

**Impact of the National Special Programme for Food
Security on Livestock Farmers in Ideato South Local
Government Area of Imo State**

BY

**ORUCHE, EUCHARIA NDIDI
M.Sc./AGRIC/1293/2010-2011**

**A Thesis submitted to the School of Post Graduate Studies,
Ahmadu Bello University, Zaria in partial fulfilment of the
requirement for the award of M.Sc. degree in Agricultural
Extension and Rural Sociology**

**Department of Agricultural Economics and Rural Sociology
Faculty of Agriculture
Ahmadu Bello University, Zaria, Nigeria.**

JUNE, 2011.

DECLARATION

I hereby declare that this thesis entitled “Impact of the National Special Programme for Food Security on Livestock Farmers in Ideato South Local Government Area of Imo State” was written by me in the Department of Agricultural Economics and Rural Sociology under the supervision of Professor T.K. Atala and Professor J.G. Akpoko.

The information derived from the literature has been duly acknowledged in the text and a list of references provided. No previous work of this thesis has been presented to this university or elsewhere.

Eucharía Oruche
(Candidate)

Date

The above declaration is confirmed

Professor T.K. Atala
Chairman, Supervisory Committee

Date

CERTIFICATION

This thesis entitled “Impact of the National Special Programme for Food Security on Livestock Farmers in Ideato South Local Government Area of Imo State” by Eucharia Ndidi Oruche meets the regulations governing the award of Degree of M.Sc. (Agricultural Extension and Rural Sociology) of Ahmadu Bello University, Zaria and is approved for its contributions to knowledge and literary presentation.

Prof. T.K. Atala
(Chairman, Supervisory Committee)

Date

Prof. J.G. Akpoko
(Member, Supervisory Committee)

Date

Prof. D. F. Omokore
(Head of Department)

Date

Prof. A. A. Josua
(Dean, Postgraduate Studies)

Date

DEDICATION

This work is dedicated to:

My brothers: Mr. Lawrence Iloanya who supported me financially throughout my school days and Patrick Iloanya also for his financial and moral support. My sister, Lydia Eze, whose persistent prayer kept me going. My husband, Joel Oruche, for his support, and finally, my friends Angelina Oguike and Mrs. Azaka who made my academic dreams come true.

ACKNOWLEDGEMENTS

I am highly indebted to my supervisors, Prof. T.K. Atala and Prof. J.G. Akpoko for their patience, tolerance, guidance, advice and their professional and expert knowledge which led to the completion of this work. I am grateful to Prof. Ben Ahmed whose encouragement strengthened me and to Mr. Macaulay Magaji (of blessed memory) and Mrs. Azaka for their assistance. I also thank Mr. Jonadab Chikaire for his support and advice. I thank the entire non-academic staff of the Department for their contribution toward my successful completion of this programme. I will not fail to thank Mr. Yunusa who handled the typing of this work.

My sincere thanks go to my mother, brothers, sisters and friends- Lydia, Akunna, Angelina, Mrs. Azaka, Monica (of blessed memory), Mabel and Uju for their concern, support and persistent prayers. Finally, but most especially, I give glory to the Almighty God for His protection throughout my studies. May His name be glorified-Amen.

ABSTRACT

This study was designed to assess the impact of the National Special Programme for Food Security on livestock farmers in Ideato south Local Government Area, Imo State. A sample frame of 1200 farmers was selected out of which 120 livestock farmers randomly selected from six villages. Sixty participating farmers from three villages where the NSPFS programme was implemented were interviewed to examine their socio-economic characteristics, level of living, level of awareness, adoption level and income level. The other sixty non participant farmers from the remaining three villages where National Special Programme for Food Security (NSPFS) was not implemented were also interviewed. Data were generated from both participants and non-participants farmers through the use of a questionnaire and the data were analysed by the use of descriptive statistics and T-test statistics. Seventy percent of the farmers were males and about 50 percent were between 51 and 60 years. The study showed that there were significant differences between income, livestock production and level of living of participant and non-participant farmers. The null hypotheses were therefore, rejected, since the calculated T-test of 3.4, 2.7, and 10.4, respectively were outside the acceptance region of 1.96. More than 80 percent of the participant farmers claimed that they adopted the livestock management practices introduced by the NSPFS. The overall assessment showed that there were great impacts of the programme on the income, livestock production and level of living of the participant farmers. The results of the study, therefore, showed that more awareness should be created. There was also need for the programme to be implemented to other villages in the Study area. There should be adequate supply of inputs to the farmers as well as improved extension services to enhance production of livestock production in Ideato South Local Government Area. The programme should be extended to all the 774 Local Government Areas of the Country.

TABLE OF CONTENTS

Title Page	-	-	-	-	-	-	-	-	-	i
Declaration	-	-	-	-	-	-	-	-	-	ii
Certification	-	-	-	-	-	-	-	-	-	iii
Dedication	-	-	-	-	-	-	-	-	-	iv
Acknowledgements-	-	-	-	-	-	-	-	-	-	v
Abstract	-	-	-	-	-	-	-	-	-	vii
Table of Contents	-	-	-	-	-	-	-	-	-	viii
List of Tables	-	-	-	-	-	-	-	-	-	x

CHAPTER ONE

1.0	INTRODUCTION	-	-	-	-	-	-	-	-	1
1.1	Problem Statement	-	-	-	-	-	-	-	-	5
1.2	Objectives of the Study	-	-	-	-	-	-	-	-	8
1.3	Justification of the Study	-	-	-	-	-	-	-	-	8
1.4	Hypotheses of the Study-	-	-	-	-	-	-	-	-	9

CHAPTER TWO

2.0	LITERATURE REVIEW	-	-	-	-	-	-	-	-	11
2.1	Introduction	-	-	-	-	-	-	-	-	11
2.2	Socio-Economic Characteristics of Farmers	-	-	-	-	-	-	-	-	11
2.3	Level of Livestock Production by Small Scale Farmers	-	-	-	-	-	-	-	-	14
2.4	Impact of Government Programmes on Livestock Farmers-	-	-	-	-	-	-	-	-	18
2.5	Impact of Livestock Production on Standard of Living	-	-	-	-	-	-	-	-	23

2.6	Constraints Encountered in the Implementation of Programmes	-	-	-	-	-	-	-	25
2.7	Theoretical Framework	-	-	-	-	-	-	-	27
2.7.1	The Theory of Social Change	-	-	-	-	-	-	-	27
2.7.2	Perspectives on Impact Assessment	-	-	-	-	-	-	-	28
2.8	Summary of Preceding Chapters and Implications for this Study	-	-	-	-	-	-	-	31
CHAPTER THREE									
3.0	METHODOLOGY	-	-	-	-	-	-	-	33
3.1	Study Area	-	-	-	-	-	-	-	33
3.2	Sampling Procedures and Sample Size	-	-	-	-	-	-	-	34
3.3	Sources Data Collection	-	-	-	-	-	-	-	35
3.4	Analytical Techniques	-	-	-	-	-	-	-	35
3.5	Definitions and Measurement of Variables	-	-	-	-	-	-	-	36
CHAPTER FOUR									
4.0	RESULTS AND DISCUSSION	-	-	-	-	-	-	-	40
4.1	Socio-Economic Characteristics Respondents	-	-	-	-	-	-	-	40
4.1.1	Sex	-	-	-	-	-	-	-	40
4.1.2	Age	-	-	-	-	-	-	-	41
4.1.3	Educational Level	-	-	-	-	-	-	-	41
4.1.4	Income	-	-	-	-	-	-	-	42
4.1.5	Family Size	-	-	-	-	-	-	-	42
4.1.6	Marketing Strategy-	-	-	-	-	-	-	--	43
4.2	Impact Assessment of National Special Programme for Food Security (NSPFS)	-	-	-	-	-	-	-	44

4.2.1	Level of Awareness	-	-	-	-	-	-	44
4.2.2	Level of Adoption	-	-	-	-	-	-	44
4.2.3	Level of Livestock Production	-	-	-	-	-	-	45
4.2.4	Level of Living of the Respondents	-	-	-	-	-	-	46
4.3	Test of Hypotheses	-	-	-	-	-	-	47
4.4	Constraints by National Special Programme for Food Security							49
4.4.1	Constraints Encountered by the NSPFS in the Implementation of its Objective	-	-	-	-	-	-	49
4.4.2	Problems Encountered by the Livestock Farmers	-	-					49

CHAPTER FIVE

5.0	SUMMARY, CONCLUSION AND RECOMMENDATIONS-							52
5.1	Summary of Findings	-	-	-	-	-	-	52
5.2	Conclusion	-	-	-	-	-	-	53
5.3	Recommendations	-	-	-	-	-	-	54
	References	-	-	-	-	-	-	56

LIST OF TABLES

Table 1:	Percentage Distribution of Respondents by Personal characteristics - - - - - 46
Table 2:	Distribution of Respondents according to the Impact of NSPFS Programme on Level of Adoption, Animal Population and Standard of Living- - - - - 50
Table 3:	Distribution of Participating Farmers according to Reported Problems Encountered - - - - - 55

CHAPTER ONE

1.0 INTRODUCTION

Despite ample food production and large food surpluses in developed countries, hundreds of millions of people still struggle for their daily bread (Berck and Bigman, 2005). The United Nation's Food and Agriculture Organization (FAO) estimated that one out of every eight people in the world suffers from chronic mal-nutrition, lacking sufficient food to live healthy and productive lives. The World Bank also estimated that almost 450 million people suffer from a severe protein deficiency and additional 400 million cannot afford even the minimum diet necessary for good health (World Bank, 2006).

In 2005, delegates to the World Food Conference expressed the hope that food insecurity, hunger and mal-nutrition would be eradicated within three years. However, at the International Conference on Nutrition, stark evidence was produced confirming that in many parts of the world this hope was still to be fulfilled (UN, 2006). Food security, therefore, remains a persistent concern of developing countries. Food security is dependent upon three factors: availability, stability and accessibility of food supplies. Therefore, to achieve this, a country must be able to grow sufficient food or have enough foreign exchange to enable it to import food (UN, 2006).

Livestock production in Nigeria had been predominantly rural until recently when development in husbandry and breeding for improvement was given a prominence of place. Generally, livestock husbandry plays a very important role in the development of a nation. The limited supply of animal protein in tropical countries like Nigeria is primarily the result of low productivity

owing to traditional management rather than small numbers of animal. The trend is likely to continue unless animal production is expanded to areas not now utilised and production efficiency through improved breeding greatly increased (Olayide, 1972).

