COLLEGE OF BUSSINES AND ECONOMICS

DEPARTMENT OF ECONOMICS

ROLE OF AGRICULTURAL INPUT CREDIT ON PRODUCTIVITY OF MAIZE: THE CASE OF KUYU WOREDA

A SENIOR ESSAY RESEARCH SUBMITTED: TO DEPARTMENT OF ECONOMICS OF IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR DEGREE OF BACHELOR OF ARTS IN ECONOMICS

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WOLKITIE, ETHIOPIA

DECLARATION

I am Aster declare that this thesis entitled: *"The role of agricultural input credit on productivity of maize in case of Kuyu woreda"* is outcome of my own effort and study and that all sources of materials used for the study have been appropriately acknowledged.

To the best of my knowledge, this study has not been submitted for any degree in this University or any other University. It is offered for the partial fulfillment of the Bachelor degree in economics.

By: Aster solomon

Signature---

Date---

ADVISORS' APPROVAL SHEET

This is to certify that the thesis entitled "*The role of agricultural input credit on productivity of maize in case of Kuyu woreda"* submitted in partial fulfillment of the requirements for the Bachelor degree in Economics, of the Department of Economics, and has been carried out by Id. No 086/09 under my/our supervision. To the best of my knowledge, is an original work and not submitted earlier for any degree either at this University or any other University.

Therefore I recommend that the student has fulfilled the requirements and hence here by can submit the thesis to the department.

Advisor: Mr: Hayatu Mude

Signature:____________________

Date: June 19, 2019

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ACRONYMS

AISCO	agricultural input Supply Corporation
CBE	Commercial Bank of Ethiopia
CSA	Central statistical agency
DBE	development bank of Ethiopia
EEA	Ethiopian Economic Association
ELC	Ethiopia Insurance corporation
ESC	Ethiopia seed corporation
ESE	Ethiopia seed enterprise
FAO	food and agricultural organization
GDP	Gross Domestic Product
MOA	Ministry of Agriculture
MOFED	Ministry of Finance and Economic Development
NBE	National Bank of Ethiopia
NGO	nongovernmental organization
ZTBL	ZaraiTaraqiatiBankLimite

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ABSTRACT

Agriculture is the largest sector in the Ethiopian economy approximately employing 85% of the country's population. Government of Ethiopia is currently paying attention in helping farmers. It provides different incentives like credit and training. Credit plays crucial role in increasing maize production. Despite its importance, farmers face many challenges in utilization of credit for maize production. As the study was intended to find out factors affecting maize production and role of credit in maize production, in North shewa, Kuyu district, different factors found significant.

The study has used simple random sampling in identifying sample respondents. Linear multiple regression analysis was used in the study. Ten variables were included in to the regression analysis of the study; four variables become significant. Family size, Land size, fertilizer and Sex of house hold become significant. This indicates agriculture is becoming the main sector in absorbing large number of labor. Now days, no one can expand land size, but there is duty of all bodies to take care of land uses. As credit is playing great role in maize production, it has to be given attention in expanding credit services for the community. There are so many factors hindering farmers from credit utilization, government should create environment that enables farmers to utilize credit according to the intention. Therefore the government better to do expand the farmer training center and which provide know how to the farmers about the role of inputs and how to use them in a best way.

Key word:- *Agriculture, productivity, OLS, kuyu woreda*

CHAPTER ONE

1 INTRODUCTION

1.1 Background of the study

Agriculture is the largest sector in the Ethiopian economy approximately employing 85% of the country's population (World Bank, 2012). From other researchers also there is evidence that from labor forces working in agriculture of Ethiopia, about 50% were youth people (Maïga et. al., 2015).Agriculture is the backbone of Ethiopian economy. It is the most important sector of poverty reduction in the country. It accounts for about 43.3% of national GDP, 90% of export and 85% of employment (annual report of NBE, 2012). Despite the importance of agriculture in Ethiopian economy, the development of Ethiopian agriculture was given less attention especially, to smallholder's agriculture until 1990s.

