IMPACT OF NORTH–EAST ARID ZONE DEVELOPMENT PROGRAMME CREDIT ON FARMERS IN BURSARI LOCAL GOVERNMENT AREA, YOBE STATE, NIGERIA

BY

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A Thesis submitted to the Postgraduate School, Ahmadu Bello University, Zaria in partial fulfillment of the requirements for the Degree of Master of Science (Agricultural Economics)

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April, 1998

DEDICATION

This work is dedicated to the following people either for influencing me into Agricultural Economics or for giving me special training to become an Agricultural Economist.

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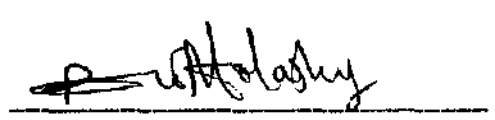
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DECLARATION

The author hereby declares that the whole of the Thesis now submitted for the Master of Science Degree (Agricultural Economics) of Ahmadu Bello University, Zaria is the result of his research, except where references are made to published literature and duly acknowledged. The work has not been presented before in any previous application for a certificate.

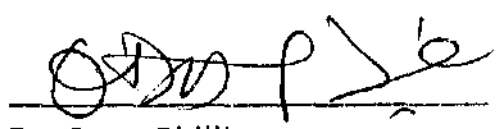


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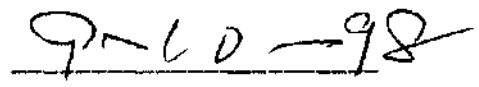
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ACKNOWLEDGEMENTS

A work of this nature, particularly by a "tyro" like me owes a great deal to alot of people. It is for this reason that I would like to express my in-estimable gratitude and appreciation to all those who in diverse ways have contributed to its formation.

First and foremost, my thanks go to members of my Supervisory team, Dr. Dayo Phillip (Chairman) and Professor J.O. Olukosi, for their patience, advice and guidance, especially at the initial stages when I was still "raw" to handle independent research work. No less worthy of praise and gratitude are my teachers, Professor A.O. Ogungbile and Dr. M.I. Kolawole, whose courses gave me the solid foundation that carried me through this work. To Dr. (Mrs) P.S. Aku also goes my thanks for her useful advice. I wish to acknowledge the technical advise given by Mr. Aguda regarding data collection

Mention must be made of the Management of the NEAZDP who freely granted me access to some of their facilities and vital records germane to my research, and without which this work could not have been what it is. Pre-eminent among them are Mallam Isa Kalalawa, DAP, NEAZDP Office, Dapchi, Mallam Abubakar Musa, and Mallam Baba Gana, who tirelessly helped in the collection of data for this work.

The scholarly and recreative support of my course mates, notably Mahmoud Mutasim, Shehu Ralman, James Lamido Mrs Joy Agada and Rauf Salihu Imam who also helped financially deserve more mention. I am

grateful to Abu Godwin, Tola Aiyedun and Tunde Adepoju, for their help and encouragement. Kola, Demola, Muftau, Azuh Patrick and Musa played significant roles in making my staying at Ahmadu Bello University very pleasant.

I cannot take for granted the financial, material, and spiritual support of my beloved mother, Mrs. Florence Olasore, who despite her age and the hardness of times, was assisting.

I must also record the special love and financial help of Miss. Omolade Ademolu which contributed so immensely to the completion of this work. Her commitment will never be forgotten. Messrs. Alaba Ademolu, Jide Bakare and Kehinde Senge also played an enviable role.

I give thanks for the special concern, love and words of encouragement shown by Atinuke Ajide.

I wish to mention the special prayers and brotherly love of the members of Christian Fellowship, S.S.S. Dawakin Kudu.

I thank Mr. Danladi Jarma for assisting in the computer analysis, all staff of Department of Agricultural Economics and Rural Sociology, Ahmadu Bello University, Zaria, Mr. Arthur K. Mensah for reading through the work.

To the Lord Almighty who gave me special grace to go on even when all hopes were gone because there were no funds, to Him alone go all the glory, praise and honour.

Olasore Abiodun Amos

April, 1998

ABSTRACT

The study was undertaken with the main objective of evaluating the impact of North-East Arid Zone Development Programme (NEAZDP) crop production credit on farmers in Bursari Local Government Area, Yobe State.

The study compared the production activities of the farmers who obtained crop production credit from NEAZDP (credit farmers) and those that did not obtain crop production credit (non-credit farmers). Structured questionnaire were administered to the farmers to gather information on socio-economic characteristics, finance, production activities, marketing activities, etc. The comparisons were based on variables such as farm size, labour, input, level of production and productivity, using analytical techniques such as descriptive statistics, farm budgeting analysis and production function analysis. The variables were hypothesized to be the same for both group of farmers.

The results showed that credit farmers, had higher farm size and fertilizer use than non-credit farmers but there was no significant difference in fertilizer used per hectare between the two groups of Farmers. There was no significant difference between levels of chemical, seed and operating expenses of credit farmers and non-credit farmers. Non-Credit Farmers had higher labour use per hectare than credit farmers and this was significant at 1 per cent. The gross farm income and net farm income were higher for credit farmers but gross farm income productivity was almost the same for both groups of farmers.

All the regression coefficients of inputs showed positive relationship with output, but credit farmers had higher regression coefficients of inputs with exception of chemical than non-credit farmers. All the inputs had elasticities less than 1 for both groups of farmers and all the inputs had positive marginal productivities. The marginal value productivity of all inputs were greater than their unit prices.

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Chapter 1

INTRODUCTION

The success of the process of the structural transformation of any nation is dependent on the role of the agricultural sector within the economy. In the initial period of growth or "take off" stage, agriculture represents a major if not the only source of capital accumulation which will be invested in other sectors of the economy. For most developing countries, agriculture is destined to remain for a long time the basis of the economy and therefore an important object of government planning and policy-making. However, it is ironic that more than any sector in the developing countries agriculture is characterized by a vicious circle of poverty (Dunmoye, 1987).

In spite of the oil boom of the 70s, agriculture continues to be the mainstay of the Nigerian economy, as it provides the bulk of the employment, food, raw materials and incomes for the populace. In many of the West African countries, agriculture frequently contributes on the average 16.70 per cent to 49.00 per cent of the net output and employs on the average 53.50 per cent to 82.40 per cent of the labour force (Duncan, 1983).

During the period of oil boom, the agricultural sector suffered a neglect and the contribution of agriculture to Gross Domestic Product (GDP) declined until 1989 when it started to make appreciable contribution. There has been a moderate growth in agricultural production observed from 1990-1995 (CBN,1995). This is shown in Table 1.1.

Table 1.1 The Percentage of Agricultural Share in Nigeria GDP at 1984 Factor Cost 1990–1995.

Year	Percentage of Agricultural Contribution to GDP
1990	35.48
1991	36.52
1992	37.27
1993	38.50
1994	39.66
1995	39.88 *

* An estimate

Source: CBN, 1995

CBN attributed the improvement in agricultural production to favourable weather conditions and appreciable increase in input supply as well as improvement in the system of distribution of fertilizer. The commencement of the production by National Fertilizer Company of Nigeria in 1987 boosted fertilizer supply to agriculture in Nigeria. Agricultural output was also boosted by the continuous production and supply of high quality seeds/seedlings. These developments, coupled with sustained activities of National Land Development Authority (NALDA) which extended its operation to all the 30 states of the Federation in 1995 encouraged farmers to bring more land under cultivation. Other factors which might have helped enhancement of agricultural output include the provision of rural infrastructure such as Fadama roads, intensification of on-farm adaptive research by various agencies and provision of extension

services to farmers under the unified extension system by various arms of the Federal Ministry of Agriculture.

1.1 Strategies Formulated Towards Extending Credit to the Agricultural Sector.

Prior to 1973 efforts to finance agriculture were solely state-oriented. In the Second National Development Plan, a national farm finance arrangement was incorporated which gave birth in 1973 to the Nigerian Agricultural Bank (NAB) which was changed to the Nigerian Agricultural and Cooperative Bank (NACB) to incorporate cooperative lending.

NACB is a specialized Financial institution solely owned by government, which provides credit for agricultural production without mobilizing savings. The bank finances agriculture through the provision of loans to individual farmers, cooperative organizations, limited liability companies and state and federal agencies. The bank also provides finance by direct investment in the equity capital for major agricultural and agro-allied industrial ventures. Since the bank does not mobilize savings but relies mostly on grants from government, the greatest problem the bank is facing is inadequate funding as other programmes. According to Ajakaiye (1989) the resources of NACB have proved inadequate in the face of the demand for agricultural credits.

The Agricultural Credit Guarantee Scheme Fund (ACGSF) was established in 1977. This marked a boost to commercial banks lending to agriculture. The scheme was to give incentives to encourage commercial banks lending to agriculture. This will increase flow of credit to agriculture. Under the scheme, the Federal Government made it compulsory on the commercial banks to give at least 10 per cent of their total lending to agricultural production while it takes a liability of 75 per cent of the amount of loan in default subject to a maximum of ₦100,000 per individual and ₦1,000,000 in the case of a cooperative society or a limited liability company (CBN, 1993).

The Nigerian Agricultural Insurance Company (NAIC) was established in 1987 to take care of farmers in case of losses while ACGSF was to take care of credit institutions. The design of NAIC was to benefit small, medium and large scale farmers either in groups or as individual producers. NAIC is to offer protection to the farmers from the effects of natural disasters and to keep the farmers in business after suffering a loss. The design of the scheme will promote agricultural production since it would enhance greater confidence in adopting new and improved farming practices and in making greater investments in the agricultural sector of the Nigeria economy, thereby increasing the total production. NAIC provides financial support to farmers in the event of losses arising from natural disasters and increase the flow of agricultural credit from lending institutions to the farmers (Bankole, 1995).

As a supplement of ACGSF to agricultural finance, the Federal Government took a bold step in establishing the Rural Banking Scheme (RBS) in 1977. This arose as a result of a CBN survey to identify "unbanked" areas in Nigeria. CBN found the need to provide rural banking facilities for 1,126 settlements spread over the country in the population of 10,000 inhabitants (Adera, 1987 and Akanji, 1993). Under the rural banking scheme, commercial banks were to open specific number of branches in the rural areas. This was to bring the banking system very close to rural populace and it will enable most farmers who live in the rural areas to have access to the banks and benefit from their credit facilities and inculcate saving habit in them. Part of the savings mobilized in the rural areas are expected to be given out as loans to the area to finance agricultural production. Today most local government areas have at least one commercial bank branch. The constraint of the programme is non-viability of the opened rural branches which led to folding of many rural branches of commercial banks.