Domestic animals are the main source of man's protein requirements. Proteins are also obtained from plants such as groundnuts, cowpea, pigeon pea and Soya beans, but plant protein is in some respects inferior to animal protein. To live a healthy life, men must consume adequate amount of animal protein in addition to plant proteins which is normally obtained from vegetables. Apart from proteins, man needs foods rich in minerals (calcium, iron, phosphorous and vitamins) (Kayode, 2004).

Protein from livestock is needed for physical and intellectual development as well as for developing immunity against disease (Atinmo and Akinyele, 1983). Livestock production is also an instrument to socio-economic change to improved income and quality of life. In Nigeria, livestock provides about 36.5% of total protein intake (NISER/CDC, 1991) but this still falls short of the minimum animal protein requirement recommended by World Health Organization (WHO). The level of domestic livestock production still falls short of demand. For example, in 1997, demand for beef was 554,000 tonnes, while it was 6270,000 tonnes in 1998 but the domestic supplies were 376,000 and 391,000 tonnes in 1997 and 1998 respectively (NAERLS, 2004). Efforts being made to improve the level of domestic production have not yielded the desired result. Since the 1970s, cattle rearing for instance witnessed only slight modernisation with the establishment of

cattle ranches in Gombe, Manchock, Mokwa, Obudu and Upper Ogun in Ogun State, while, sheep and goats are scattered throughout the different ecological zones in the country (Akinwumi and Ipki, 1989).

Most of rural Nigerians have low income. Consequently their standards of living are very low. The rural Nigerian diet is rarely balanced. Some of them are incapable of maximum production at work and play.

The Food and Agriculture Organization (FAO) estimated that 52 million people worldwide were under-nourished in 2000 – 2002 as a result of lack of protein (FAO, 2000-2006). The Food and Agriculture Organization also recorded that in 2000-2002, there were 19% under-nourished people in developing countries, including Nigeria (FAO, 2004). Like many developing countries of the world, Nigeria is faced with the problem of malnutrition particularly in terms of protein intake (Shaib, 1984; FAO, 2000; World Bank, 2005). As the cost of living in the country rises, the problem of malnutrition becomes even acute. It is apparent that the minimum of 65gm of protein per day recommended by World Health Organization (WHO) is yet to be attained in Nigeria (Shaib, 1984; UNDP, 2006). Rather, the per capita consumption per day has been found to be about 6.5gm which is only 10% of the WHO recommended level (Adeniyi, 1998; UNDP, 2006). It has, however, been confirmed by both agriculturalists and nutritionists that developing the livestock production is the fastest means of bridging the protein deficiency gap presently prevailing in the country (FGN, 2003). Although there has been some increase in local production of livestock, the demands for livestock products still far exceed the required supply. Irrespective of the high

demand, many farmers involved in livestock business to meet the increasing demand, hardly expand their stock (Ofia, 1992).

The major problem facing the livestock production in Nigeria today as Williams and Williams (1991) noted is the inability to grow at a rate that is fast enough to cope with the human population. Sustainable livestock production anywhere in the world is faced with a myriad of problems but that of Nigeria as a tropical country is unique because of the special characteristic of a tropical region (Ogunbayo *et al.*; (1992). Most livestock farmers see livestock as a hobby rather than a business. Loosli *et al.* (1973) noted that among the factors which limited livestock production in the tropics are diseases and parasites, the heat and humidity of the climate, low genetic potentials of the indigenous animals, poor feeding and management, lack of training and experience of the local people in animal husbandry and absence of the infrastructure necessary to supply the needed inputs for production and distribution.

The overriding importance of agriculture in the socio-economic development of Nigeria makes it imperative that greater emphasis must be placed in agricultural growth and development. Consequently, over the years government at all levels has placed priority on food security and sustainable agriculture through commitment in financing agriculture and putting up programmes aimed at improving agricultural production (Federal Ministry of Agriculture, 1999; FGN, 2006).

1.1 Problem Statement

Nigeria, in spite of her great potentials, has been experiencing food shortage and serious protein deficiency for her teeming population since the sixties. This has caused a continuous rise in the country's import bill on food items over the years as a result of decreasing domestic production. Nigeria currently faces serious food and agricultural problems, manifesting in the declining per capita food production, growing food importation and accelerating ecological degradation (Iheanacho and Ogumbameru, 1997). This is in spite of the fact that the country has the human and natural resources to produce in sufficient quantity the kind of food needed. In a bid to solve the problem of food production in the country, the Federal Government of Nigeria has initiated different programmes over the years. For instance, on May 21st, 1976, the Obasanjo led Military Government launched the Operation Feed the Nation (OFN) (FGN, 2004). The aim of this programme was to make the nation self-sufficient in the basic needs of the people. There was also the Green Revolution launched in 1979. Besides the Green Revolution of the Shehu Shagari administration, another practical step taken to address the growing poverty and malnutrition problems among Nigerians was the National Directorate of Employment of the Babangida's administration. The directorate had various programmes which included National Youth Empowerment and Vocational Skills Development, especially in livestock and poultry production (FGN, 2000).

There was also the Directorate of Food, Roads and Rural Infrastructure (DFRRI) established in 1986 (Uwalaka, 2001) Under this programme, people

were mobilised and organised to participate actively in production activities which would ensure abundance of food in terms of protein, availability of housing, rural health and nutrition, manpower development, and rural industrialization. The Family Economic Advancement Programme (FEAP) was launched in 1997 by the then wife of the Head of State, Mrs. Abacha as a welfare scheme. Most of these programmes have had to be abandoned at some point in time due to change in government and in certain cases, perceived ineffectiveness. (Sani, 2000)

All the above mentioned programmes and a number of other ones because of one reason or the other failed to meet target of self-sufficiency in food production. As a result, and as a first step towards the Millennium Development goals target of reducing by half the number of hungry people by 2015, the Federal Government of Nigeria operated a pilot project of the NSPFS in 3 sites of Kano State (FGN, 2006). Based on the successful experience, a five year nationwide National Special Programme for Food Security (NSPFS) was launched in 2001 with the objective to increase and stabilise food production rapidly and sustainable through the wide spread dissemination of improved technologies and management practices in areas with high potential, and to create an economic and social environment conducive to food production as well as reaching some 30,000 farming families in each selected areas (FGN, 2006).

In meeting this objective, Government decided to implement the programme with its own human and financial resources estimated at US\$45million while Food and Agriculture Organization (FAO) provided technical

and managerial support on demand to the Government (FGN, 2006). The components of this programme include activities aimed at improving household food security through water control, such as on farm irrigation, capacity building, and water management, crop intensification and diversification, soil fertility improvement, livestock improvement, aquaculture, and inland fishery, animal diseases and trans-boundary pest control.

The field activities have been launched in all thirty six States. A total of 109 sites were selected to be developed on the basis of one site per Senatorial District. The Priority areas were selected on the basis of existing secondary data relating to potential of bringing about rapid improvement and their representative of major agro-ecological zones. Subsequently, selection of sites in each state was based on Participatory Rural Appraisal and Needs Assessment conducted by States/local implementation teams. The scale of intervention involves 250-300 farm families in each site (Federal Ministry of Agriculture, 2001). The implementation is in phases. The livestock component under farm diversification was expected to provide beneficiaries with alternative for income generation and improve livelihood.

To achieve the above, a Need Assessment Survey was carried out in 2001 in all the thirty six States and the Federal Capital Territory, Abuja, and the results show that all the States required assistance in various livestock enterprises. Arodizogu in Ideato Local Government Area was one of the sites selected and it was one of the sites the Programme was implemented in the first phase in 2001. The selection of the site was as a result of the Base Assessment

done in the area. In a study on impact of Agricultural Development Programmes (ADPS), Idachaba (1989) and Okorie (1986) discovered that the programme have not recorded huge success commensurate with the money spent in the implementation of the programme. Therefore, the questions which this research sought to answer are:

- i. what are the socio-economic characteristics of livestock farmers?
- ii. what is the level of awareness and adoption in the study area?
- iii. What is the impact of the programme on livestock production, and level of living of farmers?
- iv. what are the constraints encountered in the implementation of the NSPFS programme by the implementers and the livestock farmers.

1.2 Objectives of the Study

The broad objective of this study was to access the impact of NSPFS on the living standard of livestock farmers in the study area. The specific objectives were to:

- i. identify the socio-economic characteristics of livestock farmers in the study area;
- ii. determine the Farmers level of awareness and adoption recommended NSPFS management practices in the study area
- iii. determine the impact of the programme on the livestock production and level of living of the farmers
- iv. identify constraints encountered by the NSPFS in the implementation of its objectives and the livestock farmers.

1.3 Justification of the Study

It is pertinent to say that despite the numerous programmes to boost food security, livestock has failed to keep pace with the protein needs of average

Nigerian. Therefore there is need to pay attention to livestock production in Nigeria so as to meet up with the protein requirement for the ever growing Nigeria population. The trend whereby many livestock farmers produced at a level below 1000 birds, despite the entire laudable programme created, indicates that there is need to examine the impact of the programme.

Livestock by its very nature can serve as a major source of protein for a society. Ideato Local Government Area has unemployed youths all over the place. Despite the introduction of the programme, no systematic effort has so far been made to investigate its effect on the adoption of improved livestock production practices, livestock production level, income of target farmers and their standard of living. As such, there has not been any empirical information about the impact of the project. Therefore, this study would contribute to the knowledge of the impact of the programme on livestock production, income and the living standard of the people of Ideato Local Government. Findings would furnish NSPFS, Departments of animal production in high institutions, field extension workers, donor agencies involved in rural development programmes and NGOs with information and data on the impact of food security intervention programme to be used in making their effort more effective.

1.4 Hypotheses of the Study

There is no significant difference between income of participants and non-participants.

There is no significant difference between the level livestock production of the participants and non-participants.

There is no significant difference between the standard of living of the participants and non participants of the NSPFS.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

The literature review of this study has been organised according to the three specific objectives of the study covering socio-economic characteristics of farmers, level of livestock production by small-scale farmers, impact of government programme on livestock farmers, impact of livestock production on standard of living.

2.2 Socio-Economic Characteristics of Farmers

Domesticated animals have traditionally formed an important of the rural economic of Nigeria. This is particularly true in the Northern part of the country, especially in those areas which have enough pasture and are tsetse-fly free. In the south, small animals such as fowls, goats and sheep are kept on almost all compounds but their economic value is small. They are reared mainly for slaughter and consumption on ceremonial or festive occasion.

