PDF - TRADITIONAL AND MODERN GROUNDNUT PROCESSING AND MARKETING IN NORTH CENTRAL NIGERIA - researchcub.info**ABSTRACT**
The study evaluatedthe traditional and modern groundnut processing and marketing in North CentralNigeria. The focus was on groundnut oil processing and marketing systems; inputuse efficiency in production and factors that made for efficiency;profitability of the processing activity and factors that determinedprofitability; examination of value added by processing; integration of marketsfor the processed products and problems of the industry. A total of 175traditional processors were selected and 17 small-Scale modern processorscovered from Nasarawa, Benue and Niger States. Pre-tested, structuredquestionnaires and observations were used as instruments of data collection.Types of data collected were those on socio-economic characteristics ofprocessors, groundnut procurement, processing, and ground nut oil (GNO) andgroundnut cake (GNC) marketing. Weekly price series for GNO and GNC were alsocollected at various markets within the region. Data analyses were attained byuse of descriptive and inferential statistics, stochastic frontier analysis(SFA), profit function analysis, t-test statistic and Johansen test forco-integration. Hypotheses were also tested appropriately. The average age oftraditional processors in North Central Nigeria was 38 years and 41 years formodern processors. Ninety-four percent of the traditional processors were womenwhile 88% of modern processors were men. Majority of the processors did not participatein co-operative activities.
Sixty percent ofgroundnut processed by traditional processors came from farmers while 94% ofgroundnut processed by modern processors was obtained from traders. The maximumlikelihood result for traditional processors indicated the presence ofinefficiency. Raw groundnut variable was significant at 1% level ofsignificance (LOS) in Nasarawa and Niger States. Fuel-wood and salt were bothsignificant at 1% LOS in Nasarawa and Benue States. In the inefficiencyaspects, age and years of experience were significant at 1% LOS in all thestates. For the zone, labour and salt were significant at 1% LOS; fuel-wood 5%and raw groundnut 10% LOS. In the inefficiency aspect for the zone, householdsize was significant at 5% LOS, while level of education was significant at 10%level of probability. Raw groundnut and labour were significant in modernprocessing, while education and experience at 10% in the inefficiency aspect.Most of the traditional processors had their efficiency scores above 0.80 andmodern processors were from 0.47. In the profit function results fortraditional processors, fuel-wood and packaging variables were significant at1% LOS. Raw groundnut, procurement and maintenance were significant at 1% inmodern processing. Value added was 41% for traditional processors and 44% formodern processors. There was significant difference in the value of groundnutbefore and value after processing. The Johansen trace test result indicatedfive co-integration vectors at 5% level of probability for GNO and twoco-integration equations for GNC. The markets for GNO and GNC were not fullyintegrated. Administrative regulations affected market integration for GNOwhich was significant at 5% LOS. Constraints identified included inadequatefinance, inadequate electricity, machine breakdown and transportation.Recommendations made included improved packaging, finance, electricity supplyand co-operative education.

TABLEOF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTERONE
INTRODUCTION

1.1BACKGROUND OF THE STUDY

Processing, storage and marketingof agricultural produce have become increasingly important to the economies ofmost developing countries, as they have been to industrialized nations atvarious stages of their development. Due to technical progress, marketablesurpluses from agricultural production have grown significantly; while rapidgrowth in urban populations and rising per capita incomes have enlarged anddiversified the demand for processed agricultural products, whether food or rawmaterials for industries. Perhaps Processing is one of the most importantphysical functions of agricultural marketing. Olayide & Heady (1982) opinedthat processing was an important component of agribusiness development, becausea large portion of farm production underwent some degree of change betweenharvesting and final use. More so agro-processing is capable of stronglyshaping farm production decisions. It enables quality enhancement, preservationand differentiation of farm production thereby enhancing its marketability. Ithas also been noted that Agricultural processing activities are small-scale andrequire low investment capital, hence can easily be undertaken by women(Fellows & Hampton, 1997; RMRDC, 2004; Kadurumba, Kadurumba & Umeh,2009; FAO, 2011).

Farm products' processing play asignificant role in the economies of developing countries, where it accountsfor between 51% and 60% of value added by manufacturing and between 60% and 70%of total industrial development. Over half of the manufacturing

activities inthe developing countries of the world consist of agro-industries preserving andtransforming agricultural raw materials (Olayide & Heady, 1982; Brown,1986). FAO (2012) observed that increased urbanization, distance between homeand work-place, working women and changes in family cohesion has increaseddemand for shelf-stable, convenience and value added food.

Agricultural processing facilitieshave a strong impact of stimulating consumer demands backward to the farmsector, to keep pace with demand for raw materials supply for processing. Basedon farm products, agricultural processing schemes can be sited in areas whereother industries will not be viable, as they are more intensive users ofdomestic rather than imported raw materials due to their local availability(Brown, 1986; Austin, 1992; Brown, Deloitte & Touche, 1994). More importantly,the gains of increased agricultural production through technical progress willbe lost if it is not consolidated through the development of economicallyviable processing sector. So also the skills developed through planning andimplementation of agricultural processing and preservation will strengthenstakeholders' entrepreneurial attributes, thereby enhancing their economicempowerment (FAO, 2011). As a means of mitigating problem of food shortage, FAO(2012) among other issues emphasized adding value or improving the food agro-processing for consumption and the market.

