FARMERS
Less than one week	1	1.3
1 - 2 weeks	8	10.3
2 - 4 weeks	19	25.3
1 - 2 months	31	41.3
Over 2 months	13	17.3
No storage	3	4.0
TOTAL	75	99.9

Source: Survey Data, 1992.

This was also considered to be very negligible as some farmers said that when they planned to store their seed cotton for up to one month or more they slightly over-packed it in bags, so that at the time of sale it would weigh about the desired measure (25kg) as result of the said shrinkage. The benefit of storage was found to be very great as prices could increase by about 10 - 20% within a month.

The problems of storage faced by farmers were inadequate facilities, soaking, dirtying of cotton and

spoilage of bagging materials. The respondents that faced these problems (18.7%) stored their produce in the open space. The rest of the respondents stored their cotton in storerooms and they indicated that they encountered no problems. Only two (2.7%) farmers reported the problem of rats damaging their bagging materials. Others mentioned the risk of destruction by fire, but no respondent said he had ever experienced that.

4.3.3 **Buying and Selling Activities.**

As earlier noted, buying and selling of seed cotton took place mainly at farmers' homes, farm sites, merchants' offices, or any convenient point of contact. The previous Cotton Board restriction on time and place of buying and selling of seed cotton appeared to be non - existent under the present system (Table 4.11). Most farmers took their seed cotton home for storage after harvest and waited for favourable price offers.

Many commissioned agents were personally known to the producers because it was part of their tool of business to keep informed of who and who was growing cotton and in what quantity. It was found that some merchants bought seed cotton directly from farmers as 43 (57.3%) of sampled farmers said they sold to agents, 17 (22.6%) sold to merchants directly, and 15 (20%) sold to both merchants and buying agents.

TABLE 4.11: Distribution of farmers according to points of sale of seed cotton.

POINT OF SALE	NO. OF FARMERS	% OF FARMERS
Farm gate	3	4.0
Home	59	78.7
Gazetted cotton markets	0	0.0
Village markets	0	0.0
Merchants' offices	12	16.0
Sold to textile mills after processing	1	1.3
TOTAL	75	100.0

Source: Survey Data, 1992

Farmers also exchanged cotton for inputs especially fertiliser. For this mode of exchange farmers with reasonable quantity of seed cotton were found to be in the best position to bargain for payment in kind. Other forms of payment included seeds, chemicals and even building materials. Thirteen (17.3%) of sampled farmers said they exchanged part of their produce for payments in kind.

Different sales agreements were reached between buyers and sellers depending on the relationship between the parties. While most of the farmers sampled generally sold on the basis of the 'payment-on-delivery' condition, some sold on credit or in advance.

Farmers who sold their seed cotton in advance did so to

finance part of their production activities or to support their families during the production season. Farmers also sold on credit to reliable customers who might not be in possession of cash at the time they required cotton. The farmers said they allowed about a week or less for payment.

TABLE 4.12: Distribution of farmers by mode of sale of seed cotton.

MODE OF SALE	NO. OF FARMERS	% OF FARMERS
Payment on delivery	61	81.3
Credit sale	5	6.7
Advanced sale	9	12.0
TOTAL	75	100.0

Source: Survey Data, 1922.

4.3.4 Marketing Malpractices

Both buyers and sellers widely accused each other of cheating and default. The buyers accused sellers of soaking seed cotton or mixing it with foreign matter such as sand to make it heavier. All the buyers sampled said they experienced this action frequently. Because the merchants usually held their agents responsible for any losses they incurred arising from such malpractices, the agents said they were, thus, compelled to thoroughly check the produce before paying even though it could be tedious and sometimes impossible.

Farmers on their part said they were cheated by buying

agents as 16 (21.3%) of the farmers complained of short weighing by manipulation of scale and 2 (2.7%) said the buyers often went away with their bagging materials. Farmers said that they always cross-checked tension of scale before weighing to make sure it had not been tampered with while others said that they tried to avoid dealing with dishonest buyers. While 34 (45.32%) of the farmers said they preferred to deal with long standing customers who had reputation for honesty and integrity, 41 (54.6%) said they were ready to deal with any buyer that offered the best price.

4.3.5 Inspection and Grading

Inspection and grading of seed cotton appeared to have virtually collapsed as they were never carried out because buying and selling activities did not take place at the gazetted markets nor in the presence of inspection officers. At the initial take off of the free-market system, inspection officers tried to track unauthorised buying centres for the purpose of inspection. This was however abandoned because it was practically impossible to keep track of thousands of transactions taking place at numerous locations.

The Produce Inspection Departments in states now stationed officers at ginneries to collect grading fees of N2% per tonne of seed cotton. In practical terms therefore revenue collection has replaced inspection and grading.

The implications of this are very serious. First,

adulteration of seed cotton is becoming more rampant. Soaking, in particular, causes seed to lose its quality resulting in poor germination when planted. Secondly, with little emphasis on quality, efforts directed at improving the quality of Nigerian seed cotton may not yield any meaningful result, and such a situation would not augur well for the future.

The Produce Inspection Departments were also responsible for collection of between 5 - 25% of cotton seed from merchants. This was to be done at the ginneries where the inspection officers deducted the seeds on the spot immediately after ginning. Such seeds were to be dressed and sold to farmers at controlled prices through government distribution agencies.

It was however found that this responsibility was not carried out properly as only 14 (18.7%) of farmers got seeds from the government sources and some merchants acknowledged that they did not release their seeds to the produce Departments.

4.3.6 **Processing Activities**

Since 1986, seven new ginneries have come into existence. This is in addition to the 13 that had been in existence earlier (before 1986). This brings the total ginneries in the country to 20 owned by 8 private companies and 1 government owned company (Table 4.13). The ginneries are located in 9 cotton producing states in the country.

TABLE 4.13: Distribution of ginneries by ownership and location, 1992.

NAME OF COMPANY	NO. OF GINNERIES	OWNERSHIP STRUCTURE	LOCATION
1. Cotton and Agricultural Processor Ltd.	12	Private	Various **
2. Challawa Cotton Ginning Co. Ltd.	1	Public	Challawa
3. Zazzau Ginnery Ltd.	1*	Private	Zaria
4. Affcott Ltd.	1*	Private	Nguroro
5. Dangote Farms Ltd.	1*	Private	Kankara
6. Cotton Ginning Co. Ltd.	1*	Private	Marabar Kankara
7. Lalang Group of Co. Ltd.	1*	Private	Gusau
8. Zamfara Textile Ltd.	1*	Private	Gusau
9. Funtua Textiles Ltd.	1*	Private	Funtua
TOTAL	20		

** the locations are: Malumfashi, Funtua, Gusau, Gombe, Kumo, Misau, Mai Inchi, Zaria, Lamurde, Biu, Kuru and Kontagora.

* established after deleguration.

C. A. P. Ltd. the owner of 12 of the older ginneries is the biggest cotton processing company with an annual capacity of 90,000 tonnes of lint (about 500,000 bales of 181.43kg each). This accounted for some 70% of total ginning capacity in the country.

The new ginneries have introduced variety into the size

of bales of lint. While the older ginneries produced standard British bales of 181.43kg (about 400 lbs), the new ones mostly American products produce 200kg bales (440lbs), and bales of higher weight where and owner request for such. The ginning ratio was found to be 33:66:1 for lint, seed and waste. The new ginneries have fairly sophisticated modern equipment and thus produced very clean lint.

Although the number and distribution of ginneries seems to be adequate, it was observed that they operated below 50% of their installed capacity due to the seasonal nature of cotton produce. During the rainy season they generally do not operate as there would be no seed cotton to gin, while during cotton season the demand for ginning exceeded the capacities of the ginneries to such an extent that a merchant might wait on the queue for as long as two months before his cotton was ginned. The ginneries generally operated between October and July of each year.

The ginners charged between N500.00 to N550.00 for ginning a tonne of seed cotton during the 1991/92 season. This represented about 7.22% of the total marketing cost and was slightly higher than the 6.51% that the N.C.B. paid for ginning a tonne of seed cotton in 1983 (Isitor, 1985).

Ginners sometimes received payments well in advance of the season based on projection, but unlike the practice during the N.C.B. era (Isitor, 1985) any under- or over-payment was ususally rectified at the end the season.

The owner of seed cotton or his insurers shouldered the risk of any loss or damage of cotton during processing as

ginners refused to carry such risks.

The problems ginners encountered included shortage of spare parts which had to be imported in the face of dwindling foreign exchange value. The second was difficulty in ginning very dirty seed cotton containing foreign bodies like sand introduced by dishonest farmers and trash contained in mechanically picked cotton. There was also difficulty in ginning seed cotton which has been rained upon or which had high moisture introduced through wetting. These were most especially observed with the old ginneries, as the new ones were built with blowing facilities (cleanliness) for removing trash and driers that eliminate moisture.

4.3.7 **Sales to Millers**

The merchants were the only middlemen that took title to seed cotton as both commissioned agents and processors handled the produce on their behalf.

The merchants sold the cotton products (lint and seed) to textile and oil mills respectively at various locations in the country and even outside, under different forms of contract agreements. Merchants delivered lint to textiles at their factories either on 'cash-on-delivery' basis, or after some advance payments or even on credit. Sometimes transactions were made through banks who acted as brokers.