Another step in financing agriculture was taken in 1989 and 1990 when the People's Bank of Nigeria (PBN) and Community Bank (CB) were established respectively. While CB is owned by the community in which it is located, PBN is owned by the Federal Government. Both CB and PBN mobilize savings and give out loans. Both banks are expected to give loans for small scale production which in agricultural sector will benefit the small scale farmers.

There are other various strategies through which credits have been channelled to farmers. At inception various Agricultural Development Programmes (ADPs) have credit units which extend credits to farmers, mainly in kind. At national and state levels there are various credit corporations that finance agriculture. Also various governments encourage the formation of cooperative societies among farmers for ease of extending credit to them.

1.2 The North-East Arid Zone Development Programme(NEAZDP)

The North-East Arid Zone Development Programme (NEAZDP) is an integrated rural development programme with its headquarters located at Garin Alkali, Bursari Local Government Area, Yobe State. The programme covers 18 Development Areas representing 50 per cent of the total area coverage of 10 local government areas with a total of 20,000km^2. Various components of NEAZDP are programme management unit, arid zone development unit, marketing and credit unit, Monitoring and evaluation unit, appropriate technology unit, manpower development and training unit and social services unit. Each of the unit is headed by a specialist.

The overall objective of NEAZDP is to motivate and assist the rural population to improve their standard of living through the proper use and management of natural resources. In order to attain this objective, it is necessary to transfer the power to take

decisions, and financial resources to the rural people. Such a transfer of power and finance will enable them to initiate development on the basis of proper natural resources management in the course of which proceeds will remain in the rural area for further and accelerated socio-economic development.

At inception, the programme was jointly financed by the Federal Government of Nigeria and the European Union (EU) under the Lome III and IV convection. The Yobe and Borno State Governments are the executing agencies with technical and management assistance from the Danish Consultants; Danagro Adviser A/S and Rainboll and Hennemann A/S. The financing for five years' period starting 19th February, 1990 was ₦750 million as EU contribution and ₦127 million being the state government contribution. In addition and under the same financing agreement, ₦138 million was provided for a linkage programme with the University of Maiduguri and Ramat Polytechnic, Maiduguri. The first financial commitment was for five years' period. To consolidate, however, and achieve full area coverage with the integrated rural development a total time frame of 10-15 years of investment and assistance was required. Area expansion was foreseen on the basis of a feasibility study for agricultural development completed for the North and East Borno.

1.3 Problem Statement

Over the past two to three decades the agricultural sector has not been starved of financial arrangement to bring credit facilities to the peasant farmers. At both national and state levels efforts have been made to extend credit to small scale farm holders who happened to be the majority of the food producers in the country. This is evident in the establishment of NACB in 1973, ACGSF in 1977, Rural Banking Scheme in 1977, People's Bank of Nigeria in 1989 and Community Bank in 1990.

Apart from the schemes mentioned above credits have been channelled to agriculture through various agencies such as national and state owned credit corporations, cooperative societies, etc. The inability of these credit arrangements to meet the credit need of farmers might be due to implementation problems of various programmes. In spite of all these financial arrangements, agriculture is still characterized by the vicious circle of poverty. Most farmers cannot adopt improved technology which is required to increase farm output and hence income. For the circle of poverty to be broken, credit has to be properly channelled to farmers so that their capital base can be increased.

NEAZDP in the preliminary survey of the programme area realized the low capital base of farmers. In carrying out the objective of rural transformation, NEAZDP provided credit to farmers backed up with other essential services such as input delivery,

extension services, training, etc which are expected to increase the capital base of the farmers thereby leading to increase in farmers' farm sizes, input use, levels of outputs and productivities and hence improved the standard of living of the farmers.

NEAZDP was designed to operate in three phases of five years each. The first phase has since been completed. The basic problem is that little or no effort has been made to evaluate the impact of crop production credits extended to farmers. This study is designed to address this problem and the study will help to address questions like: What is the impact of credit on variables such as farm size, input use, labour, operating expenses, levels of outputs and productivity?

1.4 Objectives of the Study

The broad objective of this study is to determine the impact of NEAZDP crop production credit on small scale farmers. This will be achieved through a study with the following specific objectives. These are:

1. To determine the difference in farm size between credit farmers and non-credit farmers.

2. To determine the difference in level of input use between credit farmers and non-credit farmers.

3. To determine the difference in operating expenses between credit farmers and non-credit farmers.

4. To determine the difference in level of output and productivity between credit farmers and non-credit farmers.

1.5 Hypotheses

The following hypotheses were tested based on the objectives stated.

1. Credit Farmers have the same farm size as non-credit farmers.
2. Credit farmers have the same input use as non-credit farmers.
3. Credit farmers have the same operating expenses as non-credit farmers.
4. Cedit farmers have the same level of output and productivity as non-credit farmers.

1.6 Justification of the Study

Credit is often used to foster agricultural development project and donors spend vast amounts of money supporting these projects in low income countries. Credit is justified by the expected impact made on farmers (Adama, 1985).

Researchers focus mainly on Institutional credit markets of commercial banks and specialized banking institution as shown in literature. Little attention is focussed on Integrated rural development programmes as sources of rural financial markets. Ezike and Chidebelu (1988) have found that loans of Lafia Agricultural Development Programme, Nigeria reached Farmers in the programme area more than any other sources. This study is expected to examine NEAZDP an integrated rural development programme as a source of rural financial market. It is hoped that the study of this nature will probe in detail if credit has played its role in increasing the capital base of farmers and the standard of living of farmers.

Also the information gathered from this study may help the policy makers and planners on the best ways to bring credit closer to farmers by ways that are beneficial to them. The study will help to assess whether the huge investments (Foreign and Local) by NEAZDP is justified.

Chapter 2

LITERATURE REVIEW

2.1 The Role of Credit in Agricultural Development

Credit involves the transfer of capital either in cash or in kind from an area of surplus to that of deficit. This transfer of capital is temporary as the transferred capital is expected to be paid back. According to Farmoriyo (1980) the importance of credit has often been associated with the need for capital accumulation. Credit earns no return for borrowers; it only gives borrowers purchasing power; the assets must be purchased with the borrowed fund and used on the productive activities that are capable of yielding returns.

Jones (1971) cautioned that credit ceases to be an economic force facilitating agricultural development if its attempts to finance farmers either individually or collectively fails. No economic purpose will be served by granting such agricultural credit. A loan on an uneconomic basis becomes a grant and may destroy repayment discipline thereby contributing to deterioration of the financial strength of the credit institution.

Credit is often regarded as a major factor in agricultural development. The lack of adequate finances is usually offered as an explanation of many of the problems facing agricultural development in a developing economy. Therefore it is argued that if agricultural

credit were made available to farmers, the retarded agricultural sector would start moving. Among various ways which credit can stimulate growth of agriculture is its contributions to the modernization of the sector. Not only do new equipment like tractors or other machines replace old implements but also new and improved seeds, fertilizers, chemicals, etc can be financed; the training of agricultural officers, extension workers, etc all revolve around the availability of funds in the sector. Johnson (1969) summarized that credit is the life blood of modern economic society, which means without credit the economy in the modern society can not be sustained.

Ogunfowora et al (1972) recognized four main areas of use of credit which can help agricultural development. First, the adoption of modern technology in farming which is needed for food production to move from small scale to large scale production. This inevitably involves an increasing need for capital which most farmers are unable to meet because they lack adequate financial resources to implement these improved practices. Secondly, most of the farmers produce at low productivity level and in consequence are unable to save; therefore, capital investment is low. Thirdly, the necessity of borrowing arises from the seasonal nature of farm income (that is, income which comes once in a year and only at harvest time) which is very irregular and creates a demand for a short or medium term credit to provide capital for the purpose of purchasing farm inputs. Fourthly, it is asserted that the supply of credit is necessary

because it may strengthen the farmers' position in disposing of their crops instead of having the time scale determined by an urgent need for cash. Accordingly, any strategy aimed at breaking the vicious circle of poverty must be designed to increase agricultural productivity and stimulate capital investment through the provision of cheap and readily available credit facilities.

Oludimu and Fabiyi (1983) held the view that credit is important in economic development by generally enabling idle resources to be tapped and to be adequately utilized provided that consumption patterns, the level of technological advances, demographic factors and the attitudes of the farming population actually encourage the use of it.

For an effective marketing system which is vital for agricultural development, credit is needed. Olufokunbi (1981) argued that with adequate credit, post harvest depression of prices could be avoided and farmers would be placed in a better bargaining position.

Based on the above roles of credit in agricultural development, it is apparent that increasing agricultural productivity makes important contributions to a country's economic development and it is one of the pre-conditions necessary for self-sustained economic growth.

2.2 Credit and Rural Development

Rural development means improving the living standard of the low income population residing in the rural areas and keeping the process of development self-sustaining. Any rural development programme should consist of projects that raise agricultural output, create new employment, improve health and education, provide communication, improve credit delivery system, etc.

According to Padmanabhan (1982), credit is a powerful instrument in bringing about development, particularly rural development and agricultural growth. This is more so for the poor people, as their savings capacity is very limited. They are in a vicious circle of low income, low savings, low capital, low productivity and consequent low income. Credit, if properly channelled, can break this circle by providing employment opportunities. Hence in raising rural incomes credit has a substantial role to play. Thus, credit is an effective tool in the hands of the development planner to induce technological development and for consequent increase in rural income levels.

Special project authorities or project units established to execute various projects of regional integrated development like land settlement, crop development and irrigation have in many instances retain the responsibility of extending credit to participants for on-farm development and working capital (IBRD, 1975). Often they have no alternative because there is no agricultural credit systems, or the

existing one is unsatisfactory. In some cases there are recognised advantages for credit to be closely associated with other services provided by the authority.

Ezike and Chidebelu (1988) found that the Lafia Agricultural Development Programme, Nigeria (LADP) gave loans to 1,618 small holders valued at ₦323,763.00. Compared with other sources, it reached a relatively large number of borrowers. It excluded security provision as a requirement for its loans; gave 65 per cent of its loan in kind and 35 per cent in cash thereby reducing loan diversion and increasing the adoption of improved technologies like work oxen, fishing nets and tractors. Other services rendered by LADP were timely input supply, provision of extension services and other developmental projects which when combined with credit would lead to an increase in the living standard of the farmers.

2.3 Typology of Credit Sources

2.3.1 Informal Source of Credit

Informal sources of credit are those non-institutionalized or unorganized financial markets such as friends, relatives, produce buyers, money lenders, etc.

FAO (1994) reported that the formal financial market was regarded for many years as the main source of rural credit. During

the 80s, however, research showed that informal sources of finance play an important role in development, especially among the poor. Furthermore, this informal system is often more efficient and equitable than the formal finance structure. "There is surprisingly little evidence of exploitation or monopoly of profits in the informal sector". FAO concluded that highly specialized credit institutions are not necessarily the best financial arrangement for the rural poor. Suitability of an institution to prevailing conditions and its acceptability to prospective customers should be the main criteria in promoting different types of financial intermediaries in rural areas. For the rural poor, it is extremely important to have appropriate operational linkages between them and formal financial institutions.