During the Derg regime (1974-1991) more emphasis and support was given to commercial state farm and cooperative farms. They consumed about 95% of agricultural inputs (improved seeds, fertilizer, pesticides and farm implement).However they contributed only 5% to the total production. Smallholder agriculture accounted for about 95% of total area under crops and for more than 90% of total agricultural output (EEA/Annual report, 2004). "In spite of its importance in the national economy, agriculture is largely based on subsistence farm household, whose modes of life and work have remained unchanged for centuries"(MOFED, 2010).

The government of Ethiopia in 1993 introduced polices to support agricultural input sector with objective to organize and as well as liberal the seed, fertilizer and pesticides sectors. Sectors distribution and market or both privative and public entities furthermore these polices facilitate import and distribution of commodities in conductive and competitive environment market. Therefore the national seed fertilizer and pesticide agencies were established since July. 2002, these three entities were grouped under the natural agricultural inputs authority in the charge of ensuring the overall coordination of the sector

The financial components of the program were and still are supported by the commercial bank of (CBE) as well as other leading Institution in providing credits to imputers distributors and uses of agricultural inputs

As of its launch in 1995 till 2000 the extension package program experienced increased annual interest from the farmers in rained agricultural production areas and proved Ethiopia capacity to reach national food sufficiency, this led in 2000 and 2001 to cereal production generating buffer stocks .However the production increment was not accompanied by necessary any mechanism to insure market price between November 2000 and May 2002 .comes quality. Further asset of the rural population occurred as farer was complied with returned the credit and loans contracted or the purchase of these inputs packages (Cushier and Lamias, 2001)

In addition during Dengue regime the financial sectors was highly regulated under the government with interest rate ceiling and Quantrill restrict on operation of financial institution public cooperatives enterprise were the main benefits of the low interest rate which remained below in 1980. In spite of the guarantee there still exist significant amount of unpaid or long overdue loan of 37.4 million birr as of 1990 (Annual report on Ethiopian Economy of 1998). The study area, which is kuyuworeda in north showa zone, is also mainly depending on agriculture sector. The dominant farming practice of kuyuworeda is characterized by traditional farming. The most suitable product in the woreda is maize that requires agricultural inputs to farmers.

1.2 Statement of the problem

Agriculture which includes crop production, animal husbandry livestock, forestry, fisheries and apiculture remains by far the most important sector of the country from which livestock constitute the largest component of the Ethiopian agricultural sector (Temesgen et al., 2014).
The constraints of maize production in Ethiopia include both biotic (weeds, plants, pathogens, wild animals) and biotic factors (drought, flood, nutrients, soil type, weed infestation is supreme importance among biotic factors that are responsible for low maize grains yield(Amare et.al .2013). Worldwide maize productions are hampered up to 40% by competition from group of this crop. Generally weeds reduce crop yields by competing for light nutrient water and carbon dioxide as well as interfering with harvesting and increasing the cost involved the crop production.

Producers take lower risk, low output option given the risks and certainty of credit market and technology, information gap literacy diversion of other related problems are present in the Ethiopia. This is a case of rural poor farmers to be trapped in vicious circle of low income, low saving, low capital formation, low agriculture productivity. This in turn leads to fail to purchase better seed, fertilizer, farm animal and tools to adopt new technology and this lead to low investment in Ethiopia.There are some researches those have been done on role of credit in Agriculture production and productivity across the world. For instance QuratUlAinMemon and some other researchers have done research on Role of Agricultural Credit in Improving Agricultural Productivity of Pakistan “the case of QambarShahdadkot District” (QuratUlAinMemon et al, 2016).