In a study on small scale poultry production, Ugweke (1991) found out that not many young people took part in farming. Ugweke further found that most farmers in the area were middle aged men and women who were in the ages of 51 and 60 years. Ofia (1982) studied poultry production by small farmers and concluded that the overall medium age of rural dwellers was 60. He concluded that, the implication was that the population contained a disproportionate number of people who have passed their prime or who are retired civil servants whose productivity on the farm was likely to be low.

A study on the impact of adoption of technologies for rural poultry development in Nigeria, Aliyu and Adedipe (1997) reported that adoption levels for cockerel exchange programme ranged between average to high, poultry vaccination was high for commercial production and low for peasant poultry, while kerosene incubator for small scale rural eggs hatching was low. This is a clear indication that technology transfer in the area of rural poultry development demand high attention. The study also show that if improved or supplementary feeding programmes are introduced into the management of local fowl on free range, egg laying ability and egg size is expected to increase by about 30 percent.

Adesehinwa *et al.* (2004) recent Study on socio-economic characteristics of pig farmers in Oyo State found that the ages of the farmers involved in pig production was between 51 and 60 years. There were none in age group of 21 to 30 years. The researchers concluded that young ones are not interested in pig production rather would have gone to seek for white-collar jobs. In that study, the researchers found that educational level of the group studied shows that 23% of the farmers had formal education while 77% had no formal education, 66% of those who are formally educated attended adult literacy classes. A study by Akinyele (2004) on ruminant livestock production in South West of Nigeria shows the age of farmers to be within the ages of 51 and 60 years. Akinyele further said that 27% of the farmers were between 31 and 40 years and less than 5% of the farmers were below 30 years. The researcher concluded that younger ones were less involved in livestock production.

Education is also recognized as an important socio-economic characteristic and a form of human capital for the rural sector (Adenegen, 2001). Ikhehua (1991) studied livestock farmers in Ibeku Imo State, and found out that majority of the farmers possessed little or no functional education, were ignorant of farm methods. Hussi *et al*; (1993) mentioned that most rural farmers in sub-Saharan Africa are illiterate who find it difficult to adjust to new technology.

Oni and Yusuf (1999) stated that women were seriously under - represented in livestock production. Most reason given for low participation of women in livestock was social and cultural factors.

In a study of socio-economic characteristics of ruminant farmers in Olu, it was discovered that family size is a very important socio-economic characteristic since in most cases family labour constitutes the main source of farm labour to rural dwellers. Oni (1991) found an average of farm family to be seven individuals. Okorie (1998) was not specific on family size of livestock farmers, but rather stated that rural farmers generally had large family size.

The size of livestock farm by a farmer is a function of population, size of family labour available et cetra. Ogunmodede (1995) in his study mentioned that livestock farmers have access to large areas which must be acquired and maintained to facilitate large scale production. According to Olayide (1982) the average size of livestock farmland of a rural household amounted to 8 – 10 hectares with all the land-improved pastures.

One of the major objectives of government's intervention in livestock production is to increase the nutritional value of the people and increase income

of rural farmers (FGN, 2002). Nigeria Institution of Social and Economic Research (1998) reported that livestock production was low due to the very low income of farmers. The report also shows that farmers generally are faced with “vicious circle of poverty” – low income, low savings, low capital, low investment and lack of entrepreneurial skills. Chale (1991) also found out that lack of demonstrations equipment and teaching aids, insufficient and ineffective extension services, lack of basic infrastructure, inadequate training of extension agents, lack of appropriate technological and development information, inadequate coordination between National and International Agencies, lack of access to credit, inadequate agricultural inputs, inadequate interaction between extensionist and technology generating centres can affect the livestock farmers.

Ifegu (1990) study on women involvement in livestock production found that women were engaged in other small businesses like buying and selling, sowing and basket making.

2.3 Level of Livestock Production by Small Scale Farmers

Small scale livestock farmers are agro pastoralists who engage in small scale or part-time farming usually to raise some livestock for food and added income (U.S. Department of Agriculture, 1994). According to Aneja (1980) small scale livestock farmers are farmers who have between 1-20 animals of various livestock classes.

Ikhehua (1991) reiterated that small-scale farmers would continue to be the centrepiece of Nigeria’s agriculture in spite of the farmers’ peculiar culture and custom of fragmented land keeping of small sized livestock and non-

adoption of recommended agricultural technologies, which can lead to higher productivity. Ikhehua (1991) further noted that higher productivity can cheaply be achieved through the small-scale farmers compared to the large-scale ones who will require more capital and extra ordinary entrepreneur capability to achieve results.

Nodu *et al.* (1999) reported that there were three types of ruminant farmers in Nigeria; the peasants or subsistence producers with very few animals, the specialised farmers with medium sized animals and the large scale farmers. They went further to say that the subsistence farmers were mainly the nomadic and transhumance. Gatenby (1991) in his study of subsistence sheep farmers reiterated that subsistence livestock production was common among the rural communities. It is known as the oldest form of rearing. The farmers in this system were mainly small holder farmers who own and keep few animals of not more than thirty heads.

Research has shown that ruminant distributions in Nigeria were according to the climate condition of the region. It was observed that cattle production favours the northern part of the country. About 90% of the cattle in Nigeria are reared in the north, only about 10% are reared in the south. This is because there were relatively free tsetse-fly in the north and traditional inclination to livestock rearing of the northern tribe basically Fulanis (Okorie, 1983). Okorie also said that sheep and goats had the same distribution with that of cattle. It was an additional boost in the north based on its religious involvement in

Ramadan feast. This has given sheep production more credence over goats in the north. Most of these animals are kept by small and medium livestock farmers.

In the study of ecological and agro-climatic zones of sub-Sahara Africa, Barreth (1992) found that livestock production was still very much based on traditional system. Barreth (1992) further found that one would have thought that with a larger number of livestock research institutions and facilities of agriculture and veterinary medicines in the region, a new and more modern approach to livestock enterprise would have provided an answer for future productivity and the sustainability of both animal and the environment.

The majority of the livestock in the countries studied were kept by smallholders with each producer owning a small number of animals (Barret, 1992). Ikumi (1985) survey of poultry production in Nigeria identified some problems facing the production as lack of capital, poor management techniques, poor transportation system and communication system, poor extension services as well as poor guarantee services. It will not be possible to drastically change the cultural and socio-economic status of the livestock producers for at least another decade because it has been shown that in terms of livestock product yield per animal per unit area, probably because of their husbandry knowledge and complete devotion to their vocation. Large-scale farmers with modern techniques of production are not the only way to sustain productivity. They are too capital and labour intensive to grantee a profit compared with the low-input system of traditional owners. Study has shown that a lot of large scale livestock farmers failed in many countries, Nigeria being a good example probably due to

production cost. (Barrett, 1992; Nuru, 1991) found that in Kenya, Mali, Botswana and Zimbabwe, the contribution of communal livestock production to the national animal protein yield is greater than that from commercial ranching enterprise in terms of Kilo gram of protein production per hectare per year (Nuru, 1992).

According to the Food and Agriculture Organisation (1991) cattle, sheep and goats constitute 83 percent of food animal and produce over 45 percent of meat products and over 90 percent of available domestic milk supply in Africa. Sheep and goats alone constitute 15 percent of the total number of food animals and contribute about 35 percent of meat as well as fibre. As at 1990, 187.8m cattle, 205m sheep, 173.9m goats and 13.6m pigs were estimated to be found in Africa (FAO, 1991). In spite of the above record, the level of domestic livestock production still falls short of demand, for example, in 1997, demand for beef was 554,000 tonnes, while it was 627,000 tonnes in 1998 but the domestic supplies were 376,000 and 391,000 tonnes in 1997 and 1998, respectively (NAERLS, 1999). Efforts being made to improve the level of domestic production have not yielded the desired result. Since the 1970s, cattle rearing for instance witnessed only slight modernisation with the establishment of cattle ranches in Gombe, Manchock, Mokwa, Obudu and upper Ogun and Osun States, while sheep and goats were scattered throughout the different ecological zones in the country (Akinwumi and Ikpi, 1985).

On the status of peasant poultry farmers, Kitalyi (1996), reported that, the traditional practice in most rural area is to raise local chickens (*Gallus domesticus*) extensively allowing to scavenge in the village and the surrounding

area. It is evident that the scavenging village chicken can produce thirty eggs of thirty gram per day with no supplementation (Bessei, 1995). In some communities, small holders' livestock and particularly village chicken production have been found extremely important in breaking the vicious circle of poverty, malnutrition and disease (Roberts, 1992). Estimates based on human and livestock population in Ethiopia showed that the rural poultry provide 12.5kg of poultry per inhabitant per year, whereas cattle provide 5.3kg (Forsido, 1986). Johnston and Cumming (1991) reported that in south-east Asia, there is one village chicken to each person in the rural areas. Village chicken is thus, the main source of animal protein for most resource poor households and household members in developing countries. The higher nutritional value of eggs and poultry in relation to the cereals crop and other tubers which form the main dietary component in developing countries is reported by Bessei (1995).

2.4 Impact of Government Programmes on Livestock Farmers

The inability of Nigeria to continue to feed its rapidly growing population has necessitated the establishment of different programmes (Olajuwan, 1991). The concern over the deteriorating food supply in Nigeria led to the launching of Operation Feed the Nation (OFN) in 1976. It was designed to stimulate the interest of all classes of Nigerians in farming in order that the country can produce enough to feed itself. Although many farmers, educational establishments, and civil servants benefited from the programmes, however, there is little empirical evidence to point to the direct impact of OFN on increased food production in the country (Okuneye, 1985).

Commenting on the impact of Anambra/Imo River Basin Project (Uwakah, 1980), reported that awareness was created among the people on the need to increase food production, create new sense of purpose and bring home to everyone the need of self reliance. This programme was informed by the fast decline in Agricultural production. Government has to import food from abroad while there was sharp increase in the prices of available food stuffs. The situation was worsened by the growing drift of the youth from the rural areas to urban cities in search of white collar jobs. This invariably left the old men and women behind who were weak and could not meet the growing needs of the country for food (Okuneye, 1985).

Then in 1979, a modified form of the programme titled Green Revolution was launched. This programme was aimed at an accelerated increase in agricultural production by removing all known constraints to increased production. According to the team of seven World Bank and five Nigerian's consultants that prepared the report of "The Green Revolution" said that if Nigeria can concentrate her production efforts on five cereals viz rice, sorghum, Millet, wheat and maize, there would be a enough for consumption but at the end, the story remain the same (NISER, 1985) The failure of the programme was attributed to fund release, non availability of land for prospective farmers.