The importance of the informal credit source lies in its ability to reach a large number of farmers who require credit for small scale food production or use such informal credit to carry out minor production activities. It also affords farmers who will never have access to formal sources the opportunity to use credit despite lacking collateral securities and credit experience required to obtain credit in the formal markets.

The limitation of the use of informal credit lies in the volume of loan which can be obtained. Credit available from informal credit can, in most cases, finance small scale farming. Ihimodu (1981) argued that interest on loan from informal sources are more difficult to calculate, but none-the-less are assumed to be high. Even in a

situation where there is no interest charged, the borrower, after paying the borrowed capital, still gives part of the produce from his farm, which can be regarded as interest to his creditor.

2.3.2 Formal Source of Credit

Formal financial sources are those established through enabling instrument and gazetted or established under company law and allied. The formal sources are organized. They consist of commercial banks, merchant banks, government credit corporation, development programmes, cooperative groups, etc.

For gradual transition from subsistence agriculture to commercial agriculture which is critical phase in the process of agricultural development, formal channel of credit delivery is important. It is the formal market that can supply the huge capital needed for agricultural transformation. Despite this role the formal market can play, it is painful to note that much of the formal sector credits have not been extended to the small scale farmers who constitute the majority of farmers in the developing countries. Commercial banks, agricultural credit corporations, etc which constitute the main institutional sources of credits have catered mainly for the interest of big farmers. Commercial banks are usually very reluctant to finance agriculture because of the high risk which results in high loan default.

Lot (1985) listed inconsistent government policies in the agricultural sector, natural disasters such as floods, fire outbreaks, drought, out break of pests and diseases, poor management of projects, diversion of funds to other uses (in many cases non-productive) poor project evaluation by banks, untimely disbursement, lack of or poor supervision and monitoring of projects, calculated outright dishonesty and fraud by loan beneficiaries and general government policies (such as those affecting inputs, spare parts, labour etc) as among factors militating against the extension of formal market credit to agriculture,

The study by Okorie (1986) using United Bank Plc has shown that the contest of commercial banks that agricultural lending involves greater risk is shaky and not sustainable by empirical evidence. He found risk inherent in lending to other sectors to be higher than for the agricultural sector in three out of five years considered. There was no significant difference at 5 per cent between risks in agricultural and non-agricultural sectors. The result of this study was carried out using one out of many formal financial markets so the result acceptance should be cautioned.

Olatubosun(1975) found out in his study that among the factors which militate against the use of institutional credits are excessive operational costs. He cited the then Western Nigeria Agricultural Corporation which issued ₦131,952.00 as loans in 1970/71 but administered it with ₦225,336.00 or 170.80 percent. This problem

can be solved by organizing farmers into cooperative groups. Collateral requirements of borrowers by formal sectors, illiteracy and ignorance of the peasants and others militate against the channelizing of fund through formal sectors to agriculture.

2.4 Credit Impact Study in Nigeria

Various studies have been carried out using different models and analyses on impact of credit on variables such as farm size, input use, operating expenses, level of production, etc. Most studies centered on institutional credit sources. Ilebani (1983) carried out credit impact study on small scale farmers in Akoko North and Akoko South of Ondo State. He reported that borrowers had larger farm size than non-borrowers and operating expenses and investment per hectare were higher among borrowers. The credit failed to make a significant impact on the income which should be the ultimate goal.

Auchan (1986) using input demand function analysis and descriptive statistics conducted a research on the impact of institutional agricultural credit at farm level in Funtua Local Government Area of the then Kaduna State and reported that credit was significant in the use of inputs and that loan users had larger hectarages and higher net farm income than non-loan users. He suggested that further work should be directed on the individual sources of institutional credit.

Aku (1991) measured the impact of credit by comparing resources use efficiency of borrowers and non-borrowers in the Maigana and Samaru-Kataf zones of Kaduna State Agricultural Development Project (KADP) using production function analysis and descriptive statistics. The result of the production analysis did not give a clear picture on impact of credit on input use while there was a contradicting result from the tested hypotheses for the two zones. The hypothesis that Samaru-Kataf borrowers' income was higher than those of non-borrowers was rejected, while in Maigana Zone credit was found to have increased income of borrowers' in absolute terms.

2.5 Credit Impact Study in Other Countries

Mohan and Singh (1977) used a production function to study the impact of loans on small scale food producers in India. The net farm income from all farm enterprises and the loan component spent on various items constituted the dependent and independent variables respectively. By use of regression coefficient they accepted the finding that credit was positively correlated with increase in production.

Stickly (1977) was able to answer, in his study: What is the effect of short-terms credit at harvest time? He reported that credit is capable of increasing productivity and the potential for accumulating savings provided that farms were large.

Also David and Meyer (1980) worked on the impact of agricultural credit in Brazil, Guatemala and Colombia by making comparison of farm income, farm input and productivity of borrowers and non-borrowers to measure the impact of agricultural credit on farmers' income. Farm size, operating expenses, investment per hectare and net farm income were roughly the same between the two groups of farmers in Brazil. In the Colombia case study significant differences were obtained between borrowers and non borrowers, while in the Guatemala study, it was discovered that substantial expansion in farm size of borrowers was largely due to credit.

The analytical tools that will be employed for this study are descriptive statistics, Farm budgeting technique and Production function analysis because the tools are easy to use and the results obtain from their uses are easy to interprete. The facts are contained in the literature review on past studies of credit impact.

Chapter 3

METHODOLOGY

3.1 The Study Area

The study area is Bursari Local Government Area of Yobe State, Nigeria. It is one of the 15 Local Government Areas in Yobe State. The Headquarter of the Local Government Area is Dapchi.

NEAZDP has its Headquarter located in the Local Government Area. One of the NEAZDP development area offices used for this study with 18 cluster villages is located in the Local Government Area. The development area is headed by Development Area Promoter (DAP) who is resident in the area office and is responsible for co-ordination of all developmental work in the area. Each of the cluster villages is headed by a Village Development Promoter (VDP). In most cases Village Development Promoters are village heads and not on the payroll of NEAZDP. Field Technicians (Extension Workers) are attached to each development area. The area of operation of NEAZDP is shown in figure 3.1.

The study area is situated in the Sahel Savanna with traces of desert encroachment. The amount of rainfall ranges between 400 and 700mm per annum. This is fairly distributed over a period of less than two months in a year. The dry season lasts as long as eight months and the area is mostly hot, with the harmattan starting in early November and ending in February.

From the NEAZDP (1990), socio-economic survey report it is shown that the study area is homogenous of mostly farmers with poor capital base as shown by the types of agricultural inputs and implements they use.

In spite of the long dry spell, farming is the major activity in the area. Fadama farming is done by farmers along rivers during dry season. The rainfed crops grown are millet, guinea corn, groundnut, cowpea and rice. The villagers along River Yobe and other smaller rivers practice fishing. Cattle, sheep and goats are reared by the Fulanis.

According to NEAZDP reports, it was discovered that people of the area when not engaged in farming activities partake in other businesses such as commerce, weaving, building, etc. Although the majority of the people in the area speak the Hausa language, the main tribes are Kanuris, Badewas, Fulanis and Hausas.

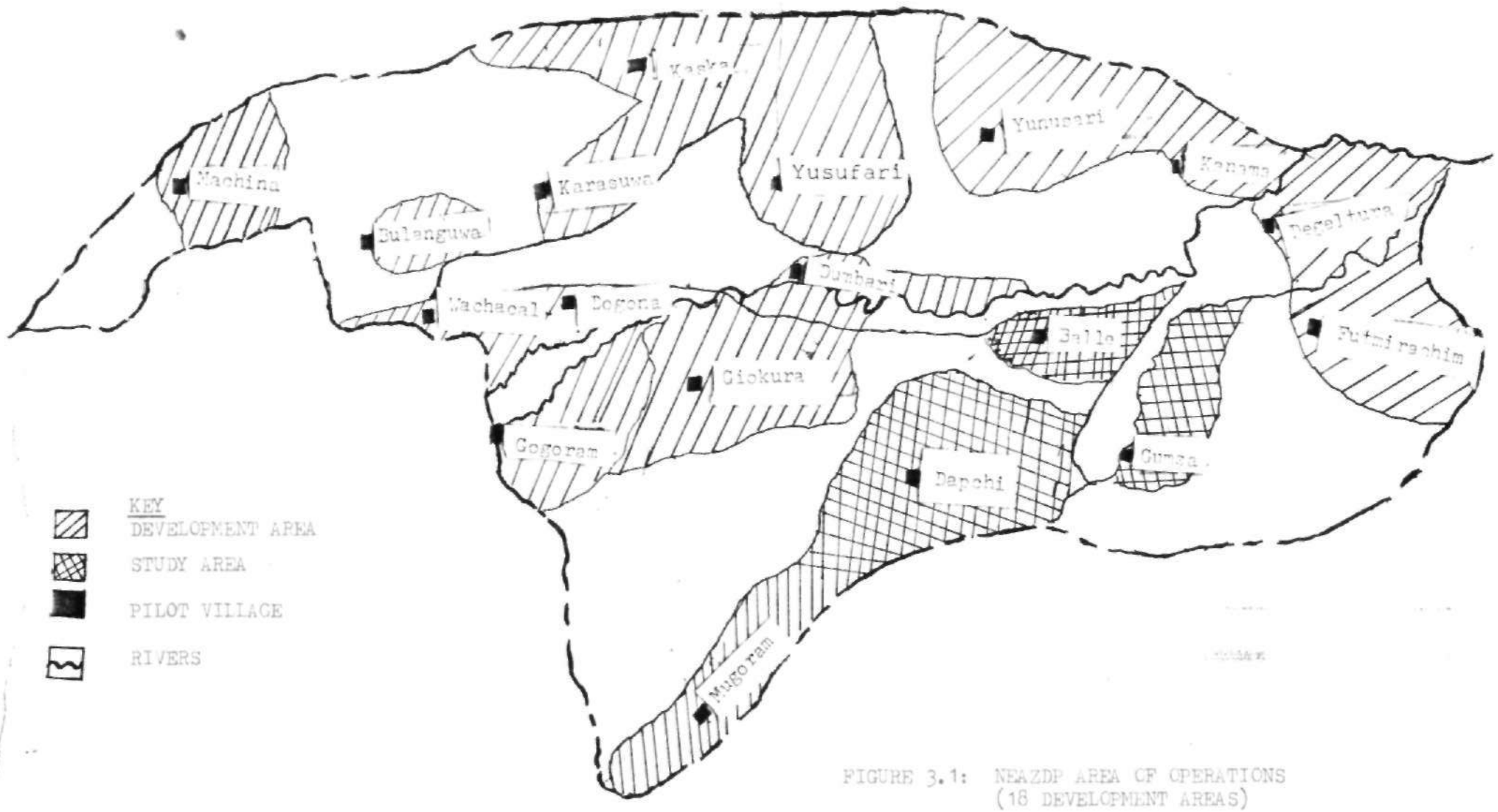


FIGURE 3.1: NEAZDP AREA OF OPERATIONS
(16 DEVELOPMENT AREAS)

3.2 Sampling Procedure

NEAZDP operate in cluster villages. Each of the cluster villages represented a stratum. A stratified random sampling was employed to select a representative sample from those that obtained crop production credit from the programme. Non-credit farmers were selected at random from the strata formed from cluster villages. Random sampling helped to avoid bias, as every member of the strata was given equal opportunity of being selected.