Assessment on the role of informal credit on agriculture was also done in Jema`a local government area of Kaduna state, Nigeria (H. O. Yusuf et al, 2015). But both researches those are mentioned above haven’t been done giving attention for role of credit in maize production in specific rather in general as role of credit in agriculture which is wide or broad. There are also other researches those have been done on the role of credit in productivity of agriculture in different part of Ethiopia. But the research to be done was consider role of credit in production of specific crop, maize. Generally this research was become different from others by paying attention for specific crop and no any research was done in the area before which makes this research new investigation in the area in under study.

1.3 Research Questions

The research has answered for the following research questions:

1. What credit provision in Kuyu district looks like?
2. What is the role of agricultural inputs (credit) in the productivity of maize?
3. What are major factors those hinder farmers from credit utilization?

1.4 Research hypothesis

Hypothesis is a formal statement that presents the expected relationship between an independent and dependent variable (Creswell, 994). The hypothesis is a clear statement of what is intended to be investigated. It should be specified before research is conducted and openly stated in reporting the results. This allows identifying the research objectives.

The research hypothesis is developed as below:

H0: Credit has no role on the maize productivity

H1: Credit has significant positive role on maize productivity

1.5 Objective of the study

1.5.1 General objective

The main objective of this study was about role of agricultural credit on productivity of maize in KuyuWoreda.

1.5.2 Specific objective:

The specific objectives of the study were:

1. To assess of provision of credit in KuyuWoreda
2. To see role of agricultural credit in production of maize
3. To identify major factors that hinder farmers from credit utilization

1.6 Significance of the study

This study may contribute to different stock holders in different ways such as for KuyyuWoreda and minestrone or decision makers in agriculture sectors farmers in Woreda and for individual those wants to make related study at different area. And for development agencies to create awareness and provides essential information about agricultural input credit and its problems. It has also importance for governmental and nongovernmental organization those are interested to solve problems. It also will serves as stepping stone of providing information for further study. The study will have following importance.

1. It is helpful to formulate polices to maximize agriculture productivity.
2. Will give the way for future investigation and
3. It is expected to show ways alleviate the existing the problems.

1.7 Scope of the study

The study be was conducted only in Kuyu district of north showa zone. It also was focus on agricultural input credit epically on fertilizer and improved seed productivity maize moreover the study also tired tosses provision and recovery trend of agricultural input credit in Kuyu district.

1.8 Limitations of the Study

The study is expected to be in the following limitations:

A. The study area has covered Kuyu district only. Thus, the results from the study may not reflect the overall situation in north showa.

B. Only Farmers producers have been taken into consideration while measuring the role of agricultural credit on maize productivity.

The rest of the study is organized as follows: chapter two presents a brief review of the studies carried out at national and international level, chapter three discusses the data nd methodology used , chapter four presents the estimation results and analysis, and the final chapter draws conclusions and provides some policy recommendations.

CHAPTER TWO

2 .LITERATURE REVIEW

2.1 Theoretical Literature

2.1.1 Definition and concepts of rural credit

The term credit, loan and borrowing are often assumed to refer to the process of obtaining control over the use of money, goods or services in the present time in exchange for a promise to repay at some future dates. It is defined credit, as the means by which entrepreneurs are enabled to acquire commodities against a promise to repay later. They further argued that credit is predicated upon confidence in the sense that the request for a loan is usually met on the basis of a promise of repayment by the borrower at a stated time and under given condition of repayment (Adebayo O.O, and Adeola R.G, 2008).

Agricultural credit and its socioeconomic impact on the lives of the farmers has been a major policy issue in the arena of public policies especially in the underdeveloped and developing economies. In such economies, agriculture sector occupies a significant slice of the pie in Gross Domestic Value Added and employment (Konare, 2001).Credit is viewed to be essentially our concept. In process of borrowing money as farmers to obtain the economic power to carry out particularly course of action (E.L Baum et al, 2001; p23).