There were other programmes such as the National Accelerated Food Production Programme (NAFPP), launched in 1972, which was initiated to boost food production in Nigeria. This programme reduced the amount of foreign exchange spent on importation of rice and other staple food items. It gave rise to

rapid increases in rice production through the use of irrigation water (Oyatoye, 1986).

This programme also introduced adaptive research, testing and selecting new varieties, seed multiplication and training of extension workers. The Structural Adjustment Programme (SAP), which was initiated in 1986, brought about with it a variety of sectoral reforms in the Nigerian economy. It involved a reduction in the role of the state in production activity with corresponding emphasis on private sector participation. This led to the scraping of the Nigerian Livestock Production Company (NLPC) and its subsidiaries which was created to provide credit and technical service for the development of Mokwa and Manchok fattening ranches (Lamorde, 1991).

Bans were placed on the importation of livestock products and production inputs. This saw the prices of livestock products skyrocket and the close of many commercial livestock companies due to inflation and the devaluation of the naira. The Agricultural Development Projects (ADPs), for the management of extension services through a single line of command covering crops, livestock, fisheries, agro-forestry, women in agriculture, etc, using the Training and Visit (T & V) extension system were first introduced at enclave level in 1974. The implementation of the ADPs, has recorded some impact in the production of crops like groundnut, sorghum, maize, cowpea and millet (Ojo, 1991).

The use of extension workers under the ADPs in disseminating information to farmers has helped to improve farmers' agronomic practices with regards to land preparations, cropping patterns, planting and application of

fertilizers and other agro-chemicals. River Basin Development Authorities (RBDAs), for the provision of irrigation water for the production of rice, maize, livestock, and fishery and also for dry season farming were also established in 1974. The setting of RBDAs was certainly a mile stone in the water resource management and the irrigation development in Nigeria. Boreholes, dams, dykes, polders, wells and reservoirs were constructed. This contributed to production of about four hundred thousand (400, 000) tones of grains in Nigeria (Oyatoye, 1986). This programme faced a lot of problems such as land settlement and tenure, irrigation aftermath, lack of project evaluation, equipment breakdown and lack of trained staff among others. Agricultural Credit Guarantee Scheme, which was also introduced in 1978. The scheme granted loans to commercial and merchant banks for agricultural purposes, including livestock raising.

Notwithstanding the laudable achievements of the ADPs, Idachaba (1989) and Okorie (1986) show that the ADPs have not recorded huge success commensurate with the money spent in the implementation due to mismanagement and the dominance of foreign technical manpower. For all intents and purposes, the various administrations that came up with these programmes must have had good intentions, the basic objective being empowering Nigerians to be self productive and eradicate poverty at all levels. The big question begging for answer remains why is it that for over two decades of the inception of these programmes, poverty has remained the basic problem of most Nigerians? No matter how beautiful a programme is on paper, it can be said

to be good only when it is well implemented and the objectives are realized at the end of the day.

The impact that a particular programme has in the country is a very useful criterion to evaluating success of that programme. According to United Nation Industrial Development Organisation (2001), good agricultural programmes implementation is a means of enhancing the productivity and the living standard of rural farmers, especially in the developing countries. United Nation Development Programme (2000), stated that one of the effects of good agricultural programme implementation is that the country record good yields on products. It further states that farmers are exposed to new farming technology through programmes by extension workers.

McDowell (1972) studied an agricultural programme in the Island of Trinidad and Tobago on dairy production. The participants were former farmers who received training from extension agents before going to new farms. The effect according to McDowel was that production of dairy recorded 50% higher than what it was before. Federal Ministry of Agriculture and Rural Development (2002) in the survey of impact assessment of farmers in Imo State reported that the average net income of farmer participated in some government programmes was higher than that of the non-participant farmers.

According to Barneth (1988) over 3 million Nigerians depend primarily on livestock for their survival. There was over increasing demand of livestock and government focus was to see how livestock could be increased both in present and in future, using all available natural resources, with no or minimum

environmental degradation. The ever-increasing demand for livestock products owing to increased human population and better health education justifies greater attention to animal production if the nation is to avoid a huge animal protein deficit (Ugwoke, 1999).

McMillan *et al.* (1989) and Lin (1992) showed that after China's reform there was a rapid growth in some crops. The researchers stated that earliest period of China's reform, wheat increases by more than 90 percent, rice by 54 percent, soybeans by more than 43 percent and maize rose by 56 percent. According to Wen (1993) China's reform activities by 1990 had made major breakthrough, with this, China, the world most populous country, is highly acclaimed for its ability to feed over one fifth of the world population with only seven percent of the world's arable land (Wen, 1992).

2.5 Impact of Livestock Production on Level of Living

Livestock are one of the contributors to diet and income of rural farmers. In China for instance, Hoefler and Tsuchitani (1980) reported that livestock especially hogs are significant contributors to diets and cash incomes of rural commune families. The range in kinds and numbers of livestock kept by family is great illustrating the importance of livestock even in small numbers to the income of a family (Hoefler and Tsuchitani, 1980). The Xinfra commune in China is an important producer of hogs for breeding stock and for sale as feeder pigs for families within the commune. Annual income for the family averages 200 Yuan per month or \$0.78

Livestock played a vital role in the Indian economy. Mishra and Sharma (1990), reported that next to agriculture, animal husbandry is the most important economic activity in rural areas. These two together provide employment and income to the vast majority of the rural population. For poorer sections of the rural population, animal husbandry is an important source of supplementary income (Mishra and Sharma, 1990). Several farm surveys carried out in different parts of the country over the years show that about 20 to 30 percent of the total working-time of farm workers is spent on maintenance of livestock and related activities. In addition, several millions are dependent for work and earnings on livestock raw materials like hides, skin, bone and wool through the whole chain of collection, process and sale of final product.

Livestock produced a number of vital products and services. These can be classified into three broad groups: (1) *Energy* in the form of draught and traction power for agriculture, rural transport and some rural industries, and animal dung for use as a crop manure as well as fuel for cooking and heating, (2) *Food* in the form of milk, milk product and meat, and finally, (3) *Raw materials* in the form of wool, hair, hides, skin, bones, hoofs, and horns, tallow and a number of products of pharmaceutical and industrial use available from the fallen of slaughtered animals (Mishra and Sharma, 1990).

On the contribution of livestock to the economy, Mishra and Sharma (1990) reports that livestock products are a valuable source of foreign exchange earnings. In 1985-86, export earnings from livestock products amounted to Rs. 563 cores (Rupee) or \$12,224, export of leather and footwear alone contributed

over Rs. 450 cores or \$9,677 approximately to the national economy Sharma (1990).

McDowell (1972) stated that since livestock provide for three products important to human welfare and economic development, namely food, fibres, and finance, the improvement of livestock production seems to be a worthy objective. At present, the daily per capita consumption of animal protein in the warm climates averages no more than 18 grams, which is 30 per cent lower than the world average and 60 percent less than for countries in the 40-50° North latitude (McDowell, 1972). But, in areas where livestock are widely distributed and their product accepted, there is improvement in acceptance of new foods from livestock.

2.6 Constraints Encountered in the Implementation of Programmes

In its determination to make Nigeria self-sufficient in food production within the shortest possible time, Federal Government established several programmes to achieve the objectives (Federal Ministry of Agriculture, 1991). After more than two decades of experience with agricultural programmes in Nigeria, the results generally have been disappointing (Olayide, 1990). In a comprehensive study of some agricultural programmes conducted by Food and Agriculture Organization (1999), the report concluded that there have been many more failures than successes in the programmes implementation. Olayide (1990) maintained that the failures of most agricultural development projects/programmes can largely be ascribed to poor administration and management. Olayide (1990) further said that, although Federal and State

bodies are set up, the confusion as to who does what, the roles in relation to Ministry of Agriculture appear confused and nebulous. He went further to say that non involvement of local councils in commodity oriented rural development framework create the problem of ensuring participation by the great majority of farmers.

Olawoye (1993) reported that lack of mobility, shortage of qualified extension staff, lack of coordination between the unified extension system and parallel extension services in-appropriate extension packages, lack of flexibility in extension strategies were the main constraint in programme implementation. Chale (1991) identified some problems of farmer in Nigeria in participating in agriculture development programmes. The researcher concluded that the steady development of livestock production requires the availability of technical manpower in sufficient number, which is lacking in some programmes.

On the Island of Trinidad and Tobago, a dairy production programme was developed. The programme was constrained by lack of provision for the necessary trained technicians to oversee the proper training of the operators (McDowell, 1982). The researcher further observed frequent failure of livestock development programmes to be associated with established pattern of social, economic or political organizations of the people.

Oni and Yusuf (1999) concluded that demographic and social characteristics of animal producers in a particular locality can go a long way to influence their participation in livestock development programmes. He pointed out that farmers characteristics such as gender, family size, main occupation,

religion, type of farming, farming experience and herd size should be considered before involving farmers in a livestock development programme.

2.7 Theoretical Framework

The theoretical backgrounds for this study were social change theory and the perspectives on impact assessment. These would provide an understanding of the changes that have occurred as a result of the NSPFS interventions on livestock production in Ideato South Local Government Area of Imo State.

2.7.1 The Theory of Social Change

Social change is an ever-present phenomenon in any society (Robinson, 1982). Rogers (1983) defined social change as the process through which alteration occurs in structure and function. Moore (1963) sees social change as the significant alteration of social structure in society; while Strauss (1959) states that the essence of human life is change, development and growth. However, the process of change involves interaction and so individual must be understood in terms of the group in which they belong or participate. Zaltman *et al.* (1972) describe social change as a term used to describe change in social and economic life style and values of people, technological innovation and social institutions. The specific meaning of social change depends on the social entity considered. Therefore, in this study, the social change theory would assist in analysing the changes in livestock production and standard of living of the people that have resulted from the implementation of the NSPFS in the study area.

2.7.2 Perspectives on Impact Assessment

According to Patton (1978), impact is the actual programme outcome in relation to the desired outcome or goals in determining the impact of social intervention. Impact of social intervention can, therefore, be defined as an output of the organisation which is related to the achievement of the programme objectives. Jibowo *et al.* (1979) and Galjart (1968), in an empirical study which they carried out independently used socio-economic status, education, farmer urban residence and contact with extension workers to assess the impact of projects like the Isoya rural development project of the Obafemi Awolowo University, in Ile- Ife.