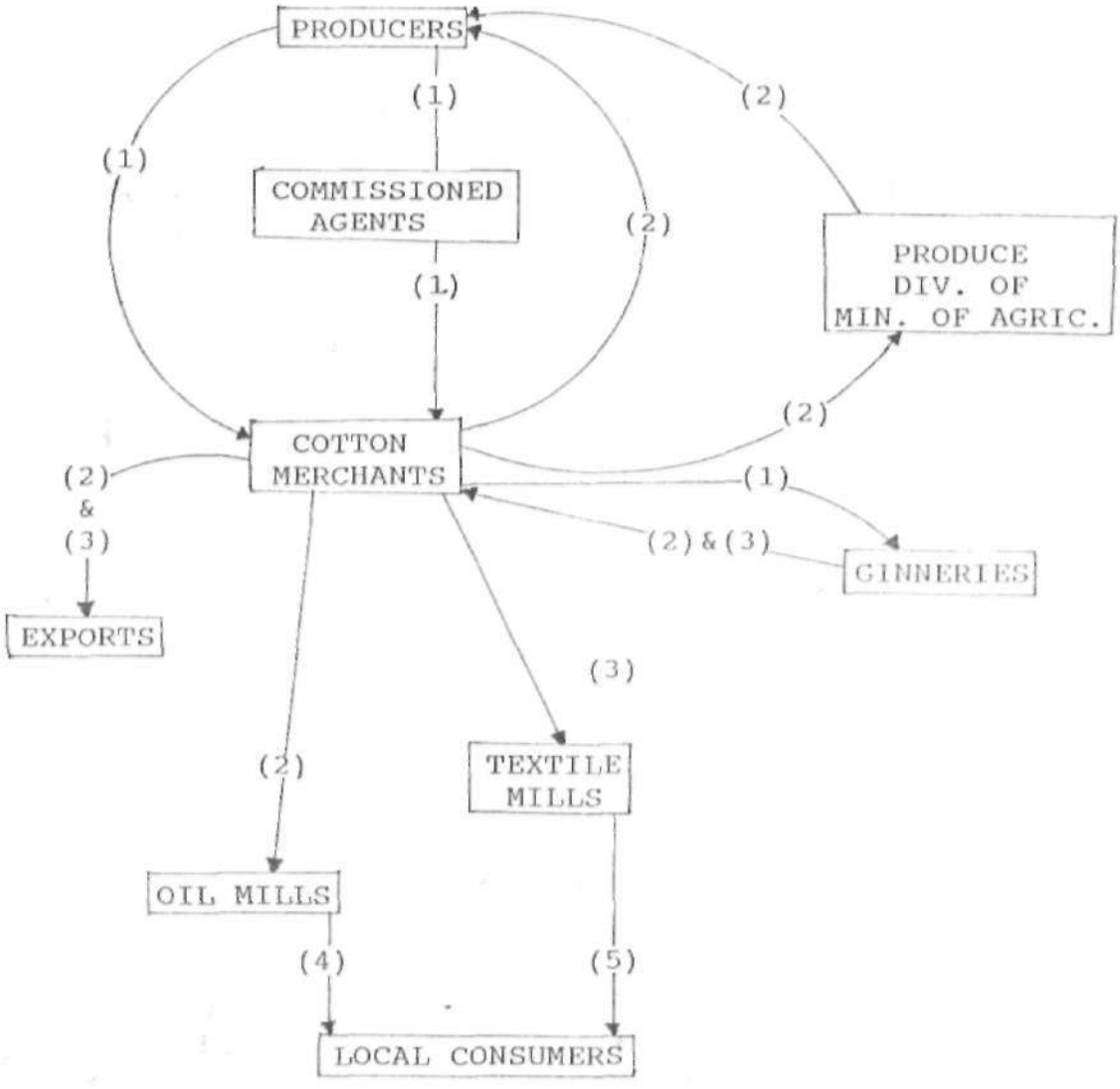
In terms of exports, one of the sampled merchanting companies exported 3,295 bales of lint (about 600 tonnes) and 3,700 tonnes of cotton seed during the 1989/90 season,

and 2,000 bales of lint (about 400 tonnes) during the 1991/92 season. This shows that since the deregulation, Nigerian cotton is gradually going back to the international market.

4.4 The Market Channel

Agricultural market channels describe the movement and stages of transfer of farm produce from the farmers to the final consumer (Hays, 1974). Market channels are useful in understanding the marketing system and the relationship of market agencies, sources of supply and outlets to each other (Brunk and Darrah, 1955).

The basic stages of the marketing process of cotton in Nigeria did not appear to have changed. That is from producers to the middlemen, to the processors and then to the final consumers (figure 4.1). The fundamental changes observed were in the nature and organisation of the marketing agencies which have also caused changes in their relationship. The most important of these is plurality of the said agencies especially the buyers and processors, which have been discussed earlier in the section 4.3.



(1) Seed cotton
(2) Cotton seed
(3) Cotton lint
(4) Cotton seed oil, cake and pallets
(5) Clothing, apparel, hospital lints etc.

FIGURE 4.1: Marketing channel for seed cotton under the free market system.

4.5 The Market Structure

Market structure deals with the underlying characteristics of a market which determine competitive relations between and among buyers and sellers and the nature of pricing in the market. It also concerns the relationship between present and potential producers in terms of entry into, and exit out of the industry. It is on the basis of the relationship that we can observe, measure and analyse the degree of concentration among sellers and/or among buyers, the degree of product differentiation, the height of barrier to entry, etc. (Aboyade, 1983).

Prior to the deregulation of the Nigerian cotton market, it was a pure monospony, with N.C.B. as the only buyer. Since the deregulation however, a completely new structure has emerged. The structure of the new marketing arrangement is discussed under the following elements:

a) number and size distribution of buyers and sellers;
b) barriers to entry;
c) nature of product;
d) degree of vertical integration; and
e) market information.

4.5.1 Number and Size Distribution of Buyers and Sellers

The three measures of market structure analysis: the Gini Coefficient, the Herfindahl Index and the Coefficient of Variability were applied to measure the size distribution of sellers (farmers) using their individual output of seed cotton and that of buyers (agents and merchants) using their

volume of seed cotton purchases. The values obtained from the three measures is shown on Table 4.14. The standardised values of the Coefficient of Variability are presented along with their absolute values which are given in parenthesis. Similarly, the Lorenz Curves displaying the size distribution of the respective market participant are shown on figure 4.2, 4.3 and 4.4.

TABLE 4.14: Measures of size distribution of market participants.

Participant	Herfindahl Index	Gini-coefficient	Coefficient of Variability
Merchants	0.3251	0.5915	0.7599 (1.779)
Agents	0.0983	0.3551	0.3372 (0.7133)
Farmers	0.0318	0.2335	0.5423 (1.185)

Source: Survey Data, 1992.

The values obtained for the three models indicated certain degree of concentration among buyers, particularly the merchants. The degree of concentration among merchants given by the Herfindahl Index is equivalent to 26.38% (0.3251) while the Gini-Coefficient (G) showed 59% (0.5915) and the Coefficient of Variability (C^*) showed 76% (0.7599). The high values given by the G and the C^* showed that much of the concentration was explained by inequality in the middle and high range of the distribution. This corresponds with the curvature of the Lorenz Curve in figure 4.2.