According to William claim(2007), agricultural credit is wider view of the context of prevailing food gain the reduction of poverty among the rural poor the view initiatives aimed at increasing the flow of investment for the agriculture production in the developing countries agricultural credit might be considered timely but the urgent concern.The provision of credit involves two parts lenders and borrower .It also invites caprice for each transfer or control over money which is the interest ratio charged by lender to borrower (Elias 2002). In the process of credit there are individual the one who lead the money the one who relieve the money. There is also certain amount of money charged by the lenders to the borrowers haste pay credit sum of money in favor of the person to who control over is transferred (Elias frank, 2002).

2.1.2 Source and type of credit in Ethiopia

The sources of rural credit can categorize by two forms; there are formal and Informal credit the formal sources financial initiation is to set up legal and engage in provision of credit and mobilization of saving. These institutions are regulated and controlled by national bank of Ethiopia (NBE). The informal credit is most important credit source in rural areas which the categorized as a commercial (those who lead the money on short term basis to obtain profit) and noncommercial that genera includes fields relative and neighbors informal sources also like cooperatives and nongovernmental organization (NGO) informal sources of credit pirates outside of the banking system and control of NBE (Bekele., 2005). According to World Bank of encyclopedia. There are three major types of credit these are; consumer credit, commercial credit and Investment credit.

1. Consumer credit: Enables consumer to spend more money than they have on that time
2. Commercial credit: Is used by company their business. They expect to pay loan from increase profit.
3. Investment credit: Investment credit is a loan paid back over period as long as 30 years or more these kinds loan are called long term credit.

In the credit market there are formal as well as informal financial institutions. The formal financial institution such as development bank of Ethiopia(DBE) commercial Bank of Ethiopia(CBA) and Ethiopia insurance corporation(ELC) and private financial institution have been coming on the urban financial market .The informal financial agencies consist of local money lenders merchants who charged increased managing from0.20 percent per year with no collateral requirement(Zane Limit Bank, 2007)

The rural credit is aciculate of agricultural development in order to produce more farmers just expand more mostly in such items as improved seed, fertilizers and implantation such as expenditure must be financed either out of saving or by borrowing for each period between the data when supplies and equipment must be purchased and the time when harvest can be sold (John Kenneth 2008).There is important government and development agencies to create mechanisms by which credit is available for low income group of rural farmer in order to eradicate poverty and hunger (Mulugeta, 2007).

2.1.3 The problem of rural credit

A. Inadequate in fracture; poor in fracture the rural areas is one of major problem of agricultural sector. Good numbers of rural household farmers is located for away from all whether road making transportation and destruction of input and collection as wells marketing of output difficult (Samson G/ Michael., 2008).

B. whether condition: Most of the farming and livestock rearing practice on the high land dependent on the amount of the rainfall This is due to the nature of the rained agriculture that is practiced in high land (Tegaggn G/egizbiher, 2005).

C. Backward technology rural agricultural and nonagricultural production systems are traditional with stagnant technology and characterized by low productive despite favorable nature condition. Thus major credit need in rural areas is not for acquiring new technology but consumption

D. Accessibility of bank: the commercial bank of Ethiopia (CBE) has been the major finance of input credit for small holders since, 2004

2.1.4 Fertilizer and agricultural output

Fertilizer is substance containing chemical elements that improve growth and productivity .It enhances the natural fertility of soil to replace the chemical elements taken from the soil by previous crop. The use of nature and composts are probable almost as old as agriculture currently modern chemical fertilizer such as dap and urea are used .The uses of modern inputs area among the key factor that determine yield the national food production among these inputs fertilizer has got priority for farming commodity, National fertilizers consumption has deliberately increased from time to time since the change in 2001(Befekadiu et.al, 2007).

2.1.5 Ethiopia Fertilizer Sub sector

Fertilizer was first introduced to Ethiopia and the freedom from hunger program of the FAO in late 1960 over three decades following the introduction of fertilizers to the country national use of fertilizer grow from 3500 tons to 140 tons in 205 and 550 tons end loans in 2010. It is expected that total amount of fertilizers available for application in Ethiopia in 2013. Cropping year will exceed one million tons (MOA, 2012).