Impact can be defined more broadly than goal attainment as long-term influence on the state of the environment surrounding an organisation (Kanter *et al.*, 1981). Hilton and Lunsdain (1975) suggested that programmes should be assessed considering the defined goals or outcomes sought and the extent to which the goals are furthered by the demonstrable effects. Gilbert *et al.* (1975) observed that social intervention may have more than one goal such as primary and secondary goals, which may affect the choice of criteria in assessing its impact. In this respect, it is necessary to use more than one outcome as a measure of impact. For example, the overall aim of NPSFS is to attain food security in the broad sense and alleviate rural poverty in Nigeria in the narrow sense. However, more immediate outcomes of the programme such as adoption of improved livestock practices, increase in income of farmers, increase in

production level of livestock, improved standard of living are also the major interest of the NSPFS.

Impact of a programme may be positive or negative and that could depend on the forces that interact to produce the changes. However, the need to assess the impact of any programme is very necessary since it will be concerned with effectiveness and goal achievement of the programme. According to Katz *et al.* (1975), it is one of the means of demonstrating the quality of services provided by the Organization as well as feedback from the relevant public that the Organization is serving. Brumback *et al.* (1978) sees impact as synonymous with end result. It is interchangeably used as outcomes or result.

Measurement of impact has been done objectively and subjectively or both. Subjective measures of impact are used in the study of extension organisation in analysing the perception of client regarding given services, objective is useful to drive values and make decisions. It is use to quantify the impact of a programme by relating some measures of it to the outcomes (Brumback *et al.*,1978).

Measure of client satisfaction was proposed as means of establishing focus on impact. A model of effectiveness based entirely on client satisfaction was first used by Katz *et al.* (1975) in their study of government services. Ladewig (1983) has also asserted that if efforts to measure impact of extension organisations are to provide any meaningful results, they must be based on multi-dimensional framework. The framework should reflect the major activities involved in carrying out the extension mission. Similarly, Reynolds (1970)

suggests that the impact of an organisation could be determined by these indicators, namely:

- i. change in attitudes and knowledge;
- ii information seeking behaviour toward the activities of the organisation;
- iii change in individual behaviour toward the activities of the organisation, and
- iv The resulting outcome of the organisations programmes on the target populations, that is, the indices of economic or general well being of the target group.

Alao (1971), Voh (1979) and Atala (1980) found that certain socio-economic factors – like household size, formal education, farm size, income, cosmopolitanness and community status were related to adoption of innovations introduced to farmers by rural development projects in Nigeria.

According to Auchan (1977) and Akanya (1989), the indicators of the impact of an intervention include: change in knowledge and attitude, mediating behavioural outcome, change in individual behaviour towards programmes and resulting of indices of economic and general well being of the recipients. Daramola (1988), in his study of the impact of the various elements of a recommended farm practices found that supply, problems, ignorance and poor level of farmers education were responsible for farmers not adopting the recommended agronomic practices. When measuring impact, it is important to distinguish whether or not the impact is long-term or short-term. Immediate or

short-term refers to those benefits or changes that occur during or directly as a result of the delivery of service. Long-term measurement occurs sometimes after the delivery of the service (Daramola, 1988). Therefore, in this study the impact assessment perspective will help to analyse the level of adoption of the recommended practices for livestock production introduced by the NSPFS and impact on livestock productivity, farmers' income and standard of living as indicators for poverty reduction.

2.8 Summary of Preceding Chapter and Implications for this Study

Over the years, successive governments have tried to find solutions for food security in Nigeria as well as protein deficiency. Several programmes have been implemented. Researchers have made a concerted effort to know the impact of these programmes to food security and protein deficiency. Some of them had commended government for its initiatives, some also did not find any need for the programme since the impact could not be felt.

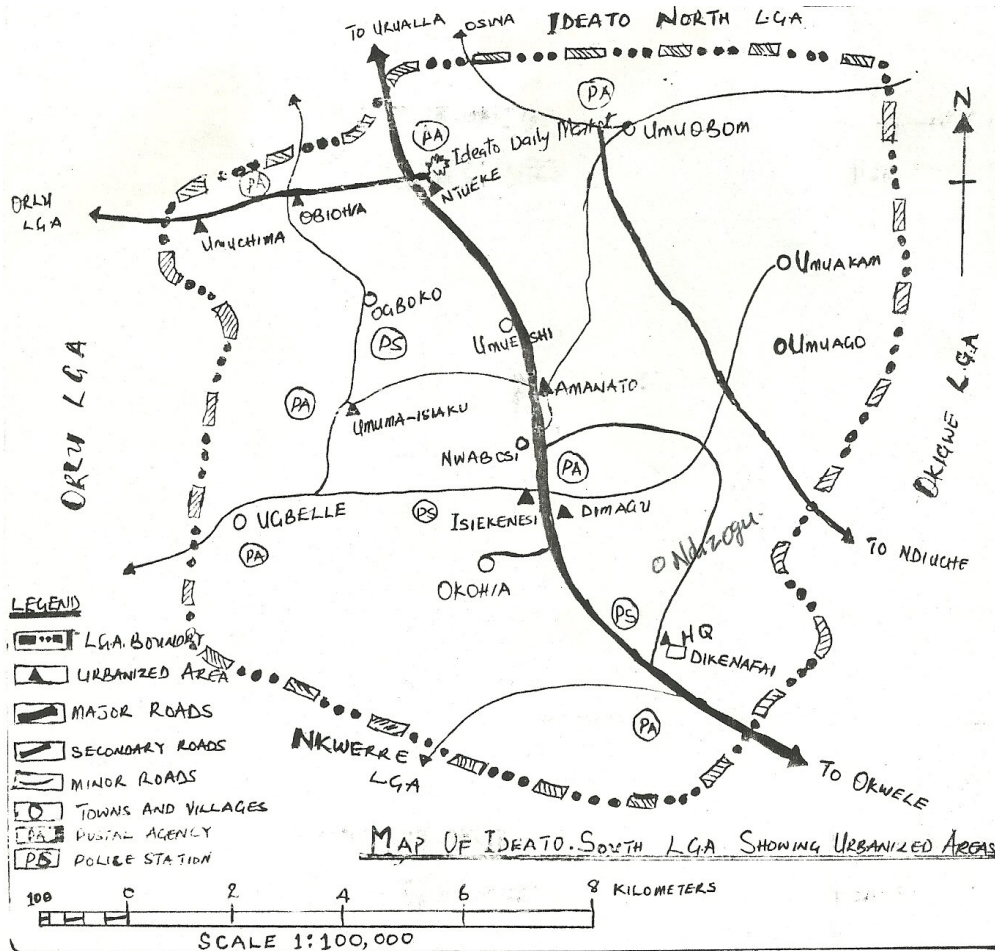
It was also seen from literature that livestock production were still based on traditional systems, keeping small animals for consumption before the introduction of the NSPFS programme (FGN, 1999). At the introduction of the programme, mobility, fund, lack of extension staff, marketing and evaluation were identified as some problems militating against the success of the programme. However, it was revealed in one of the studies consulted that adoption of improved technology as a result of the programme invariably increased production and standard of living of the participating farmers. The work was aimed at examining the benefits the livestock farmers have derived since the

inception of the programme and the way they welcome the programme. It could be concluded that most of the literature consulted conclude that the prospects of increasing productivity in livestock production, given the present scenario, demands concerted efforts towards directing the available resources along with change in attitudes by the herdsmen and such resources carefully utilised through research and breeding programmes.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Area



The study was conducted in six villages in Ideato South Local Government Area of Imo State. Imo State is in the South East Zone of Nigeria. The State is made up of twenty-seven Local Government Areas out of which Ideato South Local Government Area is chosen for the study. Ideato South is chosen because it is where the NSPFS programme site is located in the State. Ideato South Local Government Area has a total population of 195, 000 persons from the 2006 census figure. (NPC, 2006).

Imo State occupies a landmass of 5,530 square kilometres with a total population of 2,957, 876 million persons in 2006 census figures (NPC, 2006). The State shares boundaries in the North with Anambra State, in the South and West with Rivers State and in the East with Abia State.

The State has two dominant seasons – rainy and dry seasons. Rain falls between April and October while the dry season starts from November to early March, though early rain starts March. The Igbos form the major ethnic group in the State, Christianity and traditional religions are beliefs by people in the State. The State falls within the tropical rain forests zone with dense forest in the south (FGN, 2004).

Agriculture is the mainstay of the economy of the State. This is basically due to the rich arable land suitable for the growth of a wide range of tropical crops. Crops grown in the State include yam, cassava, maize, oil palm and cocoa fall under the category of cash crops. The people also keep livestock like goats, pigs and poultry (NARP, 1998).

3.2 Sampling Procedures and Sample Size

Three villages where the NSPFS was implemented were purposively selected from the Local Government Area. Another set of three villages in which the NSPFS was not implemented were also selected in the same Local Government Area. The selected villages where the Programme was implemented were Ndizuogu, Ntueke, and Umeshi while Amanato, Dikenafai and Umuchima were the villages without participants. The total population of farmers from the six villages were 1,200 from which 60 participating farmers and

60 non-participating farmers were randomly selected making a total of 120 farmers.

3.3 Sources of Data Collection

Primary and secondary data were used for this study. The primary data were obtained by means of a questionnaire instrument which was administered to the participating and non-participating farmers. The questions were asked on age, family size, sex, education, flock size, number of animals in stock, intensity of livestock production, number of times of extension contact, package adopted, attitude toward programme, problems faced by farmers, problems of implementation, and benefits derived from the programme. The primary data was collected from July to August, 2006. Oral interviews were also held with the NSPFS programme coordinator and other field workers in the area. The secondary data sources includes reports, articles from journals, proceedings, textbooks, calendar and data collected from the programme coordinator of NSPFS in the area.

3.4 Analytical Techniques

Analytical tools employed for this study were descriptive statistics and T-test Statistics. Descriptive Statistics involves the use of frequency distribution tables, percentages, means and ranges. It was to analyse the socio-economic characteristics of farmers in the study area, the perception of farmers on level of livestock production, level of living, and the constraints encountered by the NSPFS in the implementation of the programme, and the constraints faced by the participants.

The T-test Statistic was used to test the significant difference in the number of livestock production, income and standard of living between the participants and non-participants.

$$T = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

Where:

\bar{x}_1 = mean livestock production, income and standard of living of the participants.

\bar{x}_2 = mean livestock production, income and standard of living of the non-participants.

S_1^2 = standard deviation of the participants.

S_2^2 = standard deviation of the non-participants.

n_1 = sample size of the participants.

n_2 = sample size of non-participants.

Decision rules for the hypotheses were:

Accept H_0 , if calculated T-value is less than table value of 1.96 at 5% level of significant in a two tailed T- test.

Reject H_a , if calculated T-value is greater than table value of 1.96 at 5% level of significant in a two tailed T- test.