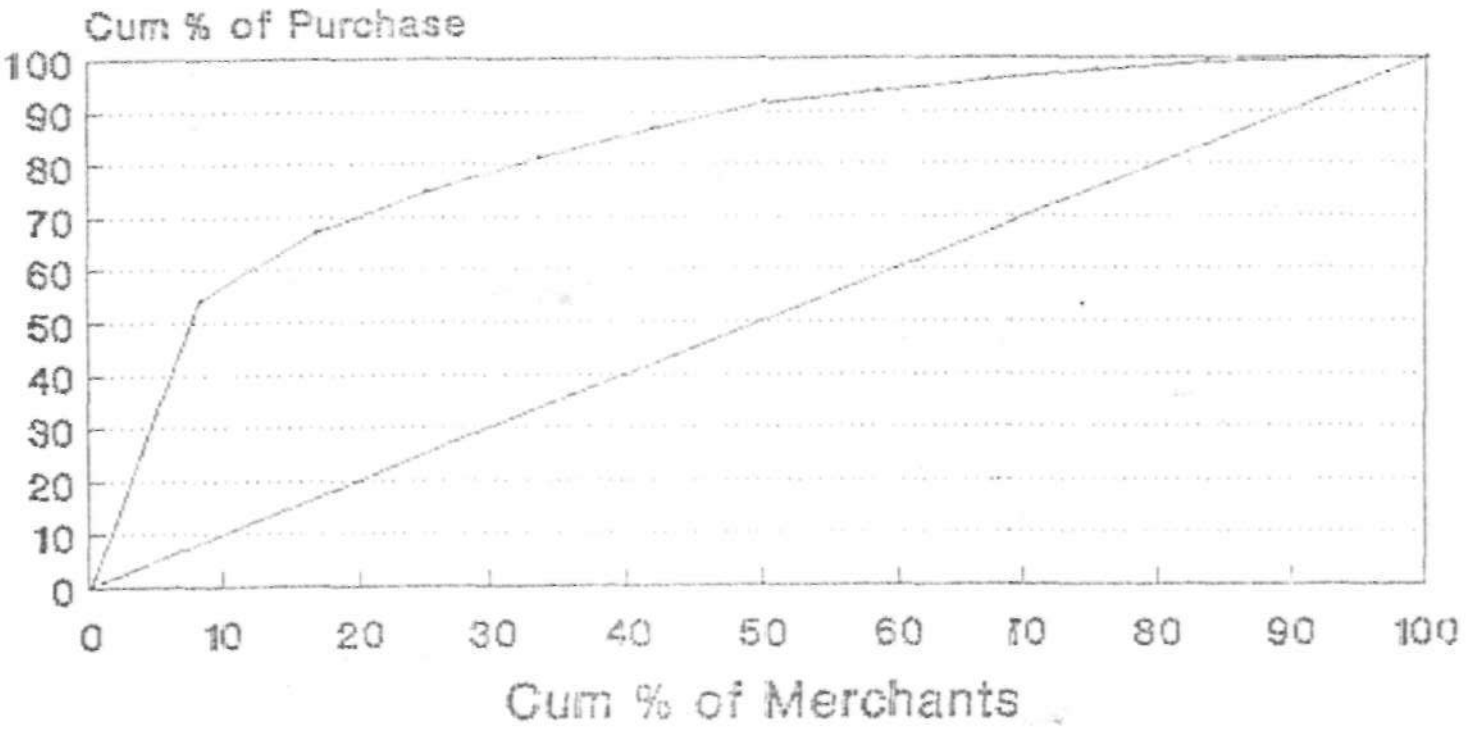


Figure 4.2: Lorenz Curve for volume of seed cotton purchased by merchants

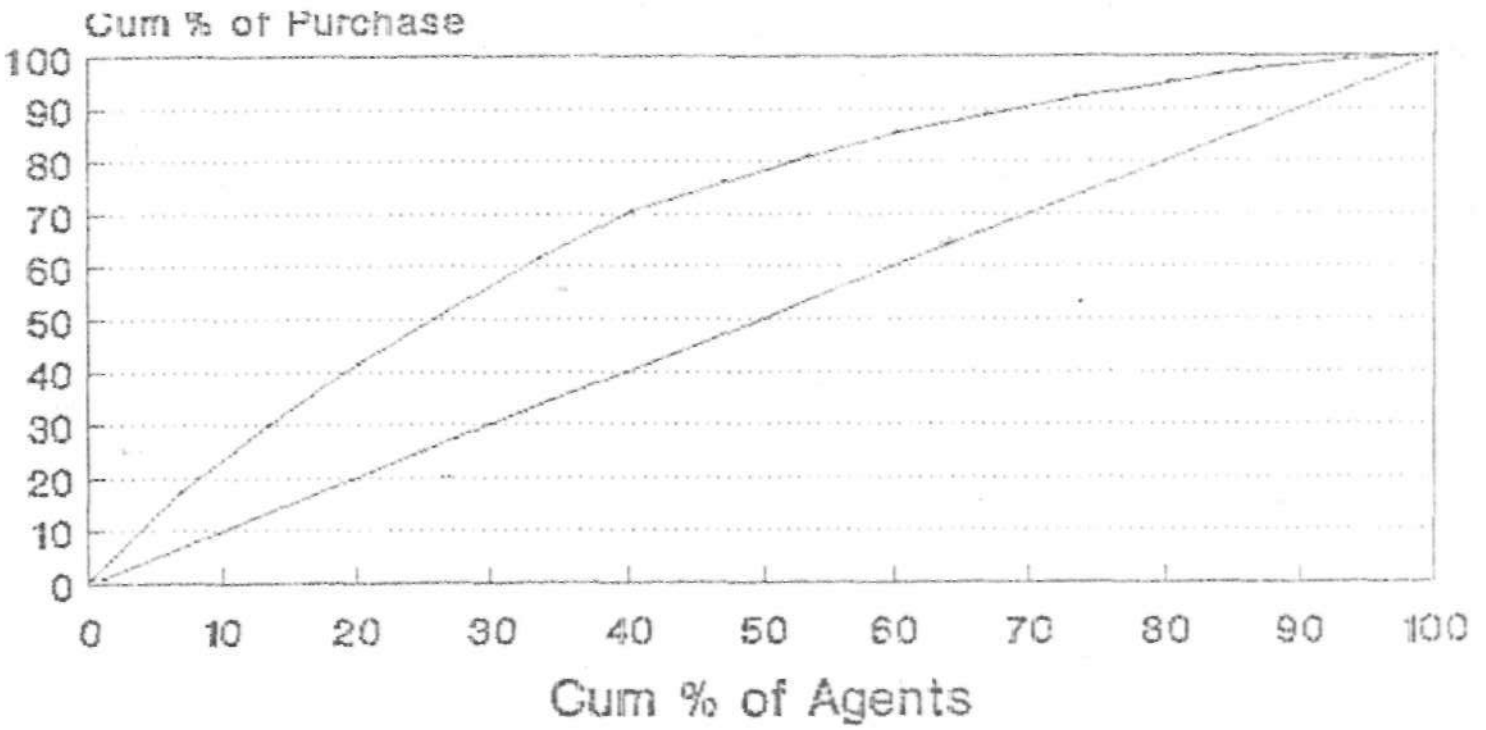


Figure 4.3: Lorenz Curve for volume of seed cotton purchased by commissioned agents

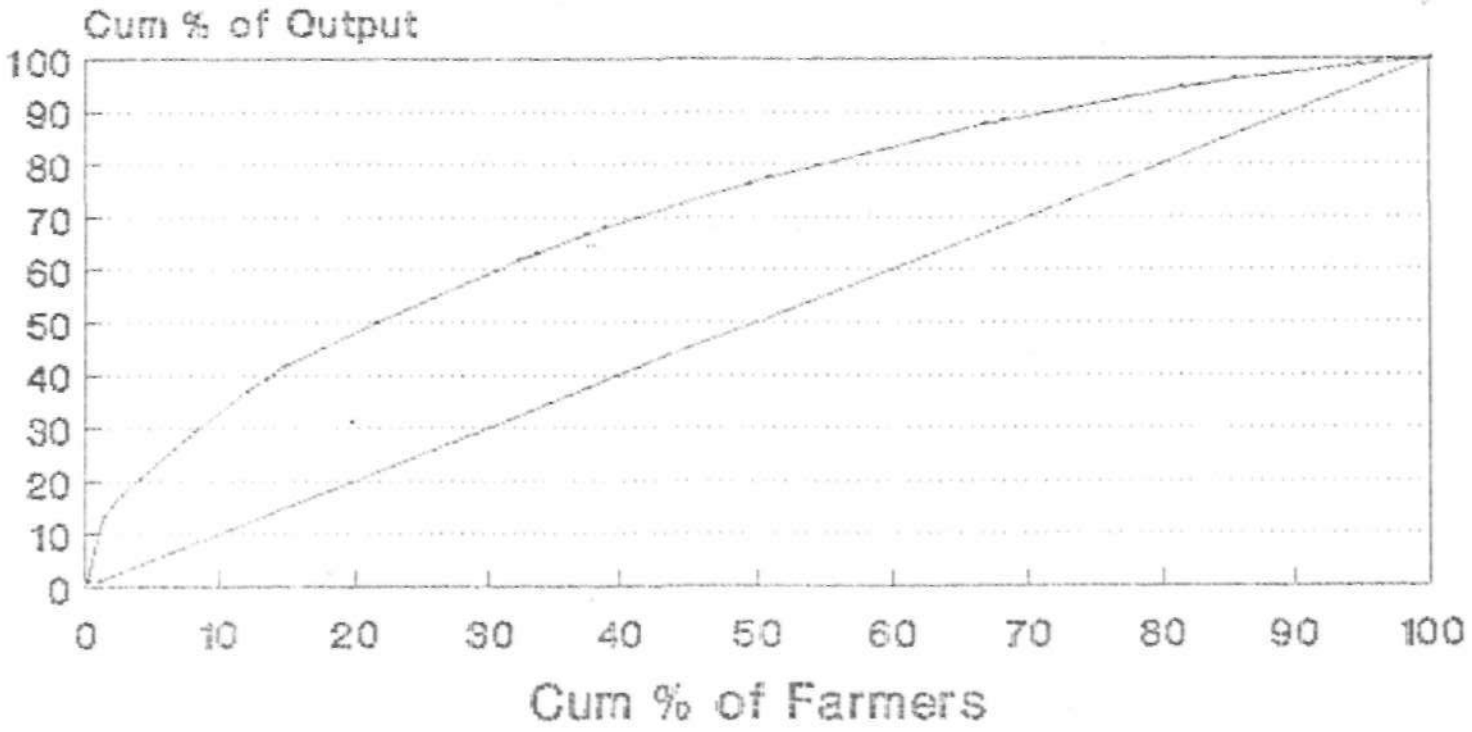


Figure 4.4: Lorenz Curve for volume of output of seed cotton by farmers

The degree of concentration among buying agents was slightly lower with the Gini Coefficient showing 36% (0.3551) and the Coefficient of Variability showing 34% (0.3372).

The measures showed high degree of equality among sellers with the Herfindahl Index indicating concentration level of 1.5% (0.0318) and the Gini Coefficient showing 23% (0.2335). The Coefficient of Variability however gave 54% (0.5423) indicating a higher degree of inequality among farmers at the top of the distribution than among buying agents.

From the three results, it can thus be concluded that the level of concentration among buyers is high while greater equality exists among sellers. This implied that a major proportion of the purchases in the market was accounted for by a few firms although the level of concentration among the buyers was not high enough as to suggest an oligopolistic situation.

4.5.2 Barrier to Entry

This refers to technical and economic conditions in the market which raise the cost of firms wanting to enter the market above the cost of firms already in the market, making entry into it to be difficult (Koutsoyannis, 1979).

Barriers to entry into cotton production measured in terms of cost was found to be relatively low because fixed cost of production was low. Entry was found to be relatively easy because fixed cost of production was low,

and the variable cost, (which forms the bulk of the total cost) is a function of input used and their prices. The unit cost of the inputs (labour, chemicals, fertiliser and seeds) were fixed and no advantage of bulk purchase was enjoyed by producers. Furthermore, the inputs are generally highly divisible.

On the part of buyers, large volume of purchase was necessary for the following reasons: 1) the textile firms always purchased cotton lint in bulk for their own advantages. Merchants with low quantity of lint would not normally get orders; 2) for a merchant to get ginning facility especially during the peak of the season, he needed to have large volume of seed cotton; and 3) because average turnover period was between 2-3 months, particularly due to delays in ginning, a merchant should either have sufficient capital to invest for that length of time, or should have valuable assets which could be used as collateral to obtain loan. The merchant would therefore need to purchase large volume of seed cotton to cover both finance cost and his profit margin.

There was no monetary barrier to becoming a commissioned agent because the agents worked with the capital supplied to them by the cotton merchants. The basic requirements for becoming an agent were honesty, integrity, experience and confidential relationship that would qualify a person to be engaged as agent by merchants.

It was, thus, concluded that the barrier to becoming a

producer of cotton or a buying agents was low while barrier to entering into cotton merchanting was high because higher level of investment was required.

4.5.3 Nature of the Product

The product of the various sellers in the market under study was almost homogeneous because cotton, like most other agricultural commodities produced within similar ecological region have virtually little or no physiological differences. Slight variation existed regarding fibre length and strength, and cleanliness but the differences did not influence per unit price of the commodity because they are perfect substitutes.

4.5.4 Vertical Integration in the Market

Vertical integration is a form of concentration of power in few firms and could be anti-competition because it may make entry more difficult for potential competitors thereby giving the integrated firm power to influence price (Olukosi and Isitor, 1990). Since the deregulation of the cotton market, there have been increased level of vertical integration in the industry. Out of the 7 ginneries that were established between 1986 - 1992, three were owned by cotton merchants and the other 4 by textile firms with one of the textile firms engaged in large scale cotton production. There were also many individual shareholders in textile firms who were cotton merchants, shareholders in processing firms, shareholders in cotton buying firms, and were also cotton growers. At the farm level, 13 out of the

15 buying agents sampled were cotton growers and 3 of the merchants sampled were also cotton growers, one of them was in addition a commissioned buying agent to other bigger merchants.

Textile firms and individuals were found to be integrating in order to explore new potential avenues of profits, to minimise risks and to cut costs through collective use of resources. If this trend continues it could result in the emergence of large conglomerates that would control processing, marketing and milling of cotton products thereby shifting the market towards oligopoly.