2.1.6 The Role of Improved seeds

Improved seeds are on the ethical ingredients in the government extension program and interims of for high yield and productivity. The development of some of the high bred seriates of plans have brought about an important revaluation in agriculture hybrid verities of maize, wheat and tiff have gone a long way in solving the problem of world (Sodiumearl, 2006). In most LDC the use machinery in agriculture is limited in this case chemical and biological innovation such as improved seeds and fertilizer will have to be related upon to a great extent for improving crop in production (Son, 2009).

2.1.7 Source of Improved seed

The production and distribution of Improved seed use is under state control in previous government .The Ethiopia seed corporation(ESC) was the sole distributer of seed produce by itself or brought from state farmer eliminated its sales through agricultural input supply corporation(AISCO). Although the seed prices kept low demand for improved seed by the present sectors remained low parity because of the low quality of the seed and the chapter substitute the form of own seed sold from previous harvest. The corporation was restructured and remained as the Ethiopia seed enterprise(ESE) after liberation price was deregulated nd they were allowed to participate in production of Improved seed(Befekadu et al, 2009).

2.2Empirical Literature

There are different findings showing credit plays important role in agriculture across the globe. It was found that in Pakistan, agricultural credit support farmers to provide inputs requirements on time and obtained better crop production. Different agents are found to be source of credit for maize producers in this study area. The sources of financing in study area, about 24 percent of respondents taking credit from commercial banks, 23 percent from landlord, 22 percent from ZaraiTaraqiati Bank Limited (ZTBL), 15% of respondents taking credit from input dealers, 13 percent from professional lenders, while only 3 percent of respondents taking credit from relatives and friends. The same research shows that majority of the respondents 80 percent were getting productions credit i.e purchase of inputs etc, 8.33 percent were getting development credit i.e development of new business etc, 11.67 percent of respondent getting credit for other purposes i.e, household expenses (QuratUlAinMemon et al, 2016).

The Agricultural production based on use of inputs timely and properly, for usage of inputs the capital is very important so those farmers who do not have capital they could not use inputs timely. Here the agricultural credit plays a lot of role for purchase of inputs and use it is on time to get high agricultural production and revenue. Their study' results shows the total revenue of Agricultural credit borrowers was 76000 rupees while the non-borrowers agricultural revenue was 61750 rupees and the variable cost for agricultural credit borrowers was a little bit high then non borrowers as 41652 and 34342 rupees respectively it is because of availability of capital, some farmers borrowing agricultural credit and providing inputs on time and in proper way to get better production (QuratUlAinMemon et al, 2016).

Most of nation in sub –Saharan African have been shown a decline in per capital income that has led to increasing poverty. The incidence of poverty for Africa was about 47% in 1995 although incidence of poverty was expected to decline to 43% in 2000 the number of people below poverty line was expected to increase from 18% mill onto 265 million over this period (World development report, 2000). The decomposing analysis of agricultural sector is high light that account 60% of output in the value terms comes 7% from forest (FAO, 2002)

As per study of   done in Jema`a Local Government Area of Kaduna State, Nigeria, utilization of informal credit byfarmers in the study revealed that, acquiringinputs for maize production was

26.67%, 20% ofthe respondents use informal credit for paymentoflabour services, 13.33% of the respondentused informal credit for household consumption, 13.33% of the respondent also used informal credit for payment of school fees, 12% of the respondent used the credit for health bills and 8% of the respondents use it for transportation of products. It was found in the study area, that 28% of the respondent use money lenders as the source of their informal credit, 33.33% of the respondents use friends and relatives as their source of credit, 14.67% of the respondents acquire credit from traders in their area, 6.67% of the respondent acquire informal credit from shop keepers and 8% of the respondent acquire their informal credit from other sources such as pawn brokers, credit associations and self-help organizations, while 9.33% of the respondents did not use informal credit for their maize production. Thus, this study revealed friends and relatives to be the major source of informal credit in the area. (H. O. Yusuf et al, 2015).