3.3 Data Collection

Structured questionnaire administered through the help of NEAZDP trained enumerators who had experience of data collection in the study area was used to collect information on 1995/96 cropping activities. Data on general background, production, labour, marketing, consumption, farm expenses and finance were collected. Also secondary data were collected from NEAZDP to augment the information collected from the farmers.

3.3.1 General Background Data

This included name, village, age, education, family size, years of farming, non-farm business, assets, etc.

3.3.2 Production Data

This covered different crops grown, quantity of input and output per each crop, farm size, etc.

3.3.3 Labour Data

Family labour was grouped into adult males, adult females and adolescent of about 15 years of age. Number of family members based on gender and hours put into each farm operation were provided. Also information was gathered for hired labour about wage and number of hours spent.

3.3.4 Marketing Data

Data were gathered on quantity of each crop sold, price received, buying agents, market price, time of sale etc.

3.3.5 Financial Data

Data were collected on the amount of credit received by credit farmers from NEAZDP, nature of loan, i.e cash, kind or both, credit management experience, purpose of loan, source of loan, credit repayment, etc.

3.4 Analytical Techniques

Descriptive statistics, farm budgeting analysis and production function analysis were employed to analyze the data collected from the survey.

3.4.1 Descriptive Statistics

Measures of central tendency such as mean and frequency distribution and measure of variation such as variance and standard

deviation were used to make comparison between credit farmers and non-credit farmers. The objective of descriptive statistics application was to see whether credit farmers had the same farm size, input use, operating expenses, level of production and productivity as non-credit farmers. This will help to achieve stated objectives one to four in 1.4.

The mean values of farm size, input use, operating expenses, level of production and productivity of credit farmers and non-credit farmers were calculated and subjected to z-statistics to test for statistical significant difference between the two means using the formula:

$$Z = \frac{\bar{x}^1 - \bar{x}^2}{\sqrt{\frac{6_1^2}{n_1} + \frac{6^2_2}{n_2}}} \qquad z \sim (0,1)$$

where,

$$\sqrt{\frac{6_1^2}{n_1} + \frac{6^2_2}{n_2}}$$ Pool Standard error

$\bar{x}_1$ Mean value for Credit farmers

$\bar{x}_2$ Mean value for Non-Credit farmers

n_1 and n_2 Sample sizes for credit farmers and non-credit farmers respectively

6_1^2 and 6^2_2 - Variance for Credit farmers and non-credit farmers respectively.

The sample sizes of credit farmers and non-credit farmers were assumed to be normally distributed with mean zero and variance 1 because of their large sizes (above 30) of 42 and 43 for credit farmers and non-credit farmers respectively.

The significance and non-significance of calculated 2 – value at 1 per cent and 5 per cent significant level was used to accept or reject the stated hypotheses in chapter 1.

3.4.2 Farm Budgeting Technique

According to Olukosi and Erhabor (1988), farm budgeting involves considering the resources to be used, the choice of enterprises to be pursued and a calculation of expected receipts, expenditures, and net farm income. It involves operation leading to estimate of gross revenue and total cost for the same period. The difference between the two parameters is a measure of Net Farm Income (NFI). Gross revenue represent value of all output from the farm while total cost represents variable costs and fixed costs. Net Farm Income (NFI) is given by:

$$NFI = GR - TC$$

$$TC = TVC + TFC$$

where NFI = Net Farm Income

GR = Gross Revenue

TVC = Total Variable Costs

TFC = Total Fixed Costs

TC = Total Cost.

The mean values of NFI for credit farmers and non-credit farmers were calculated and subjected to z-statistics to test for significance between the difference of the two means.

3.4.3 Production Function Analysis

According to Olayide and Heady (1982), the production function stipulates the technical relationship between inputs and output in any production schema or processes. In mathematical terms, this function is assumed to be continuous and differentiable. Its differentiability enables us to establish the rates of return. Assume an implicit, continuous and differentiable function of the form:

$$Y = f(X)$$

where Y = Output in physical terms

X = Input in physical terms

The production parameters of interest are:

$$AP = \frac{Y}{X} = \frac{F(Y)}{X} \text{ —— Average product}$$

$$MP = \frac{dY}{dX} = f^{1}(X) \text{ —— Marginal product}$$

Among the numerous production algebraic equation forms are linear, spillman, quadratic, power (Cob-Douglass), square root, exponential, trancedental and semi-log functions. According to Heady and Dillon (1961); Allen (1981); Olayide and Heady (1982); Olukosi and Ogungbile (1989), all types of production functions are possible in productivity studies. Various studies have fitted them into all kinds of agricultural production data, each subject to its assumptions and

limitations. There is no single functional type that can be used to characterize agricultural production under all environmental conditions. The functional form chosen and the magnitude of its coefficients depend on so many other variables among which are: Climate, soil type and variety of crops, resources being used, state of technology, magnitude of the inputs and so on.

Production function was constructed for credit farmers and non-credit farmers using important factors of production that were easily measurable. These were land, labour and capital represented by quantities of fertilizer, seed and chemical.

The total physical output was regressed on inputs. Three functional forms of the production models were utilized. These were:

1. A linear form of the type

$$Y = b_o + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + e_i$$

2. A Cob-Douglass (power) form of the type

$$Y = b_oX_1^{b1} X_2^{b2} X_3^{b3} X_4^{b4} X_5^{b5} + e_i$$

In logarithmic form, the function is of the type

$$\text{Log } Y = \log b_o + b_1 \log X_1 + b_2 \log X_2 + b_3 \log X_3 + b_4 \log X_4 + b_5 \log X_5 + e_i$$

3. A semi – log form of the type

$$Y = \log b_o + b_1 \log X_1 + b_2 \log X_2 + b_3 \log X_3 + b_4 \log X_4 + b_5 \log X_5 + e_i$$

where for all the functional forms

Y = Output in kilogram (kg)

X_1 = Land in hectare (ha)

X_2 = Labour in man-hours

X_3 = Seed in kilogram (kg)

X_4 = Fertilizer in kilogram (kg)

X_5 = Chemical in kilogram (kg)

b_o = Constant term in the estimation (intercept)

b_1 to b_5 = Regression coefficients of X_1 to X_5 respectively

E_i Error term.

The production function was used to achieve objective four.

Chapter 4

RESULTS AND DISCUSSION

The presentation of the outcome of field survey carried out through the use of structured questionnaire to credit farmers and non-credit farmers and its discussion is done in this chapter. Some socio-economic characteristics of the sampled farmers are discussed to give an in-depth situation report on the farmers. The discussion on the impact of credit on farmers is based on the analyses of various hypotheses tested and that of production function analysis.

4.1 Socio-Economic Characteristics of the Sampled Farmers

4.1.1 Age Distribution of Farmers

In a developing agriculture where majority of farmers do not have formal education, age of farmers contributes to the perfection by which farming practices are carried out. Farmers start gathering farming experience at the age they start going to the farm.

The age distribution of the sampled farmers is shown in Table 4.1.1. The ages of credit farmers ranged from 26 to 50 years and 80 per cent had ages between 36 to 50 years. Farmers in this age group are mature enough to manage credit facilities, as they are also expected to have enough farming experience and strength to endure the rigour of farming. The ages of non-credit farmers ranged from 21 to 55 years and 63 per cent were within 36 to 50 years. About 13 per cent of non-credit farmers fell below the age of 30 years, while 7 per cent were above the age of 50 years.

TABLE 4.1.1: Age Distribution of the Sampled Farmers

Age Group	CREDIT FARMERS		NON-CREDIT FARMERS	
	Number of Farmers	Percentage Distribution	Number of Farmers	Percentage Distribution
21 - 25	0	0.00	1	2.33
26 - 30	2	4.76	5	11.63
31 - 35	6	14.29	7	16.28
36 - 40	13	30.95	17	39.53
41 - 45	14	33.33	6	13.95
46 - 50	7	16.67	4	9.30
51 - 55	0	0.00	3	6.98

Source: Field Survey, 1996

4.1.2 Years of Farming Experience of Farmers

Some researchers use years of farming experience of farmers in lieu of management as a factor of production. The belief held by these researchers is that the higher the years of farming experience of a farmer the more the management ability of such a farmer in taking accurate farming decisions.

Above 76 per cent of credit farmers had farming experience of more than 20 years which put many of them in good position of farming knowledge. 58 per cent of non-credit farmers had more than 20 years of farming experience, while 33 per cent and 9 per cent had below 20 years and 15 years farming experience

respectively. Ideally, age bracket of between 35 to 55 years and 15 years of farming experience should be okay for farmers to manage credit facilities very well. The years of farming experience of farmers is shown in Table 4.1.2.

TABLE 4.1.2: Years of Farming Experience of Sampled Farmers

Age Group	CREDIT FARMERS		NON-CREDIT FARMERS	
	Number of Farmers	Percentage Distribution	Number of Farmers	Percentage Distribution
9 - 15	3	7.14	4	9.30
16 - 20	7	16.67	14	32.56
21 - 25	11	26.19	13	30.23
26 - 30	15	35.71	6	13.95
31 - 35	4	9.52	3	6.98
36 - 40	2	4.76	3	6.98
Total	42	100.00	43	100.00

Source: Field Survey, 1996

4.1.3 Education Level of Farmers

Illiteracy is regarded as one of the factors militating against agricultural development among farmers in Nigeria. An educated farmer will be able to handle instructional manuals on input and machinery uses. Unfortunately, only 7 per cent and 19 per cent of

credit farmers and non-credit farmers respectively had formal education. The education levels of farmers is shown in Table 4.1.3. 36 per cent of credit farmers did not attend any school at all, whether formal or informal education, while 57 per cent had Islamic education. This trend is not good in a situation in which agricultural production is to be modernized. Among the non-credit farmers, 28 per cent did not go to school at all, while 53 per cent had Islamic education. Since there was a low level of formal education among the sampled farmers, efforts should be geared towards increasing extension agents' visitation to the farmers so as to guide them in the use of modern farming techniques.