4.5.5 Market Information

Price information is also a factor that affect the relationship between buyers and sellers and also affect prices (Jhingan 1975). In the market under study, all buyers and sellers sampled indicated that they had prior knowledge of prevailing prices before they either sold or bought seed cotton. All the respondents said they got informed of price changes within a week or even less. The main sources of price information were market surveys, field agents, and exchange of information among farmers. With this situation, it was difficult for a single buyer or seller to raise prices by his action alone.

From the foregoing, it was concluded that the present structure of the cotton market was free and highly competitive.

4.6. Market Efficiency and Performance Indicators

Marketing efficiency requires that agricultural commodities are moved from producers to consumers with minimum cost, under an exchange mechanism that produces prices which conform to competitive standards (Habashy and Christensen, 1982).

Market efficiency and performance are direct results of market structure. Market efficiency analysis are attempts at evaluating the extent to which marketing functions are performed with minimum cost; the distribution of benefits among market participants relative to the services they provide; and the extent to which prices reflect the cost of services provided. There are various measures of marketing efficiency five of which were used for this study. They are: gross margin analysis, marketing margin analysis efficiency ratios, marginal cost analysis and price index analysis.

4.6.1 The Gross Margin

Gross margin analysis was used to measure the cost - benefit relationship for producers and merchants. The goal of the participants was assumed to be profit maximisation because cotton is a cash crop with no alternative use to the producer apart from sale.

4.6.1.1 Producers Gross Margin

The gross margin was estimated as the difference between gross returns and total variable costs, and is given by:

$$GM = GR - TVC = Ypy - (c_1 + c_2) \quad \ldots(4.1)$$

where:

GM = gross margin

GR = gross return

TVC = total variable costs

Y = yield in kg/h

Py = price in ₦/kg

C_1 = total variable cost of production

C_2 = total variable cost of marketing.

The total variable cost is the sum of total cost of production and total cost of marketing incurred by farmers. The cost of production included costs of land preparation, planting, thinning and weeding, earthening up, spraying, fertiliser application and picking for one hectare of land. The cost of marketing was the sum of the costs of packaging, transport and storage.

The gross return was given by yield per hectare multiplied by the unit price. The average yield per hectare was 1040kg while the average unit price was ₦5.40 per kg. The gross return per hectare was ₦5,616, while average cost per hectare was ₦3,646. This showed that average gross margin for farmers was ₦1,970 per hectare.

Returns could be higher or lower depending on: (i) the actual prices realised which ranged between ₦4.00/kg to ₦6.2/kg during the 1991/92 season (ii) yield which ranged between 400 kg/ha to 2120 kg/ha, and (iii) costs. The level of cost incurred depended on level of efficiency with which resources were managed. Cost of land preparation was

affected by the condition of land- virgin land cost more to prepare for planting than one in continuous use. Sources of inputs also affected cost, because some inputs like fertiliser were cheaper from government sources than the open market. Differences in the cost of packaging was also observed - cost was higher for those who bought new bagging materials than for those who re-cycled used ones.

The breakdown of the average cost incurred by farmers (Table 4.15) showed that cost of labour accounted for more than 75% of the total cost. Out of the total cost incurred by farmers in production and marketing, ₦3,506 or 96.17% was spent in production while ₦139.5 or 3.82% was spent on marketing. The ratio of cost of marketing to the cost of production is 4% which is low compared to 25% that farmers incurred under the Cotton Board system (Isitor, 1995).

The above results showed that marketing arrangement under the new system is more favourable to the farmers than the marketing board system both in terms of profitability, and the ease of marketing of their produce.

TABLE 4.15: Farmers' average cost of production and marketing (₦/hectare).

	COST ITEM	COST	%
1.	Land preparation	356.3	9.77
2.	Planting	183.4	5.03
3.	Thinning and weeding	1,067.4	29.28
4.	Earthening up	370.9	10.17
5.	Spraying	358.5	9.83
6.	Fertilizer application	294.7	8.08
7.	Picking	875.2	24.01
8.	Packaging	59.4	1.63
9.	Transport	69.6	1.91
10.	Storage	10.5	0.28
	TOTAL	3,645.9	99.99

Source: Survey Data, 1992.

4.6.1.2 **Return to Merchants**

Net returns to merchants were estimated as average gross return per tonne less cost of marketing per tonne (NR = GR - MC). The product from 1,000 kg (a tonne) of seed cotton was 333 kg of lint and 666 kg of seed, which were sold at an average of ₦21.40/kg of lint and ₦1/kg of seed. The average gross return per tonne at these rates were ₦7,792.20. At the cost of ₦7,550 (Table 4.16) this gave net returns of ₦242.2 per tonne, to the merchants.

Net returns varied from merchant to merchant because average costs of marketing decreased with increased volume

of purchase because cost of insurance, finance, bags and twine, transport, storage and administrative charges reduced with increase in volume of purchase.

TABLE 4.16: Merchants' average cost of marketing (₦/tonne).

	COST ITEM	AMOUNT	%
1.	Producer price	5,400	71.53
2.	Commission for agents	300	3.97
3.	Cost of bag and twine	200	2.65
4.	Transportation	200	2.65
5.	Insurance	40	0.53
6.	Ginning	550	7.28
7.	Grading fee	25	0.33
8.	Dump and storage	5	0.07
9.	Handling	60	0.79
10.	Deterioration	-	-
11.	Cost finance	350	4.64
12.	Administrative charges	300	3.97
13.	Sundry expenses	120	1.59
	TOTAL	7,550	100.00

Source: Survey Data, 1992.

4.6.2 The Marketing Margin

Marketing margin is the difference between the price the ultimate consumer pays and the price the farmer receives (Hays, 1974). This includes cost and profits of the various middlemen. The marketing margins for different products vary because of differences in the degree of marketing services that different products require in terms of complexity

involved in carrying out those marketing services (Olukosi and Isitor, 1990).

A marketing system is efficient if the marketing margin reflects the cost of providing marketing services and some profits that reward investments and risk bearing under competitive conditions. Table 4.17 shows that the farmer received 71.53% of what the final consumer paid. The merchant was the middleman that received the highest margin. However, the merchant's cost items were also highest including such items as tax, insurance, handling, cost of finance and administrative expenses.

Considering the services provided in the marketing of cotton in respect of sourcing and bulk building, processing and transportation, the distribution of the margin was considered efficient and the percentage received by the farmer compared favourably to that of cereals which do not undergo significant processing.

TABLE 4.17: Marketing Margin for seed cotton.

MARKET PARTICIPANT	% OF MARGIN
Commissioned agent	3.97
Merchant	14.61
Cotton ginner	7.28
Transporter	2.61
TOTAL MARGIN	28.47
Farmer's share	71.53
TOTAL	100.00

Source: Survey Data, 1992.

4.6.3 **The Efficiency Ratio**

Efficiency ratios are used to measure the degree of marketing efficiency for various commodities. Generally, efficiency ratios attempt to measure the ratio of benefits of marketing to its cost. In economic terms, efficiency is maximised when the ratio of output to input, and that of benefits to cost are maximised (Olukosi and Isitor, 1990).

Use of efficiency ratio in marketing analysis has a major limitation. While cost of marketing services can be empirically measured, the benefits which are represented by consumer satisfaction cannot be measured in the same way. The measure used to quantify the output of marketing is value added to the product by marketing, or the price the consumer is willing to pay for the marketed product (Olukosi and Isitor, 1990).

The ratio developed by Habashy and Christensen (1982) was used to compare the efficiency of cotton marketing under the present free-enterprise system and the commodity boards marketing system.

The results for the present and former systems were 26.93% and -73.35% respectively. The analysis for the former marketing system was based on the findings of Isitor (1985) which showed that a total of ₦965.75 was spent for production and marketing of one tonne of seed cotton, which was sold at ₦557. This showed that a loss of ₦408 or 73.35% was shared between producers and marketers per tonne of the produce.

On the other hand, under the free-market system, 26.93% of the final value of the commodity was added by marketing, indicating that all the cost incurred from marketing was covered with some profits. There was indication that the added value was distributed among producers and marketers as shown by the marketing margin analysis above. Based on this, it was concluded that the present marketing system is more efficient than the former system.

4.6.4 Price Index Analysis

Price is the value of commodity expressed in naira and is determined by the cost of production, the general price level and the forces of supply and demand. Brunk and Darrah (1975) suggested that agricultural prices tend to follow the general price level, while the forces of supply and demand determine the height of the price above or below the price level.

Since the deregulation of 1986, producer prices of seed cotton have recorded considerable increases both inter- and intra-seasonally.

Table 4.18 shows that between 1986 and 1992 prices of seed cotton have increased by 547% at an average rate of 42% per annum. The lowest price increases were recorded in 1989, 1990 and 1992, the years in which the highest levels of output were realised, while there was a very sharp increase in 1991, when there was a sharp decline in output (Figure 4.5 and 4.7).

TABLE 4.18: Annual prices of seed cotton (₦/tonne), 1986-92

YEAR	1986	1987	1988	1989	1990	1991	1992
Price	850	2,000	3,000	3,500	4,000	5,000	5,500
Price relatives	100	235	353	412	471	588	647

Source: Survey Data, 1992

Increases in product prices did not mean corresponding increases in profits, because cost of production have also increased resulting from sharp increases in input prices. For example, a 50kg bag of fertiliser which cost ₦9.00 during 1986/87 season was sold for about ₦80.00 during 1991/92 season, representing an increase of almost 900%. Cost of cotton picking rose from an average of 0.20k per bag during the 1985/86 to ₦1.00 per bag during the 1991/92 season, an increase of 500%. Average cost of production for one tonne of seed cotton rose from ₦800.00 during 1986/87 season to ₦3,544 during 1991/92 season, representing an increase of about 450%.

Farmers have however continued to make reasonable profits because the increase in produce prices exceeded increases in production cost.

Prices also showed large variations within seasons with the lowest prices obtained at the beginning of harvest about October while the highest prices were realised much later in the season between April and May (See Figure 4.6).