An efficient marketing systemconnects producers and consumers, directs efficient allocation of resources inproduction and distribution of output, while ensuring maximum economic benefitsto participants. Conceptually, agricultural processing which is a segment inagricultural marketing, involves the transformation of raw materials to theforms required by the consumer or for the next stage in a manufacturing anddistribution chain (Olukosi & Isitor, 1990; Boland, 2009).This entailstransforming and preserving agricultural output, through physical and/ orchemical alteration. FAO (2011) defined food processing and preservation as aset of physical, chemical and biological processes that are performed toprolong shelf-life of foods, and at the same time retain the features thatdetermine the quality, such as colour, texture, flavour and especially itsnutritional value. Austin (1992) also viewed agricultural processing industry asany enterprise that is involved in the processing of materials of plant oranimal origin, which he also described as agro-industry. In the World Bankdevelopment activities, the term "agro-industry" covered agro-industrialprocesses such as grain milling, fruit and vegetable canning, oil seedscrushing, and meat packaging as well as the function of marketing(Brown,1986).Hence it was touted that starting a small rice mill or an oil press marked anearly stage in the first steps on the road to industrialization. The nature ofprocessing and level of transformation can vary tremendously ranging fromcleaning, grading and boxing fruits and milling to oil extraction, mixing andchemical alteration(Austin,1992), (Table 1.1).

Groundnut (Arachis hypogea) isknown to the Hausas as 'Gyadda', to the Ibos as 'Opapa', the Yorubas as 'Epa,'the Americans as peanuts, and the French as arachides. It is a leguminous cropgrown all over the world as an important oil seed crop native to South America.Groundnut is thought to have been introduced to West Africa early in the slavetrade by the Portuguese, mainly to supplement the diet of slaves in transit.Its spread into the interior of West Africa was rapid in the eighteenthcentury. By 1850s it was common in parts of Hausa land of Nigeria and thoughtto be as important as potatoes in Europe by a British traveler (Hogendorn,1978). Groundnut is a short herbaceous annual crop that produces its podsinside the soil, (figure 1.1).

Historically, the Sudan andnorthern guinea savanna of Nigeria have been the high producing zones. However,the development of several varieties by the Institute for Agricultural Research(IAR), Ahmadu Bello University, Zaria, has led to even higher output in thesouthern guinea savannah zone, covering the North Central States of Nigeria(RMRDC, 2004). Nigeria was third among the world ten highest producers ofgroundnut with 3, 835,600 tonnes (unshelled) after China and India in 2007/2008output year (USDA, 2010), but now fourth with 1.55million metric tonnes(shelled) in the 2008/2009 output season (USDA, 2010),

(Table 1. 2).

A mature groundnut pod contains 2-4kernels (nuts) per pod depending on the variety and is traded decorticated andunshelled. In Nigeria, it is eaten as whole nut, raw, boiled or roasted andalso crushed to get the oil and the cake. The oil is known as groundnut oil(GNO) and the residue known as groundnut cake (GNC). Groundnut is rated thethird major oil seed of the world after soya bean and cotton (USDA, 2010).Groundnut oil is used for cooking, as salad oil, for canning sardines, andmargarine manufacturing (Sharma & Caralli, 2004).The residue after oilextraction is a source of protein for animal feed. In traditional oilextraction method, this residue is fried into a local delicacy known asgroundnut cake (GNC) or 'kulikuli'in Hausa. This is ground and consumed incomposite with several local dishes. Elsewhere, groundnut is processed intopeanut butter, peanut flour, peanut flakes and many other products.

Bulk export of groundnuts from Nigeria startedto decline in the 1960s in favour of local crushing by mills in and around Kanoand else-where. In 1973/74 cropping season, only 35% of the 559,000 metrictonnes purchased by the marketing board was exported. By 1973/74 also a policydecision to discontinue export of groundnuts entirely was put in place to allowfor local processing. Any export of groundnut after then was in form ofgroundnut oil (GNO) or cake (GNC) (Hogendorn, 1978).

The petroleum oil boom and its consequenceupon the agricultural sector saw Nigeria importing groundnut oil. In 1980,about 200,000 tonnes of groundnut products were imported in form of vegetableoil. The 1.95million tonnes output in 1974 dropped to 0.4million tonnes in1983. Consequently many groundnut processing mills had to close down because ofunavailability of the raw material (RMRDC, 2004). However, with the abolitionof organized marketing of agricultural products in 1986, the processing and marketingof groundnuts and its products have been left to the private sector (Ingawa,2004). A survey by RMRDC (2004) showed groundnut output to be 1.98milliontonnes for 2003, with greater portion coming from Bauchi and Nasarawa Stateswith 72,000 tonnes and 70,420 tonnes, respectively, and higher estimates for2004. The rain fed output for Nasarawa State in 2008 was put at 92,450 metrictonnes (NADP, 2009). The soaring demand for groundnut oil in manufacturing anddomestic need has kept the pressure on the groundnut crushing industry.