3.5 Measurement of Variables

1. Income

Income of a household was the sum of all the earnings received from sale of livestock products generally expressed in monetary terms.

2. Ownership of Livestock

This was the total live animals owned by the livestock farmer within the period of field data collection. This can be measured with the use of Tropical Livestock Unit (TLU). A tropical livestock unit is the common unit for describing livestock numbers of different species, as a single value this expresses the total amount of livestock present regardless of the specific composition. In order to do this, the concept of an “Exchange Ratio” This unit is 1 Tropical Livestock Unit (TLU) eg. 1 TLU= Sheep/Goats: 0.1

3. Level of Living

Level of living concept can be defined broadly or more narrowly, depending on the variety of satisfactions included over and above those obtainable from economic goods and services (Margret,1964). It can also be interpreted so broadly as to be coextensive with almost all aspects of human behaviour, acquisitions, valuations, and social relationships (Hagood, 1956). According to him level of living can be broadly defined as the quantity, quality, and variety of goods and services utilized by individuals or families and this is the part of level of living which has been subjected to measurement most frequently. However, to measure household Level of living of people with precision is very difficult, as perceptions differ in various areas among diverse societies. However, Atala (1980) and Ahmed (1983), used ownership of durable goods items like radios, bicycles, motorcycles and cars to measure. In addition, Atala (1980) also used livestock like ownership of cattle, cows, goats, sheep, fowls, donkeys, horses and other valuables to measure standard of living. For this

study, possession and ownership of material goods such as radios, television, bicycles, motorcycles and cars were used to measure standard of living. These were converted to monetary value to form an index of standard of living for the respondent.

4. Impact

Impact of NSPFS will be measured by the level of the participants' awareness of the recommended management practices: (i) use of improved breeds, (ii) supplementary feeds/feeding, (iii) provision of clean drinking water, (iv) shelter for night roosting, (v) vaccination against disease, (vi) proper sanitation, (vii) isolation of sick animals, and (viii) timely removal of dead animals., adoption of the above recommended practices, level of livestock production, income from livestock production and standard of living of livestock farmers.

5. Awareness

Awareness is the knowledge or realization of the introduction of improved livestock practices by the NSPFS. This was measured by whether or not the farmers had the knowledge of the NSPFS management practices.

6. Adoption

This refers to acceptance and continuous use of NSPFS recommended livestock management practices by livestock farmers. The adoption of NSPFS recommended livestock management practices included the following: (i) use of improved breeds, (ii) supplementary feeds/feeding, (iii) provision of clean drinking water, (iv) shelter for night roosting, (v) vaccination against disease, (vi) proper

sanitation, (vii) isolation of sick animals, and (viii) timely removal of dead animals. Eight (8) recommended practices were studied and adoption score was based on the total number of recommended practices a farmer reported to have used on a continuous basis

7. Production

This is the total quantity or number of farm animals or the intensity of livestock production recorded due to improved inputs, operational techniques and efficient resource utilization. In this case, level of livestock production was in terms of high number of animals a livestock farmer had after adoption of the management practices.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Socio-economic Characteristics Respondents

In order to analyze the impact of National Special Programme for Food Security (NSPFS) on livestock farmers, it is pertinent to describe the Socio-economic characteristics of the respondents (farmers). This description would serve as a background to further discussion in later chapter. However, it should be noted that the presentation covers all respondents (farmers) in some cases and at times restricted to only NSPFS Participants.

4.1.1 Sex

It was observed that 30 percent of the respondents were female while 70 percent were male. Only 14 women participated in the programme against 46 men. On the other hand, 22 out of 36 female were recorded as non-participants against 38 non-participants men. The low participation on the part of the women may be attributed to culture, values and norms which may hinder women from fully participating in the programme. This is in line with the study by Oni and Yusuf (1999) in which they found that women were seriously under-represented in livestock production as a result of social and cultural values. Also a study on women involvement in livestock production by Ifegu(1990) showed that women were engaged in other businesses like buying and selling, sowing and basket making.

4.1.2 Age

Age is an important variable in this study that cannot be overlooked. The study revealed the comparison of age between the participant and non-participant farmers. The mean age of participant and non participant farmers within the age bracket 30-39 was 5%, while the age above 60 was 53%. A recent study on socio-economic characteristics of pig farmer in Oyo-State by Adesehinwa (2004) state that ages of farmers involved in pig were between 51 and 60 years as there were none in age group 21-30 years. The farmers at Ideato (study area) concentrated majorly on poultry, goats, and piggery. The contributing factor could be an environment where farmers live

As earlier stated, the reason for high percentage of old people over young farmers could be attributed to the nature of livestock production, Livestock production requires less attention especially when the animals are matured, risk involvement may not be as high as other business ventures. It could be practiced on a small scale with small capital and the operation could not be too technical and could be done near the neighbourhood. It could be also that the youths were engaged in rural-urban migration in search of white-collar jobs or may be basically engaged in food production only.

4.1.3 Educational level

Education was generally considered an important variable that could enhance farmer's acceptance of new technologies. The study showed that approximately 5% of the farmers attended adult education, while 46.7% had primary education. For those who were formally educated, 31.7% had secondary

education, while 6.7% had tertiary education. The low percentage of those with formal education may be due to limitation of educational facilities in the villages which to a great extent could adversely influence adoption of innovations in livestock production.

4.1.4 Sources of income

The study revealed the sources of income of the farmers in the study area. The predominant source of income of farmers was personal savings which was common to both participants and non-participants. Approximately 82 percent of the farmers sourced their income from personal savings. Cooperatives and banks recorded low percentages with 0.8 and 10 percent respectively. This could imply that since the farmers in the study area are low income earners and operate in a small scale, they may not be capable of meeting the demands of the banks such as provision of collateral. It could also be that the interest rate was high.

4.1.5 Family size

The family size in Africa was often used to determine how rich a man is. The study showed that both participating and non-participating farmers fall between the family sizes of 5-9 recording the total percentage of 58. In a study of socio-economic characterises of ruminant farmers in Olu by Oni, it was discovered that family size is a very important socio-economic characteristic since in most cases family labour constitutes the main source of farm labour to rural dwellers. Oni found an average of farm family to be seven individuals. This could justify the old belief that traditional Africans value large family, regarding it

as a mark of honour to the family. It may also mean that the farmers needed the large family for labour supply.

4.1.6 Market strategy

The study revealed the type of marketing strategy individual farmers adopted to sell their animals. Approximately 87 percent of the farmers disposed their livestock through retail method. The greater number of respondents who use retail comes from the non-participating farmers. This may be because they are not aware of the new marketing strategy introduced in the programme. Only 27 percent of the participating farmers claimed to have used wholesale method. This could be that those farmers were knowledgeable about the new marketing strategy as a result of the programme.

Table: Percentage distribution of respondents by personal characteristics

Age	Participants		Non-participants		Total	%
	Frequency	%	Frequency	%		
30-39	2	3.3	3	5.0	5	4.2
40-49	7	11.7	10	16.7	17	14.2
50-59	25	41.7	20	33.3	45	37.5
60 +	26	43.3	27	45.0	53	44.2
Total	60	100	60	100	120	100
Educational level						
Adult literacy	2	3.3	4	6.7	6	5.0
Primary	21	35.0	35	58.3	56	46.7
Secondary	26	43.3	12	20.0	38	31.7
Tertiary	11	18.3	9	15.0	20	16.7
Total	60	100	60	100	120	100
Income						
Personal savings	43	71.7	55	91.7	98	81.7
Friends	7	11.7	1	1.7	8	6.7
Bank	1	1.7	0	0.0	1	0.8
Cooperative	8	13.3	4	6.7	12	10.0
Others	1	1.7	0	0.0	1	0.8
Total	60	100	60	100	120	100
Family size						

1-4	10	16.7	9	15.0	19	15.8
5-9	34	56.7	35	58.3	69	57.5
10+	16	26.7	16	26.7	32	26.7
Total	60	100	60	100	120	100
Marketing Methods						
Wholesale	13	21.7	1	1.7	14	11.7
Retail	45	75.0	59	98.3	104	86.7
Contract	1	1.7	0	0.0	1	0.8
Others	1	1.7	0	0.0	1	0.8
Total	60	100	60	100	120	100

4.2 Impact Assessment of National Special Programme for Food Security (NSPFS)

The primary objective of this study was to assess the Impact of NSPFS to livestock farmers in Ideato town of Imo State.

4.2.1 Level of participants' awareness of the recommended practices

The participating farmers were interviewed to ascertain their level of awareness of NSPFS management practices before the programme was introduced, 80% of them said that they were not aware of any of the NSPFS management Practices, while 20% agreed that they were aware of few of the practices. It could be that the 20% who admitted having knowledge of the few practices had participated in a similar programme in the past or that they got the knowledge from their friends outside the study area.

4.2.2 Level of adoption

The programme introduced eight (8) management practices which were adopted by the livestock farmers who participated in the programme. The study revealed all the technologies disseminated by the NSPFS to livestock participant farmers out of which five (5) were adopted by all farmers. These were: use of improved breeds, provision of good clean drinking water, proper and regular

sanitation, provision of shelter for night roosting, and timely removal of dead animals. While 96.7% isolated sick animals from the rest, 83.3% and 93.3% provided the animals with the right quantity of feeds and vaccinated accordingly. While 16.7% of the non-participants said they use improved breed and naturally provide their animals with good drinking water, vaccinate, isolate sick animals and remove dead animals as quickly as possible, provide shelter which common sense demands. The high adoption levels for these management practices could be associated with farmers awareness that these practices increase production and minimize loses.

4.2.3 Level of livestock production

As part of impact assessment of NSPFS, the level of livestock production was examined. The result revealed that more animals were kept by participant farmers while non-participant famers kept fewer animals as indicated in the table. This may be as a result of not participating in the programme or there was no knowledge of new improved method of production. The participating farmers had a total of 9,775 animals of poultry, goats, sheep, rabbit, fish, and pigs, while the non-participating farmers had a total of 1,380 of above mentioned animals. The above analysis was considered relevant so as to determine if there was increase in the livestock of both farmers as a result of types of system used and if the programme packages of modern technologies have impacted on the production level.

The study showed that 92 percent of the participants used modern method of production. This also proved that greater number of participants adopted the

new method of livestock production introduced in the programme, while 83 percent of non-participants still used the traditional methods of production. This could be attributed to lack of awareness or that the non-participant livestock farmers did not know why they were recording low turn-out of production. This is in line with Upton (2004) who said that intensity of livestock production depends upon the stocking rate, sources of system and animal species and yield per head. He further said that growth in livestock product and farm household income can be achieved by increasing stock rate, changing to more intensive production system or improving reproduction rate.