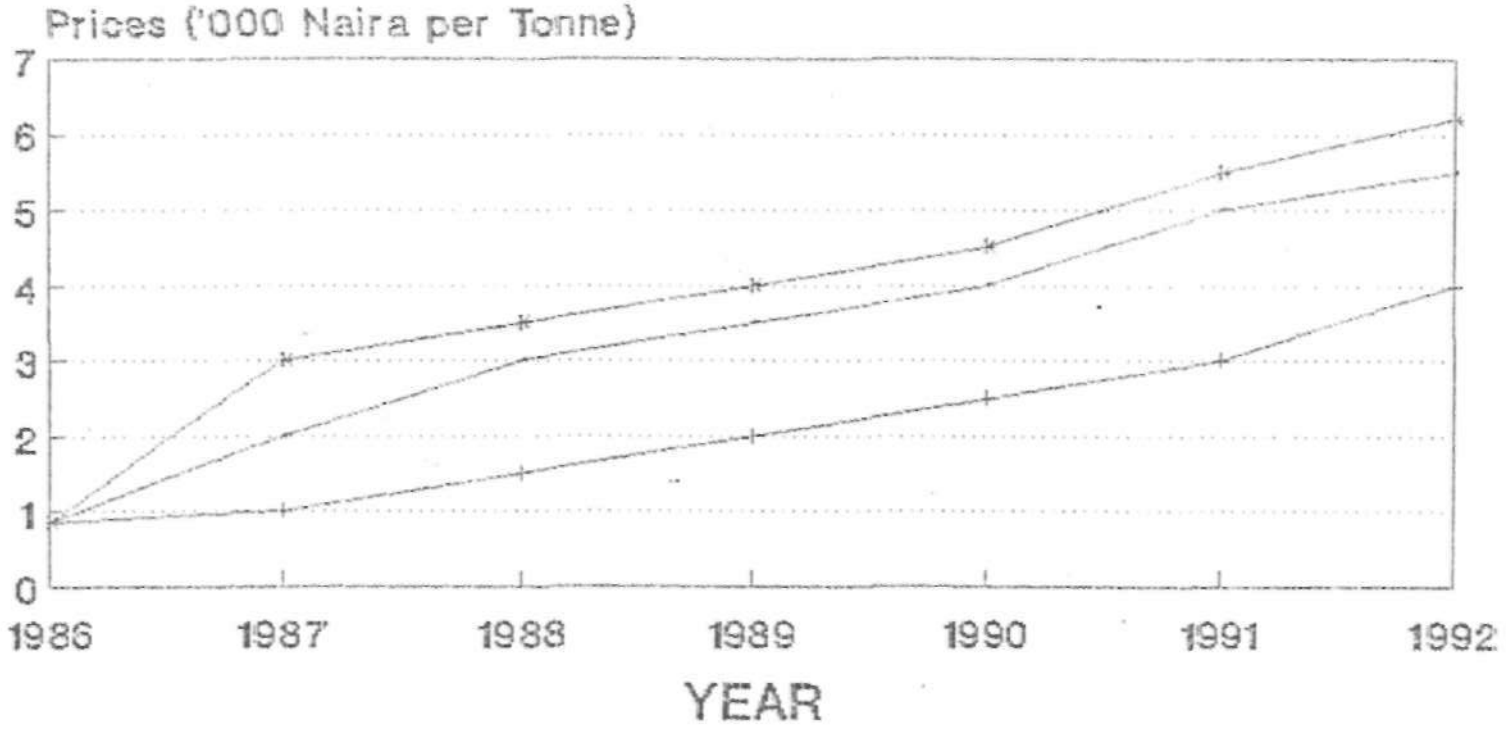


Figure 4.5: Annual prices of seed cotton, 1986 - 1992

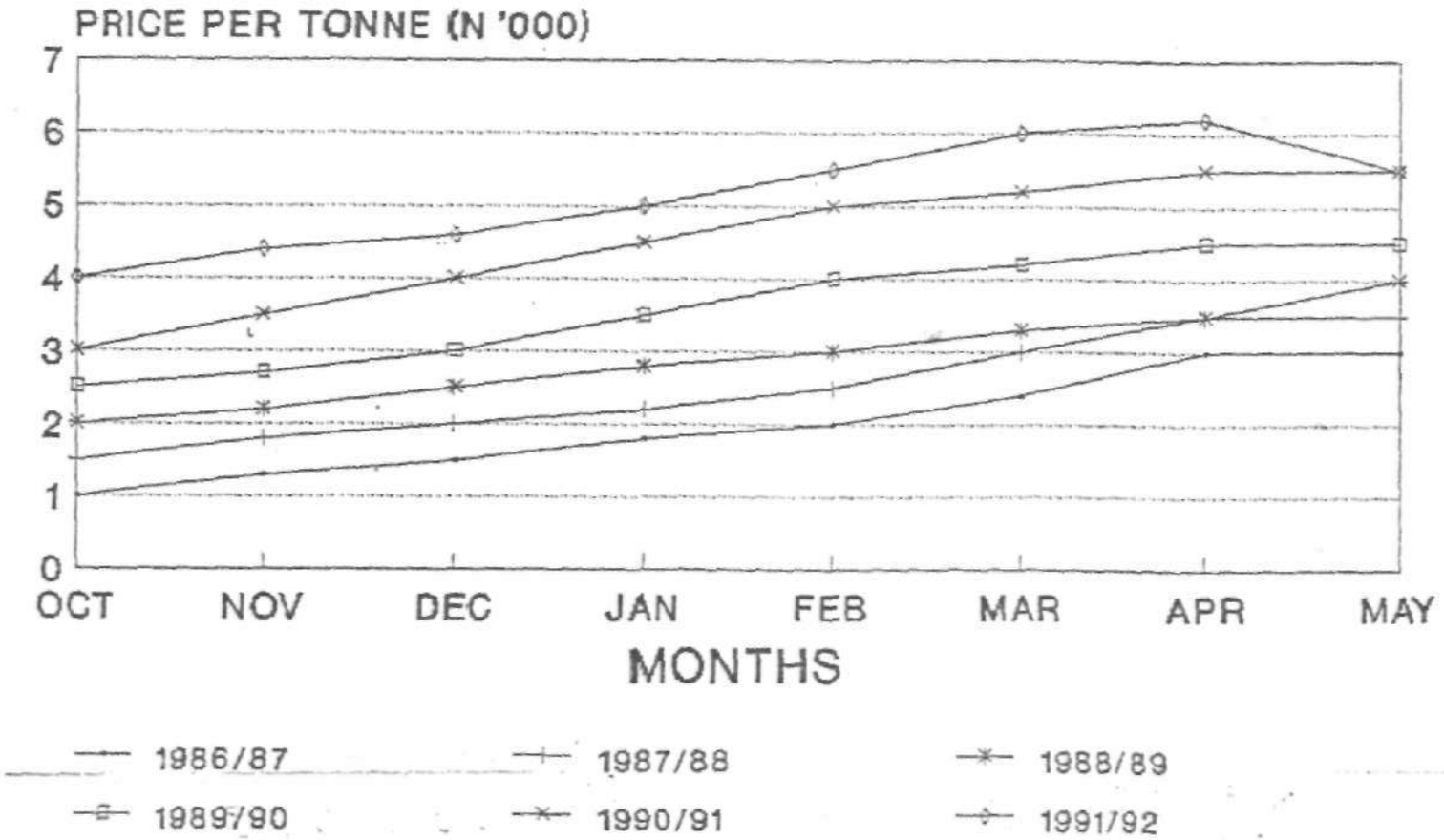


Figure 4.6: Intra-seasonal price variation for seed cotton, 1986 - 1992

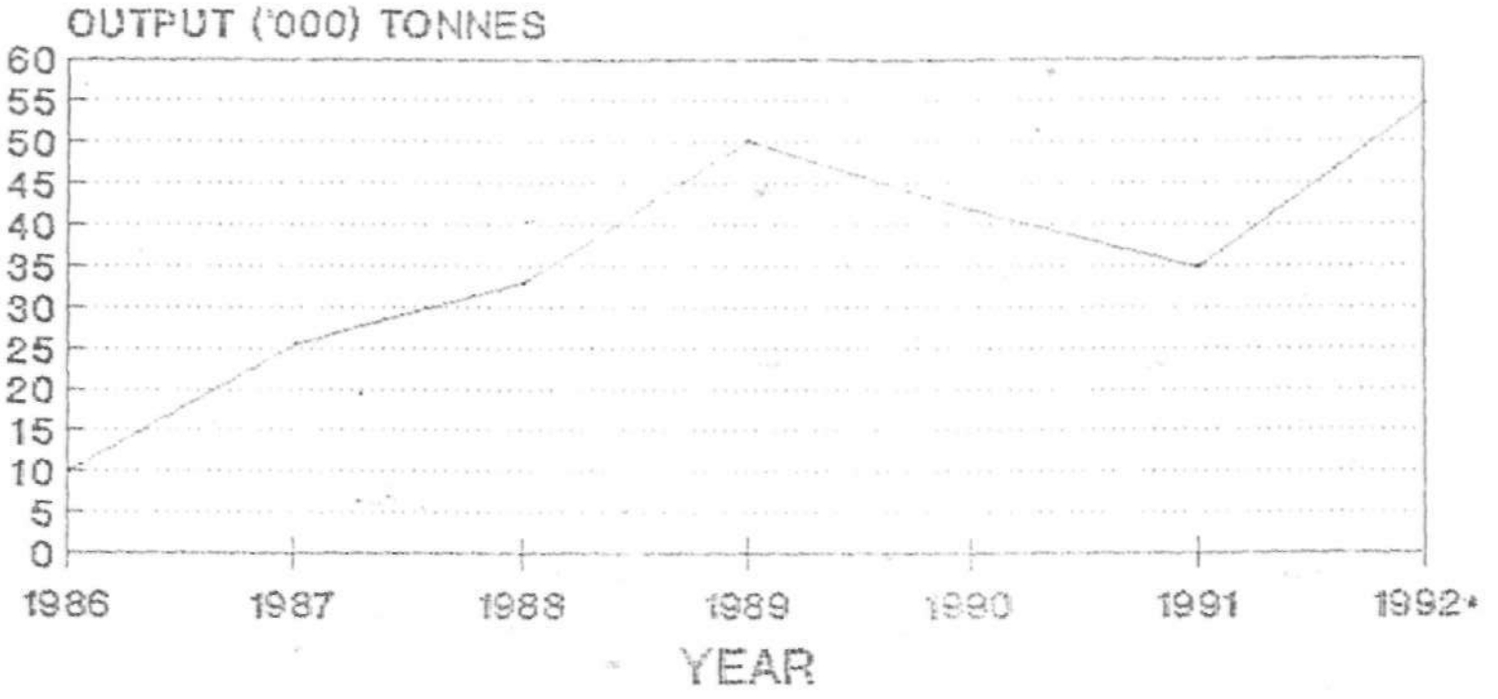


Figure 4.7: Annual cotton production in Nigeria, 1986 - 1992.