TABLE 4.1.3: Education Level of the Sampled Farmers

Education	CREDIT FARMERS		NON-CREDIT FARMERS	
	Number of Farmers	Percentage Distribution	Number of Farmers	Percentage Distribution
Non-Education*	15	35.71	12	27.91
Islamic	24	57.14	23	53.49
Primary	2	4.76	5	11.63
Post Primary	-	0.00	1	2.32
Higher Institution	1	2.38	2	4.65
Total	42	100.00	42	100.00

*No formal or informal education

Source: Field Survey, 1996

4.1.4 Household Size and Distribution of Sampled Farmers

Under small scale farming, household provide most if not all the labour requirements of farming. It is generally common among different sociological environment that some farm operations are gender specific. In most cases operation such as land tilling is reserved for men while movement of produce, threshing, winnowing and other processing operations are meant for women. Specification of farm operations for genders differ from one place to another. A household is normally headed by a man who has wives, children and relatives, as the case may be staying with him and provide for him farm labours while the head of the house provide them shelter and food.

The household size and distribution is shown in Table 4.1.4. The average household sizes for credit farmers and non-credit farmers were 9.4 and 11.5 respectively. Male adult accounted for 3 and 4 respectively for credit farmers and non-credit farmers, female adult were about average of 2 for both group of farmers and 4 and 5 children for credit farmers and non-credit farmers respectively. The ratio of adult to children of 5:4 and 6:5 for credit farmers and non-credit farmers is not too bad. It means majority of the household members can contribute to farm labours to compensate for shelter and food being provided to them. The low average of 2 female adults per household for both group of farmers might be due to early marriages common among Northern Muslim families.

TABLE 4.1.4: Average Household Size and Distribution of the Sample Farmers

Household Group	CREDIT FARMERS	NON-CREDIT FARMERS
	Average Number of Person	Average Number of Person
Male Adult	3.26	4.10
Female Adult	2.05	2.25
Children	4.09	5.15
Total Average	9.40	11.50

Source: Field Survey, 1996

4.1.5 Pattern of Livestock Ownership Among the Farmers

It is a common practices among peasant farmers to own livestock which can be readily sold to meet immediate financial obligations. Some farmers keep livestock against the cropping season which they sell and use the proceeds to finance crop production. Livestock possession represents a source of wealth to owners. In the study area cattle, sheep, goats, poultry, guinea fowls, camels and donkeys were the livestock owned by the farmers. The pattern of livestock owning among the farmers is shown in Table 4.1.5.

A 100 per cent of credit farmers owned cattle with a total number of 108 cattle and average of 3 cattle per farmer. This is expected because part of the credit given in cash by NEAZDP was meant to purchase two working bulls for Ox-team equipment given out as credit in kind by NEAZDP. Among the non-credit farmers only 26 per cent owned cattle with a total number of 27 cattle and an average of less than 1 per farmer. Non-credit farmers had higher number of sheep and goats, guinea fowls and donkeys than credit farmers, while the numbers of cattle, poultry and camels were higher for credit farmers than for non-credit farmers.

TABLE 4.1.5 Patterns of Livestock Ownership Among the Farmers

Livestock	CREDIT FARMERS		NON-CREDIT FARMERS	
	Total Number of Livestock	Average Size Per Farmer	Total Number of Livestock	Average Size Per Farmer
Cattle	108	2.57	27	0.63
Sheep and Goat	73	1.74	86	2.00
Poultry	134	3.19	107	2.49
Guinea Fowl	14	0.33	16	0.37
Duck	40	0.95	23	0.55
Camel	1	0.23	-	0.55
Donkey	-	-	6	0.14

Source: Field Survey, 1996

4.1.6 Working Tools and Equipment of Farmers

For large scale production of food, farmers must discard the use of crude implements such as hoes and cutlasses. The use of animal traction, engine tractors, sprayers, planters, shellers, etc will help in boosting crop production. Most small scale farmers possess mainly crude implements. The sampled farmers were no exception as a 100 per cent of both credit farmers and non-credit farmers possessed hoes and cutlasses. Working tools and equipment here represent implements directly employed in crop production by farmers and the ownership of these implements is shown in Table 4.1.6.

Only 7 per cent and 5 per cent of credit farmers and non-credit farmers respectively possessed sprayers while a 100 per cent of credit farmers possessed a complete set of Ox-team equipment comprising 2 bulls, Ox-cart, plough and cultivator. This was as a result of Ox-team implements given out as credit in kind to the credit farmers by NEAZDP. Only 11 per cent of non-credit farmers possessed a complete set of Ox-team. Even though all credit farmers had access to simple means of transportation in terms of Ox-cart and intermediate technology for cultivating land (animal traction) it is quite necessary for them to possess other intermediate technologies like shellers and sprayers which have low ownership among them. Possession of Ox-team equipment, planters, shellers, sprayers, etc, by farmers is important for upward shift in crop production from small scale to medium scale or even large scale production.

TABLE 4.1.6 Ownership of Working Tools and Equipment Among the Sampled Farmers

Equipment	CREDIT FARMERS		NON-CREDIT FARMERS	
	Number of Owners	Percentage of Owners	Number of Owners	Percentage of Owners
Cutlasses	42	100.00	43	100.00
Hoes	42	100.00	43	100.00
Axes	11	26.19	9	20.93
Digger	6	14.29	5	11.63
Sickle	12	28.57	4	32.56
Sprayer	3	7.14	2	4.65
Animal Traction	42	100.00	5	11.63
Ox-Cart	42	100.00	5	11.63

Source: Field Survey, 1996

4.1.7 Non-Farm Occupation

Farming activities are seasonal. Because of the seasonality of farming, most farmers engage themselves in other non-farm businesses to occupy themselves during off-farming period. Also because of low income received from farming, farmers engage themselves in non-farm businesses to supplement their farm incomes.

A 100 per cent and 95 per cent of credit farmers and non-credit farmers respectively were engaged in non-farm businesses. Table 4.1.7 shows the break-down of farmers' engagement in non-farm occupations.

Ox-team hiring and shop keeping had the highest participation among the credit farmers, with percentages of 62 and 48 respectively. Ox-team were hired out for land cultivation and transportation by owners. The provision of Ox-team to credit farmers has helped in providing them with other sources of income. Shop keeping represents stock selling and it varies among the farmers. Other non-farm occupations engaged in by credit farmers' were barbing, weaving, building, fishing, etc, with varying degrees of participation among them.

A total of 23 per cent of non-credit farmers were involved in shop keeping, while only 7 per cent hired out Ox-team. About 12 and 16 per cent accounted for weaving and paid employment respectively.

All the farmers indicated the use of Ox-cart transportation in crop production, either to move inputs to the farms or convey farm produce to homes or markets. The provision of Ox-cart by NEAZDP will go a long way in reducing transportation problem in the programme area. In some instances villages had no motorable road and the only suitable transportation was Ox-cart.

TABLE 4.1.7: Non-Farm Occupation Participation Among the Sampled Farmers

Business	CREDIT FARMERS		NON-CREDIT FARMERS	
	Number of Participants	Percentage of Participants	Number of Participants	Percentage of Participants
Shop Keeping	20	47.62	10	23.26
Building	3	7.14	2	4.65
Weaving	4	9.52	5	11.63
Barbing	3	7.14	3	6.97
Tailoring	4	9.52	1	2.33
Paid Employment	1	2.38	7	16.28
Ox-Team Hiring	26	61.91	3	6.97
Blacksmitting	0	0.00	1	2.33
Clergy	1	2.38	2	4.65
Fishing	2	4.76	2	4.65
Hunting	1	2.38	1	2.33
Bicycle Repairing	0	0.00	1	2.33
Marketing Agent	1	2.38	2	4.56
Entertainment	0	0.00	2	4.65

Source: Field Survey, 1996

4.1.8 Land Allocation to Crop

The survey area is a dry area, so only few crops that require little rainfall were grown by the farmers under rainfed farming. These crops included millet, guinea-corn, cowpea and groundnut. The allocation of land to crops is shown in Table 4.1.8. Millet was the most cultivated crop with land allocation of 56.19 and 62.25 per cent for credit farmers and non credit farmers respectively. It was followed by guinea-corn with land allocation of 38.71 and 26.52 per cent respectively for credit farmers and non credit farmers. Both millet and guinea-corn which are cereals accounted for land allocation of 94.90 and 88.77 percent respectively for credit farmers and non credit farmers. The reason for high cultivation of these two crops might be due to their abilities to withstand considerable drought, as the survey area is dry.

Rice had percentage land allocation of 3.36 and 7.75 for credit farmers and non-credit farmers respectively. Only 0.5 per cent land was devoted to cowpea as a sole crop by credit farmers while 3.43 per cent of total land was used for cowpea cultivation by non-credit farmers.

TABLE 4.1.8 Land Allocation to Crops Among the Farmers

Crop	CREDIT FARMERS		NON-CREDIT FARMERS	
	Number of Hectares	Percentage Distribution	Number of Hectares	Percentage Distribution
Millet	112.88	56.19	99.75	62.25
Guinea-Corn	77.78	38.71	42.50	26.52
Rice	6.75	3.36	7.75	4.84
Groundnut	2.50	1.24	4.75	2.96
Cowpea	1.00	0.50	5.50	3.43
Total	200.10	100.00	160.25	100.00

Source: Field Survey, 1996

4.1.9 Size of Farmers' Holdings

The size of a farmers' holding is usually small. In most cases it is less than a hectare among the peasant farmers. Family size, labour availability, land availability and accessibility of farmers to fund are some of the factors affecting farm size. Table 4.1.9 shows the size of farmers' holdings among the respondents.

All the credit farmers had farm size higher than two hectares as opposed to 27.91 per cent of non-credit farmers who had less than two hectares. The farm size of the credit farmers was in line with NEAZDP injunction that no credit farmers should have farm size below two hectares. 69.05 per cent and 51.15 per cent of credit farmers and non-credit farmers respectively had farm size between 2 to 6 hectares, while 30.95 per cent of credit farmers had farm size greater than 6 hectares and 20.93 per cent of non-credit farmers had farm size greater than 6 hectares.

The average size of farmers' holdings ranged from 2.19 to 7.30 hectares for credit farmers while non-credit farmers had average farm size of between 0.84 to 7.08 hectares.