4.2.4 Level of Living of the Respondents

The study showed that 63.3 percent of participating farmers had radio recorders as against 43.3 percent of non-participating farmers. The study also showed that the participating farmers were able to acquire comfortable houses and cars. This may be as a result of increase in their level of production due to their participation in the programme. The non-participating farmers as the result showed could not afford comfortable house or a car. It could also mean that they were still under the traditional method of production thereby recording low productivity and income.

There is tendency that with the increase in the purchasing power of the participating farmers as a result of increase in production level, their nutritional status had increased. Most of the participants (70%) said that their mode of feeding had changed. They can now increase their protein, vitamin and mineral

intakes. It was concluded therefore, that the programme has had a positive impact on the level of living of the participant farmers.

Table 2: Distribution of Respondents according to the Impact of NSPFS Programme on level of adoption, Animal population and Standard of living

Practices	Participants (N =60)		Non-participants (N =60)	
	No. Adopted	% Adopted	No. Adopted	% Adopted
Use of improved breeds	60	100	10	16.7
Improved Supplementary feeds/feeding	50	83.3	4	6.7
Improved good drinking water	60	100	18	30.0
Improved vaccination	56	93.3	8	13.3
Proper sanitary measures	60	100	7	11.7
Shelter for night roosting	60	100	13	21.7
Isolation of sick animals	58	96.7	7	11.7
Timely removal of dead animals	60	100	10	16.7

Animal	Participants			Non-participants		
	Number	Frequency	%	Number	Frequency	%
Poultry	5,000	20	33.3	1,000	16	26.7
Goat	525	16	26.7	1,000	10	16.7
Sheep	350	10	16.7	80	20	33.3
Rabbit	150	4	6.7	0	0	0.0
Fishery	250	8	13.3	0	0	0.0
Piggery	3,500	2	3.3	200	14	23.3
Total	9,775	60	100	1380	60	100

Level of living	Participants		Non-participants	
	Frequency	%	Frequency	%
Properties acquired and owned				
Radio recorder	38	63.3	26	43.3
Bicycle	8	13.3	30	50.0
Television	5	8.3	2	3.3
Motor-cycle	2	3.3	0	0.0
Car	2	3.3	0	0.0
Set of chairs	5	8.3	2	3.3
Total	60	100	60	100

4.3 Test of Hypotheses

The first hypothesis of the study states that there is no significant difference between the income of participants and that of non-participants. The

alternative hypothesis states that there is significant difference between the income of the participants and that of non-participants. Using the T-test statistic to test the above stated hypothesis the income of the participants was compared with that of the non-participants to evaluate if actually the programme had made some positive impact on the income of the participants. The analysis showed that the average income of the participants was more than 100% greater than the average income of non participants. This was further put to statistical test to verify if there was significant difference between the incomes of these two categories of farmers. The result of the T-test showed that the calculated T-value was 2.7. In a two tailed T-test, the critical or acceptance region is from -1.96 to + 1.96. Since the calculated T- value (2.7) falls outside this region, we reject the null hypothesis that says there is no significant difference between income of participants and that of non- participants and accept the alternative.

The second hypothesis states that there is no significant difference between the livestock of the participant farmers and that of the non-participant farmers. The alternative states that there is significant difference between the livestock of participant farmers and that of non-participant farmers. The calculated Mean of number of livestock of participant farmers was 203, while that of the non-participants was 43. The calculated variances were 357 and 90, for the participants and non-participants respectively, and the calculated T-test is 3.4.

Since the calculated T-value (3.4) falls outside the acceptance region (1.96), this implies that we reject the null hypothesis and accept the alternative

hypothesis which states that there is significant difference between the number of the livestock of the participants and that of the non-participants.

The third hypothesis also states that there is no significant difference between the standard of living of participant farmers and non-participant farmers, while the alternative states that there is significant difference between the standard of living of participant farmers and non-participants farmers.

The calculated T-value is 10.4 which falls outside the acceptance region (1.96), implying that we reject the null hypothesis and accept the alternative hypothesis which states that there is significant difference between the standard of living of the participants and that of the non-participants.

4.4 Constraints by NSPFS and the farmers

4.4.1 Constraints encountered by the NSPFS in the implementation of its programme

This section presents problems encountered by the NSPFS in the implementation of its Programmes. The study revealed that funding, payment of salaries, well trained extension officers, inconsistency in government policies and administration were major problems affecting the successful implementation of the programme.

4.4.2 Problems encountered by the livestock farmers

From the researcher point of view, the major problems reported by farmers are not directly associated with NSPFS programme. The study revealed that 30 percent reported weather as major problem of production. Though the farmers could be right, weather is not directly control by the NSPFS. In the same vein, 28.3 percent claimed finance as their major problem. Notwithstanding, the

study also showed other problems reported by farmers which should be within the purview of NSPFS. For instance, 15 percent reported diseases and distance as their problem respectively, while 10.0 percent complained of inadequate supply of feeds as a problem confronting livestock production in the area. Only 1.7 percent sees Government policy as a threat to production.

Difficulties in reaching NSPFS staff

This was a check and follow up to the earlier question under problems encountered. Response showed that 58.3 admitted that they found it very difficult to reach NSPFS while 41.7 percent did not. This may be that the 58.3 percent of farmers who found it difficult to reach NSPFS extension officers were not serious in their contact or that they are waiting for the extension officers to visit them. Those who claimed to have no problems may be more serious in reaching the extension officers and therefore, put more effort in locating them.

Difficulties in adopting NSPFS recommended practices

The response shows that 76.7 percent admitted that they find it very difficult to adopt NSPFS while, 23.3 percent did not find it difficult. This shows that more than half of the participants find it difficult to adopt the technologies of NSPFS. It also shows that those who find difficult have low education background and invariably can contribute to their low level of adoption.

Livestock production Reduced problems

No doubt NSPFS programme has addressed some production difficulties which have been a threat to farmers at Ideato. It was revealed that indiscriminate death of animals was recorded but the introduction of NSPFS programme had

reduced it drastically. This is evidenced and common to all livestock covered by this study. For instance, 58.3 percent reported that NSPFS had brought about reduction in the death of animals, 36.7 percent confirmed that the programme brought about improvement in the health of animals, while 5.0 percent agreed that the programme really encouraged farmers.

Table 3: Distribution of Participating Farmers according to Reported Problems Encountered

Major problems	Frequency	%
Finance	17	28.3
Feeds/feeding	6	10.0
Disease	9	15.0
Harsh weather	18	30.0
Government policy	1	1.7
Distant from NSPFS	9	15.0
Total	60	100
Specific production reduced problems	Frequency	%
Reduced death of animals	35	58.33
Improved health of animals	22	36.67
Encourage farmers	3	5.00
Total	60	100

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter summarises the findings of this work. It also includes the conclusions and recommendations for improvement.

5.1 Summary of Findings

The major objective of this study was to determine the impact of NSPFS on farmers in the study area in terms of livestock technology awareness, adoption, production, income and the level of living of the farmers. The constraints faced by the NSPFS in the implementation of the programme and that of the farmers were also identified.

A total of one thousand two hundred farmers were selected out of which one hundred and twenty (120) farmers were randomly selected from the six (6) villages in Ideato Local Government Area of Imo State where the programme was carried out. Sixty (60) participating and sixty (60) non-participating farmers were chosen. The results of the socio-economic characteristics of the farmers showed that majority (70%) of the farmers were males. Both the participant and non-participant farmers were within the age bracket of 51-60 years. The analysis also showed that participant and non-participant farmers had primary education with farming as their major occupation. All farmers (both participants and non-participants) were married with the majority (57.58) having a family size of between 7-12 members. About 33% had lived for 51-60 years.

Most farmers (98%) source their income from personal savings and the market strategy mostly used by the farmers in disposing their products was

mainly by retail. Most of the participant farmers (80%) were not aware of the NSPFS management practices. The adoption was high as a result of the knowledge acquired during the programme. The programme helped them divert to the modern method of production which led to increase in productivity. Problems were indentified, most important of which were finance, feed/feeding and disease infestation and control, weather condition and Medicare of the animals also posed a serious threat to livestock keeping. The farmers also faced institutional problems in rearing the animals, such as poor mobility, input shortage, inadequate amenities, and excessive bureaucracy in the part of implementers. Most of these problems had been addressed in the programme such as disease and disease control. The impact of the NSPFS programme was seen in the area of technology, awareness, adoption, livestock population and standard of living of participant farmers. The results from T-test indicate that the calculated value of T is far greater than the critical value of T at 5% level of significance. programme had positive impact on the farmers. The null hypothesis which states that there is no significant difference between the income, livestock and standard of living of participant and non-participant farmers were therefore rejected. The alternative hypothesis which states that there is significant difference between income, livestock and standard of living of both farmers were considered.

5.2 Conclusions

The findings of this study suggest that the NSPFS Programme has some positive impact on the participant farmers. Most of them adopted the NSPFS

management practices. The high adoption contributed to high income, increase in livestock, and better standard of living as against the non-participant farmers. The programme which has diverse activities were been influenced by many factors such as age, sex, family size, education, credit etc. The farmers were males and within the age bracket of 50 to 61. The participant farmers and the programme implementers encounter many problems, some of which were addressed.

The participating livestock farmers had access to information on innovation from Extension officers and this affected their production performance positively. Finance, Access to Extension services, Feeds, disease, hash weather and government policy were identified as major problems encountered by the livestock farmers. It was suggested that the programme should be spread to all the 774 local government of the Country.

5.3 Recommendations

Based on the findings of the study, the following recommendations are made to assist the policy makers, researchers, non-governmental organisations and extentionists in decision making.

- i. Finance has been identified as the major constraint for livestock production in the study area. Government should make loans available to farmers and the loans should be easily accessible without much bottle-neck. If the loans are made available to farmers who are interested in keeping animals, it would encourage the raising of animals in large number.
- ii. Feeds and feeding is also a problem identified in the study. Government should try to provide feeds to the farmers at subsidised rate.
- iii Government should provide a means of preventing diseases affecting the animals such disease like tse-tse fly.

- iv. The study observed that farmers in the study area had a problem of getting new breeds of livestock. It is therefore recommended that government through the ADPs and NSPFS should provide new breeds of livestock to farmers.
- v. Due to the impact of the programme on livestock farmers, it is recommended that the programme be extended to the more Local Government Areas in Nigeria for the actualisation of improved standard of living and the millennium goal of food for all.
- vi. There should be consistency and continuity in government policies to achieve the objectives of well conceived programmes such as the NSPFS.
- vii. There is need for government to embark on further awareness campaign to encourage more farmers to embrace NSPFS aimed at improving livestock production and standard of living of all Nigerians.