TABLE 4.19: **Intra-seasonal price relatives for cotton, 1986-1992. (October Price is the base price for each year)**

YEAR> MONTH	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	MEAN
OCT.	100	100	100	100	100	100	100
NOV.	130	120	110	108	117	110	116
DEC.	150	133	125	120	133	115	129
JAN.	180	146	140	140	150	125	147
FEB.	200	166	150	160	167	138	164
MAR.	240	200	165	168	173	150	183
APR.	300	233	175	180	183	155	204
MAY	300	233	200	180	183	138	206

Source: Survey Data, 1992.

Table 4.19 shows that prices had an average increase rate of 15% per month within season. The intra-seasonal price increase was largely explained by increased demand for the commodity as more and more buyers released funds and purchases increased, as the season passed.

4.6.5 Marginal Cost Analysis

The relationship between marginal revenue and marginal cost of a firm will indicate whether the firm is at equilibrium and whether or not profits have been maximised. To observe this relationship for the firms under study, a statistical estimate of their cost function was made.

Different functional forms were used and a quadratic function was chosen because of the magnitude of the coefficient of determination R^2, the significance of the t-values and the overall F value and the conformity of the signs of the coefficients with a Priori expectations (Table 4.20). The estimated cost equation was:

$$TC = 1253 + 4278Y + 6.39Y^2 \quad \ldots\ (4.2)$$

where: TC = Total Cost

Y = level of output in tonnes.

This equation implied an increasing marginal and average cost for farmers. The marginal cost derived from the function was ₦4,290. This was lower than the marginal revenue which averaged ₦5,400. Assuming that the market under study was perfectly competitive, a number of conclusions were made from the above. The assumption was necessary because the underlying assumptions of perfect competition are 'unrealistic' and cannot be fulfilled practically (Koutsoyannis, 1979).

On the basis that the marginal cost was lower than the marginal revenue, it could be said that profits were not being maximised, and that the production firms were not at equilibrium, and by extension, the industry was not at equilibrium. Ceteris paribus, farmers could make more profits by increasing their output and there was still room for potential producers to enter the market.

TABLE 4.20: Estimation of the coefficients of farmers' cost function.

	Intercept	Y	Y^2
Estimated coefficients	1253.4**	4278.5*	6.39*
Value of t-ratio	1.56	14.88	6.58

R^2 = 89.4%; $\bar{R}^2$ = 89.1%; and F = 8.41
* Coefficient is significant at 1%
** Coefficient is significant at 5%

4.6.6 Aggregate Output of Seed Cotton

Since the introduction of the new marketing system, positive results have been achieved in respect of cotton production in the country. Figure 4.7 shows that output of seed cotton rose from about 9,379 tonnes (54,417 bales) to 25,348 tonnes (139,696 bales) within a year of the deregulation of the market. By 1989, it had exceeded 50,000 tonnes equivalent to about 275,599 bales. Cotton production averaged about 180,000 bales per annum between 1986-1992.

The figures show that seed cotton production in the country was gradually being restored under the new marketing system. This indicates that constraints to increased production because of marketing defects and its disincentives were easing and that the new policy was showing positive results.

It can, thus, be argued from the findings of this study that the present marketing system has performed more efficiently than the previous one.

CHAPTER FIVE

5.0 SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The following are the major highlights of the findings of this study:

1. Private cotton merchants have replaced the Nigerian Cotton Board in organising the purchase of seed cotton, processing and sale of its products (seed and lint) to end users. The merchants consisted of both individuals and corporate bodies. The dissolution of the Board opened up avenues for private enterprise investment in commodity marketing and processing. It had also provided employment for various catergories of participants in the industry such as merchants and commissioned agents namely, buying agents and brokers. Commissioned buying agents were very important participants as they are the main bridge between farmers in the rural areas and the largely urban - based merchants. There has also been increased investments in multi-million naira ginning complexes. Seven of such ginneries were established between 1986 and 1992. These represent fundamental developments in the cotton industry in Nigeria.

2. The aggregate output of cotton showed substantial increases since deregulation from an estimated low production of only 54,000 bales in 1986 (about 10,000 tonnes) to 275,000 (about 50,000 tonnes) in 1989. The increased production has maintained its momentum at an

average of 180,000 bales per annum since 1986. Exports of the produce have resumed even though domestic production has not met estimated local demand. Cotton merchants were able to explore foreign markets because of the deregulation and easing of restrictions on exports.

3. Farmers have been getting better prices for their produce and cotton production has become more profitable. Since 1986, prices have been increasing at an annual average of 42%. While cost of production have also been increasing, the increases in produce prices have so far, out weighed the increases in input costs.

4. Average cotton yield per hectare has increased to a little over 1 tonne. The increased yield is strongly connected with better cultural practices by farmers, which included early planting, adequate weeding, fertiliser application and spraying.

5. Farmers no longer confront problems in marketing their cotton such as transport dificulties, cheating and extortion by cotton market functionaries, etc. They now comfortably sell their cotton at home or on the farm. They also store their produce to take advantage of price increases, without fear of being left without a buyer, as was the case before 1986.

6. A good trading relation was found to be developing between cotton farmers and merchants, on the one hand, and between the latter and agents on the other, to such an extent that farmers received loans and payments in advance

for their produce. Some farmers also sold their produce, on credit for some few days before receiving payments. Merchants also supplied farmers with seeds and other inputs at low rates. In some cases, farmers demanded payment in kind (especially fertiliser) for their produce. Similarly, there were also cases of misconduct such as loan default, and other malpractices as under-weighting of produce by buying agents and adulteration of seed cotton with water and trash by farmers for the purpose of obtaining higher weight.

7. There was indication that the cotton market was highly competitive, because there was no evidence of oligopolistic tendencies among buyers and sellers. Although there was some evidence of certain degree of concentration among buyers, there was however no indication that it influenced prices. With little barrier to entry and similarity of product, the market can be regarded as highly competitive. Information flow was also found to be satisfactory.

8. It was also noted that benefits were distributed adequately among the various participants because each one of them made profits. Marketing margin was low, (at 28%), when compared with the marketing services provided, while producer's share was above 70%.

9. There was growing vertical integration in the industry. Various participants were investing in marketing services other than those they specialised in. For example merchants were going into processing and some textile mills

were found to have gone into processing and/or production.

10. The main problem that had arisen under the new system was lack of inspection and grading. This is a major set back to quality control. Farmers are likely to relax efforts at maintaining production quality, and more so, the incidence of adulteration and mixing of cotton with thrash was becoming more rampant. The end result will be a drop in quality standard of Nigerian cotton and prevalence of low quality seeds.

11. Acquisition of inputs especially fertiliser remained the biggest problem faced by farmers. The channels of distribution were overloaded with speculative middlemen who cornered the product and sold to the farmers at very very exorbitant prices. This drained much of the profits farmers could have made and if the situation persists, the apparent benefits of the new marketing system would be neutralised.

12. Lack of credit was another major production problem facing farmers especially because cotton crop is a very capital demanding enterprise. There was evidence that farmers could increase their output if more funds were available. With prospects of high profits, the willingness to expand production was high among farmers. However, lack of funds appeared to be the major constraints.

5.2 **Conclusion**

This study has found that following the dissolution of the Nigerian Cotton Board and the deregulation of the cotton

market there have been fundamental changes in the structure, conduct and performance of the cotton market. Many of the problems of cotton marketing that had existed under the old system have disappeared under the new system, while new ones have emerged. Even though the free-market system has removed most of the constraints facing the Nigerian cotton industry as they affect marketing, those problems that constrain production are very much intact. If constraints to production are not addressed, the apparent benefits of the improved marketing system will be aborted and short-lived.

5.3 Recommendations

On the basis of the above observations, the following suggestions are made on ways to remove the constrains observed.

5.3.1 Quality Control

It is recommended that government should take urgent steps towards restoring inspection and grading of seed cotton. Government should seek co-operation with cotton farmers, cotton merchants and their buying agents to ensure that buying and selling are done at appropriate locations, so that inspection can be carried out.

It is suggested here that a national cotton council be established in the form of an industrial standard organisation to be made up of cotton millers, ginners, and merchants who will set a minimum quality standard for lint

to be produced by ginners and purchased by merchants and textile manufacturers. Appropriate punitive measures should be taken against erring members. This will then force merchants and the farmers to produce or purchase cotton of specific quality as they know they would not find market for poor quality cotton. It is believed that this will help in some measures in maintaining high quality standard for Nigerian cotton.

5.3.2 **Credit Facilities**

Government is advised to take more practical steps in channelling credit facilities to farmers. Existing policies and institutions in respect of rural banking and agricultural financing should be sufficiently monitored and reviewed where necessary to ensure that farmers in the rural areas are benefiting from them.

Secondly, appropriate measures should be taken to encourage cotton merchants to provide more loans to farmers. In this direction, government should consider establishing a fund whose primary goal would be to provide loans to cotton farmers. Such a fund could be financed and managed by cotton merchants, textiles, oil and ginning companies, agricultural finance institutions and the government.

5.3.3 **Agricultural Inputs**

Appropriate measures should be taken to check the activities of speculative middlemen who divert farm inputs and to ensure that such inputs reach the farmers at controlled prices and at appropriate time. This is

necessary in order to minimise the rise in costs of production, if cost continues to escalate, the profit margin of farmers would narrow, and the incentive for production of cotton and other cash crops will decline.

5.3.4 Research and Development

More funds should be provided for continuous research and development of appropriate cotton varieties and technologies that conform to farmers' cultural practices and their socio-economic conditions. Research should also be carried out to locally develop cheap and simple ginning facilities and spare parts to avoid over dependence on imported machinery and parts. Merchants and textile firms should be encouraged to contribute in funding of such research projects.

5.3.5 Restriction of Imports

In order to protect the local cotton industry, government should place greater restrictions on importation of lint that are of higher quality than the local product by imposing very high tarrifs, so that the imported lint will cost much higher than the local product.