TABLE 4.1.8: Size of Farmers' Holdings

Land Size in Hectare	CREDIT FARMERS			NON-CREDIT FARMERS		
	Number of Farmers	Percentage of Holding	Average Size of Holding	Number of Farmers	Percentage of Holding	Average Size of Holding
0 - <1	0	0.00	0.00	8	18.60	0.84
1 - <2	0	0.00	0.00	12	27.91	1.08
2 - <3	8	19.05	2.19	6	13.95	2.08
3 - <4	7	16.67	3.21	4	9.30	3.13
4 - <5	8	19.05	4.31	4	9.30	4.19
5 - <6	6	14.28	5.25	8	18.60	5.22
6 and above	13	30.95	7.30	9	20.93	7.08
Total	42	100.00		43	100.00	

Source: Field Survey, 1996

4.2 Impact of Credit Results

4.2.1 Impact of Credit on Farm Size

Farm size is the summation of land cultivated for each crop by each farmer. It represents total land cultivated by farmers during the cropping season. The tested hypothesis with regard to farm size is that credit farmers had the same farm size as non-credit farmers. The result of the tested hypothesis is shown in Table 4.2.1.

The means of farm size for credit farmers and non-credit farmers were found to be 4.78 and 3.73 hectares respectively with a mean

difference of 1.05 hectare. The mean difference was subjected to z - statistics to test for significance of the difference. The calculated z - value was found to be 2.1 which was significant at 5 per cent level of significance. The hypothesis that credit farmers have the same farm size as non-credit farmers is rejected. The implication of this result is that there is a scale difference in the production of both group of farmers and this scale difference can be attributed to credit and not by chance factor.

TABLE 4.2.1 Result of Hypothesis Tested for Farm Size

	Mean Value for Credit Farmers	Mean Value for Non-Credit Farmers	Difference	Calculated 2 - Value
Farm Size in Hectare	4.78	3.73	1.05	2.10*

* Significant at 5 percent significant level.

Source: Field data analysis, 1996

4.2.2 Impact of Credit on the Use of Fertilizer

The use of fertilizer was generally low among the respondents. Some farmers even had zero level of fertilizer usage. The reasons might be due to socio-economic and climatic factors. Crops like yam and maize which require high levels of nutrients before a reasonable yield can be obtained were not cultivated by the farmers.

Since the study area is a dry zone, leaching may not be a problem, and application of fertilizer, especially urea, may burn the crops. Low

pressure on the land of the study area still allows shifting cultivation to be practiced. Mixed farming was in vogue among the farming families. This would help in the provision of organic manure which may reduce a demand for fertilizer.

The result of the hypothesis tested for fertilizer use is shown in Table 4.2. The means value of fertilizer used by credit farmers and non-credit farmers were found to be ₦439.00 and ₦296.00. Using the difference between the means of ₦296.00 to test for significance, the calculated 2-value was found to be 2.94 which was significant at 1 per cent significant level. To allow for true picture of scale effect as a result of significant difference in farm size of credit farmers and non-credit farmers, value of fertilizer used per hectare was used for the analysis. The means value of fertilizer per hectare for credit farmer and non-credit farmers were found to be ₦92.00 and ₦38.00 respectively with a difference of ₦54.00 a calculated z-value of 1.65 which was not significant at 5 per cent significant level. The hypothesis that credit farmers have the same fertilizer use as non-credit farmers is rejected while on fertilizer use per hectare it is acceptable.

4.2.3 Impact of Credit on Use of Seed

The value of seed used was computed for credit farmers and non-credit farmers by multiplying the quantities of seed used by their respective unit prices. The means value of seed for credit farmers and non-credit farmers were found to be ₦1,123.00 and ₦839.00 respectively. The calculated z-value for the difference between the means of ₦284.00 was found to be 0.75 which was not significant at 5 per cent significant level.

The analysis was also done using value of seed per hectare and the means value of seed per hectare for credit farmers and non-credit farmers were found to be ₦235.00 and ₦225.00 respectively. The difference between the means was tested for significance and the calculated z-value was found to be 0.19, which was not significant at 5 per cent significant level. The result of the hypothesis is shown in Table 4.2.2.

Whichever way seed used is looked at either as total value of seed or value of seed used per hectare, there was no significant difference between seed used by credit farmers and non-credit farmers. Therefore, the hypothesis that credit farmers have the same use of seed as non-credit farmers is acceptable.

4.2.4 Impact of Credit on Use of Chemical

The use of chemical like fertilizer was generally low among the two group of farmers. The mean values of Chemical used were found to be ₦167.00 and ₦104.00 for credit farmers and non-credit farmers respectively. The difference between the means oz-valuef ₦63.00 was subjected to z-test and the z-value was found to be 0.18 which was not significant at 5 per cent significant level. The hypothesis that credit farmers have the same chemical use as non-credit farmers is acceptable. The result of the tested hypothesis is shown in Table 4.2.2.

The means value of chemical used per hectare were found to be ₦35.00 and ₦28.00 for credit farmers and non-credit farmers respectively. The means difference of ₦9.00 with 2-value of 0.80 was not significant at

5 per cent significant level. The hypothesis that credit farmers have the same chemical use per hectare as non-credit farmer is acceptable.

TABLE 4.2.2: Result of Hypothesis Tested for Fertilizer, Seed, Chemical, Labour and Operating Expenses

	Mean value for Credit Farmers	Mean Value for non-credit Farmers	Difference	Calculated z-Value
Fertilizer (₦)	439	143	296	2.94**
Fertilizer (₦/ha)	92	38	54	1.65
Seed (₦)	1,123	839	284	0.75
Seed (₦/ha)	235	225	10	0.19
Chemical (₦)	167	104	63	0.18
Chemical (₦/ha)	35	28	7	0.80
Labour (man-hours)	2,364	2,099	265	1.54
Labour (man-hours/ha)	493	563	-70	-2.84**
Operating Expenses (₦)	43,931	32,779	11,152	1.71
Operating Expenses (₦/ha)	1,190	8,788	403	0.37

** Significant at 1 percent significant level.

Source: Survey data analysis, 1996

4.2.5 Impact of Credit on Use of Labour

The labour used for all operations were summed up for credit farmers and non-credit farmers. Norman (1972) conversion for labour was not used to convert female adult labour to equivalent of male adult labour because gender experts have depricated the use of the conversion especially for some farm operations such as weeding and processing.

The means of total labour used were found to be 2,364 man-hours and 2,099 man-hours for credit farmers and non-credit farmers respectively with a mean difference of 265 man-hours which was tested for significance. The calculated z-value was found to be 1.54 which was not significant at 5 per cent significant level. The hypothesis that credit farmers have the same labour use as non-credit farmers is acceptable. The result of the analysis is shown in Table 4.2.2.

The means of labour used in man-hours per hectare for credit farmers and non-credit farmers were found to be 493 man-hours per hectare and 563 man-hours per hectare respectively with means difference of -70 man-hours per hectare. The implication of the negative sign of mean difference is that non-credit farmers used more labour per hectare than credit farmers. The difference of means was subjected to z-test and the calculated z-value of -2.84 was significant at 1 per cent significant level. The hypothesis that credit farmers have the same labour use per hectare as non-credit farmers is rejected. The reason for this result might be due to the use of animal traction by all credit farmers for land tilling and weeding (heaping up). Tilling and weeding operations consume a lot of labour; the use of animal traction helps to save labour.

4.2.6 Impact of Credit on Operating Expenses

Operating expenses represent expenses on all variable inputs such as seed, fertilizer, labour, chemical, etc. Imputation was made for owned inputs like seed and labour. The means of ₦43,931.00 and ₦32,779.00 were

found for credit farmers and non-credit farmers respectively. The difference between the means of ₦11,152.00 was not significant at 5 per cent significant level using z-statistic. The analysis was done using operating expenses per hectare. There was no significant difference between the means. The result is shown in Table 4.2.2. Based on the outcome of this analysis, the hypothesis that credit farmers have the same operating expenses as non-credit farmers is acceptable.

The reasons for the outcome of this result might be due to the fact that use of inputs such as fertilizer and chemical was generally low among both groups of farmers. Also the use of animal traction to carry out some farm operations by all credit farmers is expected to lower operating expenses.

4.2.7 Impact of Credit on Level of Production and Productivity

The level of production is represented by gross farm income (value of all farm output) and net farm income (gross farm income less total cost) which can be simply referred to as farm income. Productivity is taken as level of production per hectare which is a measure of efficiency. Productivity could not be calculated for net farm income because fixed costs was involved which were not purchased per hectare of land.

The result of the tested hypothesis is shown in Table 4.2.3. The mean values of gross farm income of ₦106,004.00 and ₦69,945.00 were estimated for credit farmers and non-credit farmers. The calculated 2-value of 2.24 which was significant at 5 per cent significant level was

found for the difference between the means of ₦36,059.00. The analysis was done using gross farm income per hectare. The means difference of ₦3,424.00 was found with calculated 2-value of 1.63 which was not significant at 5 per cent significant level. The hypothesis that credit farmers have the same gross farm income as non-credit farmers is rejected for gross farm income in Naira and accepted for gross farm income in Naira per hectare.

The fact that both credit farmers and non-credit farmers had positive means net farm income values of ₦61,653.00 and ₦36,851.00 respectively shows both group of farmers made profits. The calculated 2-value of 3.69 was found for the difference of means of ₦24,802.00 which was significant at 1 per cent significance level. The hypothesis that credit farmers have the same net farm income as non-credit farmers is rejected.

TABLE 4.2.3: Result of Hypothesis Tested for Level of Production and Productivity

	Mean value for Credit Farmers	Mean Value for non credit Farmers	Difference	Calculated Z-Value
Gross Farm Income (₦)	106,004	69,945	36,059	2.24*
Gross Farm Income (₦/ha)	22,176	18,752	3,425	1.63
Net Farm Income (₦)	61,653	36,851	24,802	3.69**

* Significant at 5 per cent significant level

** Significant at 1 per cent significant level

Source: Survey data analysis, 1996

4.3 The Result of Production Function Analysis

The importance of production function analysis lies in its ability to measure the contribution of each input to production when the inputs interacted with one another to produce an output. The method of ordinary least square was employed to determine the constant and the regression co-efficient of the independent variables of the production equations for credit farmers and non-credit farmers. The result of the production function analysis is shown in Table 4.3.1

Semi-log model is selected for the interpretation of the production analysis result out of the three models used because it gave better results. For instance R^2 were high for both groups of farmers, t-values were high

for most variables for non-credit farmers and F-values for both group of farmers were significant.

The R^2 (coefficient of multiple determination) was estimated to be 0.62 and 0.77 for credit farmers and non-credit farmers respectively which means 62 per cent and 77 per cent of variations observed in the output of credit farmers and non-credit farmers respectively were jointly accounted for by all the variables in the regression equation. F - values of 11.51 and 24.07 for credit farmers and non-credit farmers respectively were significant at 1 per cent significant level which is an indication that independent variables included in the models were important in explaining the variations in the output.