1.2STATEMENT OF THE PROBLEM

Agricultural development policiesand programmes have tended to lay emphasis on improving farm productivity, butwith less attention on the processing and storage of the resultant output. Forinstance, 95% of funding of the Consultative Group on InternationalAgricultural Research (CGIAR) in about 20 to 30 years was devoted to productionrelated research activities (Ferris, 1999). Agricultural credit disbursement inNigeria has also been in favour of crop production with grain alone taking 67%(CBN, 1998). Consequently, the gains of increased agricultural productivitywill not be fully realized if not sustained through the development of a viableprocessing and marketing sector to support the technical progress attained inproduction. Market forces have instigated greater opportunities for productdifferentiation and value addition in some respects (Boland, 2009). Theseinclude i) increased consumer demand regarding health, nutrition, andconvenience food; ii) efforts by food processors to improve their productivity;and iii) technological advances that enable producers to produce what consumersand processors/manufacturers desire. Importantly, improvement of efficiency inthe value chain fosters more equitable, transparent and sustainable distributionof benefits to the various stakeholders (FAO, 2011)

Local processing of groundnut andother sources of oil have still not met the domestic demand for vegetable oil.This is shown in the importation of vegetable oil to supplement local production,with its attendant drain on foreign exchange. The short fall in demand has beenestimated at between 300,000 tonnes and 400,000 tonnes per annum. Hence thePresidential Initiative on Vegetable Oil was put in place, to obtain threemillion tonnes of vegetable oil per annum from five million tonnes of groundnutand to start exportation by the year 2010 (Ojowu, 2004). Consequent upon theabove, the challenge of achieving this target

was on the groundnut processingindustry. Hence this study focused on critical areas in groundnut processingand products marketing chain for appropriate intervention measures to achieveefficiency and increase products availability.

In agricultural processing schemesas in production, several inputs are involved. Raw material that is the farmproduce can constitute 90% of the entire inputs needed depending on the levelof processing (Austin, 1992). The efficiencies involved in transforming inputsinto desired output need be known (Olayide & Heady, 1982). One of theproblems responsible for poor performance of developing countries especially insub- Sahara Africa in international trade is attributed to low value addition.Consequently, products do not meet international standards, and do not competefavourably in the international trade. Optimization of groundnut oil (GNO) andgroundnut cake) GNC processing and marketing, is therefore an ultimate desire.

It is also understood from theforegoing that there are information and product gaps in the value chain withrespect to groundnut oil, all pointing to inefficiency along the value chain.Most technical and economic efficiency studies have concentrated on primaryproduction of crops and livestock with few on processing, for example Okoh,(1999) worked on cassava roots and its processed products. Kadurumba, Kadurumba& Umeh, (2009) also worked on allocative efficiency of traditional palm oilprocessing in Imo State. Analysis of technical and economic efficiency datafrom processing through marketing, with its positive effects in the chain, andintegration of markets for processed products is crucial, but unavailable.Consequently, this research has addressed the inefficiencies in the valuechain, as depicted in capacity under utilization of plants, poor qualityproducts, low quantity of output fromgiven level of raw material, inadequate price and output information,unattractive profit incentives, and income fluctuations.

It has been established thatinitiating activities from the market – end of the commodity value chain, usingimprovements in processing and market expansion to provide “demand pull” thatbenefits raw material producers, especially small- holder farmers, is necessaryfor sustainable agricultural development (Ojowu, 2006). A survey by RMRDC(2004) revealed Nigerian’s groundnut output of 1.976million tonnes. With theentire crop consumed in Nigeria, examining the performance of the processingsegment and hence the downstream segment of groundnut industry will improveefficiency in operations for processors, and entire value chain.

The synchronous movement over timeamong prices in different markets has become an important index of efficiencyin the markets. For a market system, domestic or foreign, efficient performancesof its developmental functions depend on the ease with which price changes andresponses are transmitted spatially and temporally within the system. Marketintegration modeled within the framework of the spatial price equilibrium (SPE)model of inter market linkages in the point space tradition, that is subject toproduction shocks and general price information is crucial for attainment ofefficiency of the markets. The poor infrastructural development in developingcountries as Nigeria leaves lots of doubts in the attainment of integration ofthe markets for agro-industrial products, such as groundnut oil and groundnutcake and hence the much desired efficiency in their marketing systems. Acquah& Owusu (2012) suggested further investigation into influence of externalfactors such as market infrastructure, government policy and self sufficientproduction, product characteristics and utilization towards market integration.

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