6.0 REFERENCES

Abdullahi, A. (1989) Keynote address at the opening of the First National Symposium on Cotton Production, Samaru, Zaria, 5-7 May 1982 in Ogunlela V.B. et. al., (ed).

Aboyade, O. (1983). Integrated Eonomics: a Study of Developing Countries, Addison - Wesley Publishers Ltd., London.

Anonymous (1970). The Marketing Challenge: Distributing Increased Production in Developing Nations. U.S. Department of Agriculture, proceedings of a conference in Washington D.C., June 18 - 19, 1970.

Anonymous, (1992A). "Report on Fibre Research Programme" Cropping Scheme Meeting, Institute for Agricultural Research, 24 - 28 February, 1992, Samaru, Zaria.

Anonymous, (1992B). "An. Overview of the Nigerian Agriculture: Policy, Progress and Opportunities", Fedral Ministry of Agriculture, Water Resources and Rural Development, Abuja.

Awoyemi, O. (1989). "Government Strategies and Policies for Increased Cotton Production in the 80's" in Ogunlela, V.B. et. al., (ed).

Bain, J.S. (1968). Industrial Organisation, John Wiley and Sons, New York.

Barker, J.W. (1981). Agricultural Marketing, O.U.P.

Bateman, D.I. (1972). "The Marketing Environment" in Bateman D.I. (ed). Marketing Management in Agriculture.

Brunk, M.E and Darrah, L.B. (1955). Marketing of Agricultural Products. The Roland Press, New York.

Clodius, R.L. and Mueller, W.F. (1961). "Market Structure Analyses: an Orientation for Research in Agricultural Eonomics" in Journal of Farm Economics, 43 (3) August 1961.

Cowley, E.L. (1966). "Development of Cotton Growing Industry in Nigeria with Special Reference to the Work of the B.C.G.A." The Empire Cotton Growing Review, (43) 3, 1966.

Etuk, E.G., Mijindadi, N.B. and Njoku, J.E. (1989A).

"Problems Associated with Adoptin of Recommended Practices by Cotton Farmers" in Ogunlela V.B. et. al., (ed).

Etuk, E.G., Ogunbile, A.O., and Abalu, G.O.I. (1989B). "Economics of Small and Large Scale Cotton Production Under Nigerian Conditions" in Ogunlela, V.B. et. al., (ed).

Gusau, A.T. (1989). "Problems Associated with Production and Marketing of Cotton in Nigeria" in Ogunlela V.B. et. al., (ed).

Habashy, N.T. and Christensen, C. (1982). "Marketing Efficiency for Fruits and Vegetables in Egypt: Definitions, Methods and Policy Application" in Agricultural Research Review 60 (5) Ministry of Agriculture, Arab Republic of Egypt.

Habashy, N.T. and Salwa, R. (1982). "Overview of the Marketing System for Fruits and Vegetable in Egypt", Op cit.

Harmer E.G. (1957). "Cotton Grading and Marketing in Northern Nigeria" in West African Research Conference 18 - 23 November 1957, Samaru.

Hays, H.M. JR (1974). "Food Grain Marketing in Northern Nigeria", Paper prepared for Faculty of Agriculture, Agricultural Planning Workshop held in Zaria, Nigeria, Jan 7 - Feb. 2, 1974.

Hills, O.D. (1975). "Agricultural Market Planning in Resource Development" College of Agriculture Special Publication, (9), University of Illinois.

Hogendorn, J.S. (1968). "The Origin of Groundnut Trade in Northern Nigeria" Paper prepared for a workshop for Economic Growth and Policial Instability held in Michigan state University East Larsing, U.S.A.

Jhingan M.L. (1985). Advanced Economic Theory 4th ed. Vikas Publishing House, New Delhi.

Isitor, S.U. (1985). "Structure, Conduct, and Performance of Cotton Marketing System in Kaduna State". M.Sc Thesis, Department of Agricultural Economics and Rural Sociology, Ahmadu Bello University, Zaria.

Kohls and Downey (1972). Marketing of Agricultural Products. 4th Ed. The Macmillan Co. New York.

Kotey, R.A. and Gyekye, L.O. (1974). Internal Marketing of Cocoa in Ghana. Technical Publications Series, 33, International Institute of Statistical, Social and Economic Research, University of Ghana, Legon.

Koutsoyannis, A. (1979). Modern Micro-economics 2nd ed. Macmillan, London.

Kumar, V. and Ogunlela, V.B. (1989). "Improving Cotton Production in Nigeria, Through Agronomic Practices" in Ogunlela V.B. et. al., (ed).

Leach, E.W. (1938). "The Place of Cotton in Mixed Farming Small-Holdings in Northern Nigeria", in Report and Summary of Processings on the Third Conference on Cotton Growing Problems, September 1938. Empire Cotton Growing Corporation, London.

Mortenson, W.P. (1977). Mordern Marketing of Farm Products. The Interstate Printers and Publishers, Illinois.

Mustapha, S. (1989). " Cotton Improvement in Nigeria and its Associated Problems and Considerations" in Ogunlela V.B., et. al., (ed).

Norman D.W., Hayward J.A. and Hallan H.R. (1975). "Factors Affecting Cotton Yields Obtained by Nigerian Farmers" in Cotton Growing Review, (52) 30 - 37.

Nyamtemg, V.K. and Van Apeldborn G.J. (1991). "The Farmer and the Marketing of Foodstuffs" Technical Publication Series, No 19, Internationl Institute of Statistical, Social and Economic Research, University of Ghana, Legon.

Ogunlela, V.B., Emechebe, A.M., and Uchegbu, B.O.(ed). (1989). "Towards Increased Cotton Production in Nigeria Proceedings of the First National Symposium on Cotton Production, Samaru - Zaria 5 - 7 May 1982.

Ogunbile, A.O. and Kyari, M.M. (1989). "Problems Associated with Large Scale Cotton Production in Nigeria" in Ogunlela, V.B. et. al., (ed).

Olatunbosun, D. (1971). The Role of Commodity Marketing Boards in Agricultural Development, N.I.S.E.R. Ibadan.

Olukosi, J.O. (1982). "Income Generation and Distribution: A Case Study of Ipetu and Odo - Ore Villages in Omu-aran Area of Kwara State" Samaru Miscellaneous Paper 112 IAR/ABU, Zaria.

Olukosi, J.O. and Erhabor, P.O. (1988). Introduction to Farm Management Economics: Principles and Applications, Agitab Publishers Ltd. Zaria.

Olukosi, J.O. and Isitor, S.U. (1990). Introduction to Agricultural Marketing and Prices: Principles and Applications, Living Books Series, Abuja.

Pickering, J.F. (1974). Industrial Structure and Market Conduct, Martin Robertson and Co. Ltd. London.

Prentice, A.N. (1972). Cotton: With Special Reference to Africa, Longman, London.

Schemer, F.M. (1970). Industrial Market Structure and Performance. Rand McMalley and Co., Chicago.

Sosnick, S.H. (1964). "Operational Criteria for Evaluating Market Performance" in Farris, P.L. (ed). Market Structure Research Iowa State University Press.

Stefferud, A., (1954). Marketing, The Year Book of Agriculture, U.S. Department of Agriculture, Washinton, D.C.

Tomek, W.C. and Robinson (1972). Agricultural Product Prices, Cornell University Press.

Williams, H.T. (1971). Marketing Management in Agriculture.

Yazid, I. (1989). "The Role of Extension in Improving Cotton Production in Nigeria" in Ogunlela, V.B. et al (ed). 1989.

7.0 APPENDICES

APPENDIX I

FARMERS' QUESTIONNAIRE

A. PERSONAL DATA

1) Questionnaire No: _____

2) Name: _____ 3) Date: _____

4) Age: _____ 5) Sex _____

6) Marital status _____

7) Size of family: _____

8) Years of farming experience _____

9) Level of education _____

10) Off-farm employment _____

B. Production information

1) How many tonnes of cotton did you produce in each of the last 7 seasons?

1985/86 _____ 1990/91 _____

1986/87 _____ 1991/92 _____

1987/88 _____

1988/89 _____

1989/90 _____

2) What was the size of your cotton field during these seasons?

1985/86 _____ 1989/90 _____

1986/87 _____ 1990/91 _____

1987/88 _____ 1991/92 _____

1988/89 _____

3) In what month did you plant this season? _____

4) a) Have you been adopting new farming practices?

YES/NO

b) If yes, what are they: _____

C. Cost of Production

1) How much did you spend on the following operations this season?

a) Land Preparation _____

b) Planting _____

c) Thinning _____

d) Weeding _____

e) Earthening up _____

f) Spraying _____

g) Fertiliser application _____

h) Picking _____

i) Packaging _____

j) Transporting _____

k) Others (specify) _____

2) How much did you spend on your cotton production in the last 6 years?

1986/87 _____ 1989/90 _____

1987/88 _____ 1990/91 _____

1988/89 _____ 1991/92 _____

3) What are your sources of cotton seeds since the abolition of the Nigerian Cotton Board?

a) From own seeds _____

b) From the market _____

c) From cotton merchants _____

d) From government agencies _____

e) Others (Specify) _____

4) Are you satisfied with the quality? YES/NO

5) What are your sources of fertiliser _____

6) What are your sources of farm chemicals? _____

7) What are your problems of input supply? (Rank them)

a) Scarcity _____

b) Poor quality _____

c) High cost _____

d) Untimely supply _____

e) Others (Specify) _____

D. Financing

1) Where do you get money for your farm operation?

a) Personal Savings _____

b) Borrow from merchants _____

c) Borrow from friends/relations _____

d) Borrow from banks _____

e) Others (Specify) _____

2) If you borrow from merchants, how much interest are you charged? _____

3) How do you normally pay back to the merchants?

a) by cash _____

b) by giving seed cotton in return _____

c) by selling seed cotton to them _____

4) a) Do you consider shortage of funds a major problem? YES/NO

b) Explain _____

E. Harvesting and Marketing

1) What time of the year did you harvest this season?