All the regression coefficients showed positive relationship with output for both groups of farmers which means an increase in any use of the input will lead to an increase in output. With exception of chemical, credit farmers had higher regression coefficients than non-credit farmers. This means credit farmers used more land, labour, seed and fertilizer than non-credit farmers. Credit can be said to have made an upward shift in the use of inputs as shown by the coefficients of inputs.

It was only seed coefficient that was significant for credit farmers which means the t-values were low for other inputs. This result cannot be attributed to multi-colinearity among the inputs since R^2 - value (0.62) is below 0.70. The reason might be that the quantities of the inputs used were low as shown by chemical and fertilizer where some credit farmers

even had zero level. The t-value for labour, seed and chemical were significant for non-credit farmers which means the input were important in explaining the variations in output.

TABLE 4.3.1: Regression Coefficient of Inputs with Three Forms of Production Equat for Credit Farmers and Non-Credit Farmers.

	REGRESSION COEFFICIENTS							
	Constant b_0	Land (X_1) b_1	Labour (X_2) b_2	Seed (X_3) b_3	Fertilizer (X_4) b_4	Chemical (X_5) b_5	R^2	F-Val
1. Linear Equation	19462.40	5290.11	1.25	25.25	5.30	119.23	0.07	
	(1.27)	(0.67)	(1.38)	(3.60)**	(0.04)	(4.55)**		
2. Semi-log Equation	053443.65	16434.96	96299.37	27065.42	2094.42	2077.12	0.62	11.
	(2.44)*	(0.28)	(1.06)	(2.13)*	(0.65)	(0.02)		
3. Cob-Doglas Equation	2.20	0.02	0.77	0.15	0.003	0.003	0.06	42.2
	(1.11)	(0.06)	(3.51)**	(2.02)*	(0.25)	(0.55)		
	NON-CREDIT FARMERS							
1. Linear Equation	1302.43	1301.07	1.55	17.78	14.50	19.90	0.97	220.7
	(0.32)	(0.55)	(6.00)**	(5.60)**	(1.69)	(1.60)		
2. Semi-log Equation	505050.40	11710.70	43907.58	21353.91	996.14	5215.00	0.77	24.0
	(2.69)*	(0.51)	(1.97)*	(2.39)*	(0.41)	(2.33)*		
3. Cob-Doglas Equation	3.41	0.16	0.50	0.22	0.02	0.02	0.93	92.9
	(2.50)*	(1.10)	(3.57)**	(3.39)**	(1.65)	(1.30)		

() t - values in parentheses

* Significant at 5 per cent significant level

** Significant at 1 per cent significant level

4.4 The Elasticity of Production

The elasticity of production measures the responsiveness of output to changes in the input. In semi-log function, the elasticity of production with respect to each individual inputs is measured by:

$$EP_i = \frac{bi}{Xi} \cdot \frac{Xi}{Y} = \frac{bi}{Y}$$

where EPi = Elasticity of production

bi = Regression Coefficients

Xi = Mean Input

Y = Mean Output

The elasticities of production of various inputs is shown in Table 4.4.1. Both group of farmers had elasticities of less than 1 for all the inputs. The economic implication of this result is that the inputs were efficiently used by the farmers. Labour had the highest elasticities of 0.90 and 0.59 for credit farmers and non-credit farmers respectively. Since elasticity shows percentage change in the output if input is increased by 1 per cent, it means a 100 per cent increase in labour will lead to 90 per cent and 59 per cent increase in output of credit farmers and non-credit farmers respectively.

Non-credit farmers had higher elasticities for land, seed and chemical than credit farmers. Fertilizer and chemical had the lowest elasticities of 0.02 each for credit farmers and also for non-credit farmers with 0.01 and 0.07 for fertilizer and chemical respectively. A 100 per cent increase in fertilizer and chemical will lead to 2 per cent increase in output for credit farmers. 1 per cent and 7 per cent increase respectively in output for non-credit farmers.

TABLE 4.4.1: The Elasticity of Production of Inputs

INPUTS	CREDIT FARMERS	NON-CREDIT FARMERS
Land	0.15	0.16
Labour	0.90	0.59
Seed	0.25	0.29
Fertilizer	0.02	0.01
Chemical	0.02	0.07

Source: Derived from Computer output.

4.5 Marginal Productivity

The marginal productivity measures the contribution of inputs to increases in productivity. The marginal productivity with regard to semi-log function was calculated using:

$$MPP^i = \frac{dY}{dX} = \frac{bi}{Xi}$$

where MPPi = Marginal Physical Product

bi = Regression Coefficient

X^i = Mean Input

The marginal productivities for credit farmers and non-credit farmers is shown in Table 4.5.1. All the estimates showed positive marginal productivities. This means all the inputs have increasing effects on productivity. For the two groups of farmers land had highest MPP though credit farmers' land MPP (3496.81) was higher

than non-credit farmers' land MPP (3139.68). Non-credit farmers had higher labour MPP than credit farmers. Non-credit farmers had MPP of 25.23, 6.90, and 34.30 for seed, fertilizer and chemical respectively and these values were higher than those of credit farmers who had MPP of 23.33, 4.86 and 12.44 for seed, fertilizer and chemical respectively.

4.6 Economics of Resource Allocation

The equality of the marginal value product (MVP) of an input to its unit price is an indication of economic efficiency of that input. The MVP of an input is a product of its MPP and its unit Price (P)

$$MVP = MPP \cdot P$$

The MVP of the input is shown in Table 4.5.1. The MVP of land could not be estimated because it was difficult to estimate its unit price in the study area, because of very low population density, land for farming is not sold or rented. It is normally given out in goodwill. Some group of farmers I met during the collection of data for this study had this to say: "Damuwan mu, ba kasan noma ba, saidai isheshen ruwan sama" meaning our problem is not farm land but getting enough rainfall.

Since all the inputs had positive MVP it means they will have increasing effect on the income. All the inputs had MVP greater than their unit prices. The economic implication of this is that the inputs were

than their unit prices. The economic implication of this is that the inputs were underutilized and income of both group of farmers can be increased by use of more of the inputs.

TABLE 4.5.1: Marginal Physical Product (MPP), Marginal Value Product (MVP) and Unit Price of Input

Variable	Credit Farmers		Non-Credit Farmers		Input Unit Price (₦)
	MPP	MVP	MPP	MVP	
Land	3496.81	n.a	3139.68	n.a	n.a
Labour	2.42	48.40	1.28	25.60	20.00
Seed	23.33	303.29	25.23	445.90	13.00
Fertilizer	4.86	14.58	6.90	20.70	3.00
Chemical	12.44	5224.80	34.30	14406.00	420.00

n.a. - Not Available

Chapter 5

SUMMARY AND CONCLUSION

An attempt has been made to measure the impact of an integrated rural development programme (NEAZDP) credit on small scale farmers in Bursari Local Government Area, Yobe State. Primary data supplemented with secondary data from NEAZDP were collected from credit farmers and non-credit farmers using structured questionnaire. Samples were selected from farmers that borrowed from NEAZDP for crop production (Credit Farmers) and those that did not borrow (non-credit farmers).

Offering of credit facilities to the rural dwellers constitute one of the project arms of NEAZDP. Crop production credits are offered to farmers to increase their standard of living. NEAZDP offers credit in cash and kind, little or no attempt had been made to evaluate the impact of these credits to ascertain whether extending of these credits had achieved their objectives. This study has been carried out to examine the impact of crop production credit on farm size, input use, level of production and productivity. The method adopted for this study was comparison between credit farmers and non-credit farmers production activities. The following findings were discovered:

5.1 Socio-Economic Characteristics

Farmers of the surveyed area had similar socio-economic characteristics. The educational level, family composition, farm tools, livestock owning, etc were similar. Also production activities were

similar. Only drought resistant crops like millet, guinea corn, cowpea, etc are common crops grown in the study area.

5.2 NEAZDP Credit

NEAZDP gave a combination of credit in kind and cash to the farmers. All the credit beneficiaries received a total of ₦30,500.00 each, ₦17,500.00 was in cash while ₦13,000.00 was in kind. Credit given in kind included ox-cart, ox-mounted plough and cultivator. Out of the ₦17,500.00 given in cash, two bulls were expected to be purchased to work the ox-team equipment. The credit given to farmers is expected to be revolving on which subsequent credit to be given to the farmers will be determined by credit repayments of beneficiaries. This revolving credit is hopeful because NEAZDP claimed to have good record of loan repayment.

NEAZDP was the only source of formal credit in the study area. In fact due to the location of the farmers, it is only integrated rural development programme with grass-root association with farmers and good financial base that can successfully extend credit to farmers. Most of the farmers lived many kilometers away from access roads and were scattered over large areas which would make loan administration very costly and difficult.

All the credit farmers indicated prompt and efficient receipt of credit facilities. NEAZDP organized extension visitations and

various farming training on modern farming techniques, credit management and animal handling to credit farmers.

NEAZDP was able to provide sources of non-farm income to its credit beneficiaries through ox-team equipment which were hired out for transportation and cultivation of land. Many villages lacked good roads, so transportation by motor vehicles was impossible; in most cases they used animal and ox-cart as a means of transportation. To some extent NEAZDP has helped in solving the transportation problems.

5.3 Credit Impact

The average farm size of credit farmers (4.78ha) was higher than that of non-credit farmers (3.73ha) and the difference was significant at 5 per cent significant level.

The use of labour by credit farmers and non-credit farmers was found not to differ significantly, but non-credit farmers used more labour per hectare and the difference between the labour use per hectare of credit farmers and non-credit farmers was significant at 1 per cent significance level.

There was no significant difference in the value of seed used between credit farmers and non-credit farmers.

Credit was found to have a significant impact on use of fertilizer. When the use of fertilizer per hectare was considered, there was no significant difference between credit farmers' and non-credit farmers' use of fertilizer.

There was no significant difference in use of chemical between credit farmers and non-credit farmers.

Also, there was no significant difference between the operating expenses of credit farmers and non-credit farmers, even though mean operating expenses of credit farmers was higher than those of non-credit farmers.

Both groups of farmers made profits. Credit was assumed to have made impact on output and productivity of credit farmers. There was a significant difference between gross farm income and net farm income of credit farmers and non-credit farmers. There was no significant difference between the gross farm income per hectare of credit farmers and non-credit farmers.

5.4 Production Function Analysis

Labour, land, seed, fertilizer and chemical all in physical quantities were used as independent variables in the regression equation. Semi-log production function was used to compare the production of credit farmers and non-credit farmers because it gave a better result than linear and power functions. An R^2 values of

0.62 and 0.77 which were significant were found for credit farmers and non-credit farmers respectively. All the regression coefficients for both groups of farmers had positive signs. It means all the inputs had increasing effects on output. With exception of chemical, credit farmers had higher regression coefficients of inputs than non-credit farmers.