REFERENCES

- Adesehinwa, A. (2002). Production strategies for Coping with Demand and Supply of Pork in some Peri-urban Areas of Southern Nigeria. *Livestock Research for Rural Development No. 15 (10), Ibadan, Nigeria.*
- Adeniyi, B. (1996). *Food Security in Nigeria*. Paper Presentation in a Seminar organised by Food and Agriculture Organization in Abuja, 10th -11th December; Sharaton Hotel, Abuja.
- Akinyele, O. (1983). *Nutrition and Food Policy of Nigeria*. Published by Natinal Institute for Policy and Strategic Studies, Kuru, Jos,
- Akinwumi, J.A. and Ikpi, A.E. (1985). Trypano-tolerant Cattle Production in Southern Nigeria. A Report submitted to International Livestock Centre for Africa (ILCA) Adis Ababa – Ethiopia.
- Aliyu, A. and Adedipe, O. N. (1997). *Women's Participation in Agriculture in Nigeria: A Case Study of Ogun, Gongola, Cross River, Kano and Niger States*. Food and Agriculture Organisation of the United Nations (FAO)/Federal Department of Agriculture, Nigeria.
- Aneja, I.A. (1980). *Report on Sample Survey of Rural Women in Agriculture*. Research and Planning Division of Federal Ministry of Agriculture, Nigeria, August, No 9(2)
- Atala, T.K. (1980). Factors Affecting Adopting of Agricultural Innovations, Usage of Sources of Information and Level of Living in Two Nigeria Villages. Unpublished M.Sc. Thesis, Iowa State University, U.S.A.
- Barreth. J. C. (1991). The Economic Role of Cattle in Communal Farming System in Zimbabwe, *Pastoral Development Network Paper 32b*, Zimbabwe.
- Bessei, W. (1995). *Poultry Development, Its Impact on Nutrition: Labour, Income Generation and Saving Foreign Currency*, Department of Agriculture, Manchester University.
- Brumback, J, Charray, J and Humbert, J. M. (1978). *Report of the Department of Agriculture*. Ministry of Agriculture and Cooperatives, Bangkok, Government of Thailand 10.
- Chale, F. (1991). Terminal Report 1: *Strengthening Agricultural Extension – A Study of Problems and Constraints in Extension Strategies and Methods*

for Reaching Rural Women. Food and Agriculture Organization of the United Nations, Rome.

Federal Government of Nigeria, (2003). National Assessment Report, *Sustainable Development in Nigeria*, Vol. 11 (2): 5. Abuja, Nigeria

Federal Ministry of Agriculture, (2002). Evaluating the Potential Profitability of Investments in Livestock Production. *A Journal of Rural Economic and Development*. Vol. II (2): 35-70.

Food and Agriculture Organization. (1996a). Socio-Political and Economic Environment for Food Security, Food and Agriculture Organization of United Nations *World Food Summit*. Vol. 1 Sec. 14.

Food and Agriculture Organization. (2000b). *Energy and Protein Requirements*. Report of a joint FAO/WHO Ad hoc Expert Committee on energy and protein requirements. WHO Technical Report Series no 522. Geneva. FAO Nutrition Report Series No 52, Rome.

Gatenby, R.M. (1991). *Agriculture Extension Approaches: What FAO's Case Studies Reveal*. In Report of the Global Consultation on Agricultural Extension, FAO, Rome.

Gilbert, P, Levif, J and Joel, p. (1975). *Effectiveness of Agricultural Extension Services in Reaching Rural Women: a synthesis of studies in five African countries*. Prepared for FAO, Rome, September.

Hoefler, J. A. and Tsuchitani, P. J. (1980). *Animal Agriculture in China*. National Academic Press, Washington D.C.

Idachaba, P. (1989). Household Decision-making in the Production in Udenwu Local Government of Abia State. In: *Proceedings of the 7th Annual Conference of the Nigerian Society of Animal Production*, 28th-31st March, Abia State, Nigeria.

Ikhehua, S (1991). "An Overview of Livestock in Nigeria" paper presented at the National Conference on Nigeria Livestock Industry and Prospect for the 1990s. Organised by NISER and Federal Department of Livestock and Pest Control, College of Agriculture Umuagwo, Owerri, Imo- State.

Ikumi, J. (1985). *Women in Agriculture: Counting the Labour-force in Developing Countries*, Population and Development Review paper 5: 4-10, September, Adis Ababa- Ethiopia.

Jibowo, A. A., Olawoye, J. and Akosile, O. (1979). *Essentials of Rural Sociology*. Gobemi Sodipo Press, Abeokuta, Nigeria.

- Johnston, J. and Cumming, R. (1991). Control of New Castle Disease in Village Chicken with Oral v4 Vaccine, Australian Centre for International Agricultural Research, New York.
- Kanter, G., Obeh, J. and Zaniah C., (1981). Making the Link: Agricultural Research and Technology Transfer in Developing Countries. West view Press, London.
- Katz, J., Noel, P. and West, K. (1975). Identification of felt needs of rural women in selected home-making practices. *Journal of Research*, Punjab Agricultural University, Ludhiana. Vol. 25 (2).
- Kitalyi, J. A. (1996). Village Chicken Production System in Development Country: A paper report submitted to Food and Agriculture Organization.
- Lamorde, A. G. (1991). Animal Health and Productivity in Nigeria: An Agenda for the Future. Paper presented at the Federal Ministry of Science and Technology, Monthly Technical Seminar page5 Abuja.
- McDowell R. E. (1972). Improvement of Livestock Production in Warm Climate. Published by Freeman & Company, San Francisco, September 1980.
- McMillan, P., Vietmeyer, D. and Tumbery J., (1989). China Reform Strategy: A Paper Presented at a Seminar Organised by the China Agricultural Department for the Development of Cereal Crops, September. China.
- Mishra S. N. (1990). *Livestock Development in India*. Study in Economic Development and Planning No. 54 Vicas Publishing House PVT Ltd, India.
- National Agricultural Extension and Research Liaison Services, (1999). Prospects and Problems of 1999 Cropping Season. Report submitted to Federal Ministry of Agriculture, Abuja. Nigeria by National Agricultural Extension and Research Liaison Services, Ahmadu Bello University, Zaria. October 1999.
- Nigeria Institution of Social and Economic Research, (2000). Report Paper, on Food Insecurity, Volume 4: Ibadan, Nigeria.
- Nodu, P., Paul, F and Cambell J, (1994). Agriculture Innovation and Social Change. *Cattle Production in Nigeria*. A Seminar paper presented at the National Conference, October. Ibadan
- Nuru, P (1991). The Advances in Ruminant Nutrition and their Application to the Utilisation of Poor Quality Forage. Paper Presentation at the 10th Annual Meeting of the Nigeria Society of Animal Production, University of Ife, October. Ibadan-Nigeria

- Offia C. (1989). Women in Agricultural Programme in Imo-State: Paper presented to a World Bank Workshop on Agricultural Extension Ibadan, Nigeria
- Ojo, M. O. (1991). Food Policy and Economic Development in Nigeria. CBN Report paper 5, September.
- Okorie, J.U. (1993). "International Factors Associated with Adoption of New Farm Technique among Farmers in Eastern Nigeria" *The Nigerian Journal of Agricultural Extension Vol. 1 (3)*.
- Okuneye, P. A. (1985). Means of Achieving a Faster Agricultural Production in Nigeria. Nigeria Institute of Social and Economic Research.
- Olajuwan, O.J. (1991). A Guide to Poultry Production in the Tropic. Arsenal Publishers, Enugu.
- Olayide, S. O. (1980). Nigerian Small Farmers Problems and Prospects in Integrated Rural Development. Published by Department of Agricultural rural and Development, University of Ibadan.
- Oni, C and Yusef, H (1999) Improved Genetic Stock for Nigeria. Longman publishers, London.
- Oyatoye, E. T. O. (1986). Irrigation Management and Administration: Lesson for Nigeria. In Africa Journal of Agricultural Sciences. Ethiopia, 13(1&2)).
- Patton, M. (1978). Factors Affecting the Allocation of Time to Farming: The Case of Women Farmers in South-west of Nigeria, International Institute for Tropical Agriculture, Ibadan, Nigeria.
- Raynolds, J. (1970). A Framework for the Design of Family Planning Programme Evaluation System Working paper No 3, University of Durham, September.
- Rogers, E. M. (1983). Diffusion of Innovation. Free Press, New York.
- Shaib, B. (1984). Feeding Pattern in Developing Economy. A Case of Nigeria, A Project Paper. No 2, August.
- Strauss, F. (1959). Mirrors and Masks. Cited in R.H. Lauer and W.H. Handel (eds). Social Psychology – The Theory and Application of Symbolic Internationalism, Houghton Mifflin Company, U.S.A.
- Ugwoke, A. U. (1991). An Outline of Livestock Production. Feb Publishers Nigeria.

- United Nations Development Programme (2002). Sub-Sahara African from Crises to Sustainable Perspective: Report paper 1 December, 86-98, Kenya.
- United Nation Industrial development Organization (2001). "An overview of Agricultural Production in Nigeria", Paper Presentation at the Workshop on Agricultural Policies and Programmes. Organized by Federal Ministry of Agriculture, Abuja, Nigeria.
- United States Department of Agriculture (1994). Raising Livestock on Small Farms. Farmers' Bulletin No. 2224. Washington DC.
- United Nations Action Plan (2006), Agenda 21-a document on resolutions of United Nation Head of States Conference on environment and Development in Rio de Jenario, 2001, Document No. (5): 45-70.
- Upton M. (2004). The Role of Livestock in Economic Development and Poverty Reduction. Published by Food and Agriculture Organization, Rome.
- Uwakah, J. (1980). Implications of Small Ruminant Farmer's Socio-Economic Characteristics for Extension Services in South Western Nigeria. In: The Nigeria Livestock industry in the 21st Century (Editors: Ologhobo, A.D. and Iyayi, E.A.). Publication of Animal Science Association of Nigeria, Lagos, Nigeria.
- Voh, J. P. (1982). The Study of Factors associated with the Adoption of Recommended Farm Practices in a Nigeria Village. Agricultural Administration, Vol. 9 (2).
- Berck, P. and Bigman, D. (2005). Food Security and Food Inventories in Developing Countries. Cab International United Kingdom.