_____

2) Do you store your cotton before selling? YES/NO

3) If yes, for how long? _____

4) Where do you store your cotton?

a) Open space _____

b) in a hut _____

c) in a store _____

d) Others (Specify) _____

5) Do you spend money on storage? YES/NO

6) If yes, how much per tonne? _____

7) What storage problems do you face?

a) Security _____

b) Damage _____

c) Inadequate facilities _____

d) Others (Specify) _____

8) Do you gin your cotton before selling? YES/NO

9) If yes, how much is the extra cost you incur?

a) for transport (₦/tonne) _____

b) for ginning (₦/tonne) _____

10) Who buys your cotton?

a) Merchants _____

b) Agents _____

a) Other farmers _____

a) Others (specify) _____

11) a) Are there specific persons that you prefer to deal with? YES/NO

b) If yes, who are they? _____

c) What are the reasons for preferring them?

i) honesty _____

ii) integrity _____

iii) reliability _____

iv) experience _____

v) Others (Specify) _____

12) Do you experience malpractices from buyers? YES/NO

13) If yes, list them _____

14) What preventive measures do you take?

_____

15) Do you sell cotton in exchange for inputs? YES/NO

16) If yes, name the inputs: _____

17) Do you sell on credit? YES/NO

18) If yes, how long do you wait for payment?

a) less than a week _____

b) 1 - 2 weeks _____

c) 2 - 4 weeks _____

d) Over a month _____

19) Do you sell on credit? Yes/No

20) If yes, how long do you wait for payment?

a) less than a week _____

b) 1 - 2 weeks _____

c) 2 - 4 weeks _____

d) over a month _____

21) Do you sell in advance? Yes/No

22) If yes, is it at current or future prices?

_____

23) a) Is your cotton graded? Yes/No

b) If yes, by who? _____

c) Are you satisfied with the grading? Yes/No

24) a) Is your cotton weighted before you sell Yes/No

b) If yes, by who? _____

c) Are you satisfied with the weighting? Yes/No

F. **prices**

1) What were the prices you received for your seed cotton during:

1986/87 _____

1987/88 _____

1988/89 _____

1989/90 _____

1990/91 _____

G. **General**

1) a) Do you consider the deregulation of cotton market favourable? Yes/No

b) Please give your reasons _____

2) What do you consider to be the problems of cotton production and marketing? (Rank them in order of importance)

a) High cost of production _____

b) Shortage of inputs _____

c) Shortage of funds _____

d) Poor prices _____

e) Storage problems _____

f) Transportation problems _____

g) Pest and diseases _____

h) Others (specify) _____

APPENDIX II

COTTON MERCHANTS' QUESTIONNAIRE

1) Questionnaire No. _____ 2) Date: _____

3) Name: _____ 4) Position: ___

A. Background Information

1) Are you in business as an individual or a corporate body? _____

2) How long have you been in produce buying business?

_____

3) What are your major operations in cotton marketing? _____

a) Purchase _____

b) Warehousing and storage _____

d) Transportations _____

e) Input supply _____

f) Agricultural extension services _____

4) From which areas do you purchase cotton? _____

5) a) Do you have offices on buying location?

YES/NO

b) If yes, how many are they? _____

B. Operations

1) How many tonnes of cotton did you purchase during the last five seasons?

1986/87 _____ 1989/90 _____

1987/88 _____ 1990/91 _____

1988/89 _____

2) What categories of people do you employ for

purchases of seed cotton?

a) Commissioned Agents _____

b) Full-time employees _____

c) Part-time employees _____

3) If you employ agents, what are their responsibilities? _____

4) How much do you pay them as commission per tonne of seed cotton purchased? _____

_____

5) Do you experience malpractices from your agents?

YES/NO

6) If yes, explain some of them: _____

7) What measures do you take to guard against these malpractices? _____

8) Who takes responsibility in the case of loss of seed cotton while still in possession of your agents? _____

9) a) Do you purchase seed cotton directly from farmers? YES/NO

b) If yes, at which places do you buy from farmers?

a) on their farms _____

b) at their homes _____

c) at the village markets _____

d) at your offices _____

e) at the ginneries _____

f) others (Specify) _____

c) If no, what is preventing you from dealing with farmers directly? _____

10) What other people do you deal with in purchase of seed cotton?

a) village heads _____

b) government officials _____

c) co-operatives _____

d) brokers _____

e) Others (Specify) _____

11) a) Are there specific persons you prefer to deal with? YES/NO

b) If yes, who are they? _____

c) What are your reasons for preferring them?

i. honesty _____

ii integrity _____

iii reliability _____

12) a) Do you buy seed cotton on credit? YES/NO

b) If yes, how much time do the sellers allow you before you pay? _____

13) a) Do you pay for seed cotton in advance? YES/NO

b) If yes, at what prices? _____

14) a) Do you pay for seed cotton in kind? YES/NO

b) If yes, what kind? _____

15) How long does the buying season normally last?____

C Prices

1) At what prices did you purchase seed cotton during the last six seasons?

	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92
Oct.						
Nov.						
Dec.						
Jan.						
Feb.						
Mar.						
Apr.						
May.						
Average						

2) What are your sources of price information?

_____

3) How soon do you get informed when prices change?

a) immediately _____

b) less than a week _____

c) in 1 - 2 weeks _____

d) longer than 2 weeks _____

D Finance

1) What are your sources of capital?

a) Share capital _____

b) Personal savings _____

c) Bank Loan _____

d) Others (specify) _____

2) What was your turnover in 1991? _____

3) Do you consider financing of cotton marketing adequate?

E. Sales

1) What have been the average prices of lint and seed in the last six years?

	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92
Lint ₦/kg						
Seed ₦/tonne						

2) How long does it take you to market cotton from purchase, through ginning, to sale (on the average)? _____

3) Do you sell cotton to other merchants?

(i) YES/NO

(ii) Explain _____

4) Do you export cotton? YES/NO

5) If yes, how many bales did you export in the last six years?

1986/87 _____ 1989/90 _____

1987/88 _____ 1990/91 _____

1988/89 _____ 1991/92 _____

F. Processing

1) Do you consider the present number of ginneries

adequate? YES/NO

2) Do you think they are efficient? YES/NO

3) a) Do you experience delays in ginning? YES/NO

b) How much time do you spend waiting for ginning (on the average)? _____

4) What other ginning problems do you encounter?

_____

5) Who takes responsibility for loss of your cotton during ginning? _____

G. Loans and Extension Services

1) a) Do you give out loans to farmers? YES/NO

b) If yes, is it in cash or kind? _____

c) Please give details of the annual total value of loans you disbursed to farmers: _____

2) What do you charge as interest? _____

3) Do you take collateral? YES/NO

4) If not, how do you ensure re-payment?

_____

5) Have you ever experienced default? YES/NO

6) If yes, what measures do you take? _____

7) a) Are your loans repaid in cash or kind? _____

b) Explain _____

8) What other services do you provide to farmers?

_____

H. Cotton Production

1) Do you grow cotton? _____

2) If yes, is it on experimental or commercial

quantity? _____

3) Do you consider it cheaper to grow cotton that to buy from farmers? YES/NO

I. Marketing Cost

1) Please give a summary of the average cost of marketing of one tonne of seed.

Cost Item	Amount 1990/91	Amount 1991/92
Produce price		
Commission for agent		
Cost of bag and twine		
Transportation		
Insurance		
Baling		
Ginning		
Storage		
Handling		
Deterioration		
Cost of finance		
Administrative expenses		
Sundry expenses		
Others (specify)		

J. General

1) Do you think that the private sector has

adequately filled the vacuum left by the Nigerian Cotton Board? (Explain) _____

2) What do you consider as the major constraints to cotton production and marketing in Nigeria?

_____

3) What suggestions would you offer? _____

_____

APPENDIX III

BUYING AGENTS QUESTIONNAIRE

1) Questionnaire No. _____ 2) Date _____

3) Name _____ 4) Age _____ 5) Sex _____

6) Level of education _____

7) How long have you been in produce buying business? ____

8) What are your main responsibilities? _____

9) On whose behalf do you purchase cotton? _____

10) Do you use your own money to purchase cotton? YES/NO

11) If no, from what source do you get the money?

_____

12) Where do you purchase cotton?

a) from farms _____

b) at farmer's home _____

c) in cotton markets _____

e) others (specify) _____

13) a) Is seed cotton weighed before you buy YES/NO

b) If yes, who weighs it? _____

c) Are you satisfied with the weighing? YES/NO

14) a) Is seed cotton graded? YES/NO

b) If yes by who? _____

c) Are you satisfied with the grading? YES/NO

15) Who takes responsibility for any loss of seed cotton while still in your procession? _____

16) How many tonnes of seed cotton did you buy during:

1990/91 _____ 1991/92 _____

17) Do you employ sub-agents? YES/NO

18) If yes, what functions do they perform on your behalf?

_____

19) How much do you pay them per tonne? _____

20) What sorts of malpractices do you encounter from farmers? _____

21) How do you prevent them? _____

22) What sorts of malpractices do you encounter from your sub-agents? _____

23) How do you prevent them? _____

24) Do you experience shortage of cotton to buy? YES/NO

25) If yes, in which period(s)? _____

26) Do you consider the prices you pay to be fair? YES/NO

27) What action do you take when you consider prices as unfavourable? _____

28) How much did you receive on commission per tonne of seed cotton purchased during:

1986/87	_____	1989/90	_____
1987/88	_____	1990/91	_____
1988/89	_____	1991/92	_____

29) What problems do you face in carrying out your operations? _____

30) What role(s) do brokers play in cotton marketing? _____

_____

APPENDIX IV

GINNERY'S QUESTIONNAIRE

1) Questionnaire's No. _____ 2) Date: _____

3) Name of ginnery _____

4) Location _____

5) Name of officer _____

6) Position _____

7) Is the ginnery owned by government or by private person(s) _____

8) What is the capacity of the ginnery? _____

9) What is the level of capacity utilisation? _____

10) What is the level of your output per day?

a) Highest level _____ period _____

b) Lowest level _____ period _____

c) Average _____

11) For which period do you operate every season?

_____ to _____

12) How many bales of cotton lint did you produce in the last 6 seasons?

1986/87 _____ 1989/90 _____

1987/88 _____ 1990/91 _____

1988/89 _____ 1991/92 _____

13) What is the ratio of lint to seed product? _____

14) Do you consider the product as:

a) very efficient _____

b) efficient _____

c) inefficient _____

15) Who takes responsibility in case of loss or damage of

cotton during processing? _____

16) How much do you charge for ginning per tonne? _____

17) How long does a customer wait to get his cotton ginned?

a) longest _____

b) shortest _____

c) average _____

18) What are the causes of delays? _____

19) Do you purchase cotton? YES/NO

20) If yes, give details _____

21) What do you consider as the problems of cotton processing? _____