All the inputs for both groups of farmers had elasticitie than 1 which means the inputs were efficiently, used. Also all the inputs had positive marginal elasticities. The inputs had marginal value product greater than their unit prices, which was an indication of underutilization of the inputs. Output could be increased by use of more of the inputs.

5.5 Policy Implication

It was discovered during this study that NEAZDP was the only source of formal institution that extend credit for agricultural production in the study area in spite of many existing formal financial markets in the country. It was noted that farmers were scattered over a large area of land and costs of administering credit to such farmers may be too high. Also it was discovered that all credit farmers received various training and extension visitations from NEAZDP, which helped in production activities. Most of the facilities enjoyed by credit farmers can only be easy under rural development programmes, so there should be a strong link between

banking institutions and rural development programmes in which credits meant for small scale food production will be channelled through rural development programmes.

NEAZDP credit was able to address three main fundamental issues in agriculture, viz transportation, non-farm income through hiring out of Ox-team equipment, and means of intermediate technology for food production. These three things are of priority to peasant farmers which will help agricultural development. All credits to be delivered by any institution or credit design by any programme should address itself to areas of priorities so that necessary impact can be made on farmers.

NEAZDP provided fixed credit amount based on credit repayment. With increasing pace of inflation the ₦30,500.00 fixed credit amount being presently given may not be sufficient in a short time to come. There should be efforts on how credit amount could be increased so as to keep pace with inflation.

Also NEAZDP gave only ox-team equipment as credit in kind. This means farmers were restricted in their choice of agricultural equipment. For effective transformation of agriculture there should be good combination of animal traction, shelling machine, milling machine and other intermediate and appropriate technology equipment. Lack of credit varieties will discourage others who want something apart from Ox-team equipment from patronizing NEAZDP

credit which happened to be the only source of formal credit in the study area.

Since the mean value of land cultivated by credit farmers in the area was 4.78ha, it means NEAZDP catered mainly for small scale farmers. NEAZDP was the only formal credit functioning market in the study area, so efforts should be made as regards how medium and large scale farmers could be helped, however few they may be.

5.6 Limitations of the Study

Fund and geographical locations of farmers did not allow for total coverage of all the farmers. The samples collected were assumed to be the true representation of the population. The use of comparisons between credit farmers and non-credit farmers was based on the assumption that it was only credit that would make a change in their production pattern since both groups of farmers carry out production in the same environment and have similar socio-economic characteristics.

Agricultural production varies periodically, so is the price of inputs and outputs which affect the cost of production and hence farm income. Reliance of this study on data collected in a short period and one season may not represent the actual variations which exist yearly.

Also the data used were based on the ability of farmers' memory and integrity, which may not be accurate, as farmers do not keep proper records of production activities.

5.7 Suggestions for Further Study

Other non-banking institutions with objectives of rural development which have credit as one of their component unit should be investigated and the impact of credit offered by such institution be measured.

Impact of NEAZDP credit on other agricultural sub-sectors like livestock and fisheries should be carried out.

Comparison between credit impact of integrated rural development programme and banking institution where available should also be carried out.

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APPENDIX

QUESTIONNAIRE DESIGNED FOR FARMERS UNDER NORTH-EAST ARID ZONE DEVELOPMENT PROGRAMME (NEAZDP) CREDIT PROJECT IN BURSARI LOCAL GOVERNMENT AREA, YOBE STATE

Farmers Questionnaire.

a. General background information:

1. Village of farmer .....

2. Name of farmer .....

3. Age of Farmer .....

4. Literacy (Answer yes or no).

5. If yes when? (Year) .....

6. Education received. Tick ( )

   a) Islamic c) Secondary

   b) Primary d) Post Secondary

7. Years of farming (farming experience) .....

8. Household size

   a) No. of wives

b) Male adult (over 15 years)

c) Female adult (over 15 years)

d) Children (1–15 years).

9. Non-farm occupation:

Type of business (tick)	Approximate income per year
Shop keeping	.....
Building	.....
Weaving	.....
Barbing	.....
Tailoring	.....
Paid employment	.....
Others, specify	.....

10. Asset: The farmers should indicate any of the asset owned and the approximate value if offered for sale now.

a. Liquid Asset	Approximate income per year
Cash at hand	.....
Cash at Bank(s)	.....
Cash with other	.....
Others, specify	.....

b.	Current Asset	Number	approximate value
	Cattle	.....	.....
	Sheep and Goats	.....	.....
	Guinea Fowl	.....	.....
	Duck	.....	.....
	Camel	.....	.....
	Horse	.....	.....
	Donkey	.....	.....
	Others, specify	.....	.....

c. Working Asset

Hoe	.....	.....
Axe	.....	.....
Cutlass	.....	.....
Digger	.....	.....
Work animal	.....	.....
Ox-draw equipment	.....	.....
Sprayer	.....	.....
Cart	.....	.....
Pumping machine	.....	.....
Others, specify	.....	.....

d. Fixed Asset

House	.....	.....
Farm building	.....	.....
Store	.....	.....
Motor Cycle	.....	.....
Bicycle	.....	.....
Motor Vehicle	.....	.....
Others, specify	.....	.....

b. Labour use in crop production:

(i) Family labour

Type of Operation	No. of Men, 15 Years above	Hours of work/day	No. of Women 15 years above	Hours of work/day	No. of Children 7 -15 years	Hours of work/day	Total hours of work
Land clearing							
Ridging							
Planting							
Weeding							
Fertilizer							
Spraying							
Harvesting							
Marketing							

Others:----------

(ii) Haired Labour Yes ( ) No ( ) If yes fill table below.

Type of Operation	No. of Workers	Hours of work/day	No of days spent on work	Wage rate per day	Inputed expenses/day	Total Hours of work
Land clearing						
Clearing						
Ridging						
Planting						
Weeding						
Fertilizer						
Harvesting						
Marketing						

Others:.....

(iii) Communal labour: Yes ( ) No ( ) If yes fill table below.

Types of Operation	No. of Workers	Hours of Work/day	No. of days spent on work	Inputed expenses/day	Total wage value
Land clearing					
Ridging					
Planting					
Weeding					
Fertilizer					
Spraying					
Harvesting					
Marketing					

Others:.....

(iv) Production: Farm size of each crop cultivated and output.

Name of Crop	Sizes of Farm in ha.				Total hectare	Total output (kg) No.of bags	Total value
	1st	2nd	3rd	4th			
Sorghum							
Millet							
Rice							
Groundnut							
Cowpea							
Wheat							
Onion							
Tomato							

Others:.....

v. Finance

a. How much did you borrow from NEAZDP:
₦.....
I. Cash: ₦.....
II. Kind (value of input)
₦.....

b. Purpose of borrowing:
   I. Purchase of inputs ( )
   II. Purchase of implement ( )
   III. Storage ( )
   IV. Marketing ( )

c. Which year did you receive your loan:.....

d. At what season did you receive your loan?

   I. Before the rain ( )
   II. Early in the rain ( )
   III. Late in the rain ( )

e. In how many installments did you receive the total amount

	Amount	Date
First Installment	.....	.....
Second	.....	.....
Third	.....	.....

f. How much did you request from the programme: ₦.....

g. How much did you receive from the programme? .....

h. Are you satisfied with the amount received? Yes ( ) No ( )

i. What are the difficulties you went through before getting the loan?

   i. Tedious application procedure Yes No
   ii. Delay in receiving the loan Yes No
   iii. Others, specify

j. Did you receive any supervision from the programme after credit? Yes or No

		Tick	No. of Visit
i.	Land Preparation	.....	.....
ii.	Use of input	.....	.....
iii.	Crop protection	.....	.....
iv.	Harvesting	.....	.....
v.	Storage	.....	.....
vi.	Others, specify	.....	.....

k. Loan Repayment

   i. What is the duration of the loan?
   ii. How much have you paid back from the loan ₦.....
   iii. Are you allowed to pay installmentally? Yes ( ) No ( )
   iv. If yes how?

l. Instalment Tick Amount Date
1st ....
2nd ....
3rd ....
What is the interest charged on loan % .....

m. Apart from NEAZDP did you borrow from any of these sources?

(I) FORMAL SOURCES AMOUNT

NCAB .....
ACGSF (Banks) .....
ADP .....
Ministries .....
Others, specify.....

(II) INFORMAL SOURCES

Money lenders .....
Credit Club .....
Friends/relatives .....
Others, specify.....

n. If you have not borrowed from formal sources before what are your reasons?

i. Never hear of its credits Yes/No
ii. Don't like to borrow Yes/No
iii. No educated Yes/No
iv. Complicated application procedures Yes/No
v. Sources not available Yes/No
vi. Do not use Bank Yes/No
vii. Others, specify.....

o. If you have not borrowed from informal sources before what are your reason(s)?

i. High interest rate Yes/No
ii. Not available Yes/No
iii. Feel dow graded Yes/No
iv. Others, Borrows small amount Yes/No

p. If you have borrowed before did you pay back? Yes/No. If No why?.....

c. Farm Operating Expenses:

i. Hiring of inputs

Name of input	Type of Operation	Rent price per hour	Hour of work/day	No. of days/worked
Ox-team				
Pumps				
Sprayer				
Tractor				
Land				
Others, specify				

Total amount spent: ₦.....

ii. Expenses on repairs, oil fuel

Type of input	Cost of repairs	Cost of Fuel	Cost of Lubrication
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

Total amount spent ₦.....

iii. Total amount spent on transportation: ₦.....

		Amount (₦)
iv.	Hiring of Labour	.....
	Type of operation	.....
	Land clearing	.....
	Land preparation	.....
	Planting	.....
	Weeding	.....
	Harvesting	.....
	Threshing	.....
	Storage	.....
	Fertilizer application	.....
	Others, specify	.....

v. Use of inputs:

Input	Source of Purchase	Quantity	Price per unit	Cost of Transport
Fertilizer				
Improve seeds				
Local seeds				
Herbicides				
Insecticides				

d Marketing:

i. Transport: What is (are) the means of transporting produce to the market?

a) On the head ( )
b) Animal ( )
c) Bicycle ( )
d) Motor ( )
e) Others, specify

ii. Buying agent:

a) Local merchant ( )
b) Local consumer ( )
c) Processor ( )
d) Others, specify

iii. Market:

a) Village Market ( )
b) Gashua Market ( )
c) Kano Market ( )
d) Others, specify

iv. Time of Sale:

a) At harvest ( )
b) After harvest ( )
c) Before the beginning of planting season ( )
d) Others, specify.