The problem of rural poverty is develop agriculture closely linked with both macro and macro dimension at macro level the agricultural income the basic indicter of poverty is based on and labor productivity in farm and livestock activates employment opportunity available to rural house hoed etc… where at macro agricultural output is determined by various policy parameters such as price policy of agricultural commodities availabilities of human labor and their quantity land level technology and have all agricultural policy of government to tackle the challenge in poverty in Ethiopia in policy needs to be imitated both micro and macro linkage are extremely a crucial. The order to formulate and implement macro policy effectively there are urgent need in Ethiopia society in general agricultural economy in particularly (AntenehTemsegn, 2001)

Berhanu G. et al(2000) conducted study on small holders, Institutional service and commercial transformation in Ethiopia based on oils estimation method. There shows that the use of improved seed, fertilizers and household involved in the extension program literate household and access to credit are positively related with crop productivity distant plot from homestead are negatively related with crop production.

2.2.2 Fertilizer policy Initiate

Shortage of fertilizers as result of purchasing power unpredictable whether reduces farmers to be reluctant to apply fertilizers owning to this factor word banks studies have disclosed that only 22% the farmer was believed to have used fertilizers at the end of the 1980 .This rate is expected to increase around 25% indecent year during the past regime fertilizers price in Ethiopia had been understand of Ethiopia(TGE) following the new economic policy of TGE anew marketing strategy was designed with technical assistance of FAO in 2009.

2.2.3 Economic performance of credit in (1994-1995)

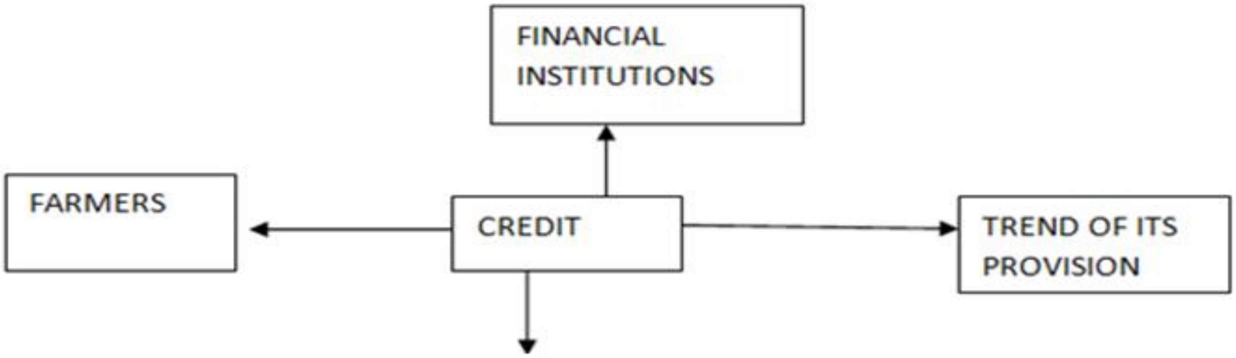
In 1994/1995 considerable progress was made to deepen the reforms intimating in 1992/1993 1994/95 and continuing through the1993-1995/1996 Real GDP 1994/95 is estimated to have growth by 5.6% signifying rapid acceleration from 1.3% registered in 1993/94.The good performance was largely due to the recovery on the agricultural sector. This estimated to have grown by 4.6% in 1994/95 as opposed to the 5.6% decline experienced in provision year because of poor rain insects, infestation and lower fertilizer usage (resulting from high price associated with 1992 devolution (CSA ,2008)

While food shortage was major problem in 1993/94 due to the effect of the as ever drought experienced in the country in 1994/95 saw a suitable improvement in food production an estimated 70.4/8000 quintals due to largely to good rain increasing average and more important on increased fertilizers usage(Economic report PFPs ,2007).

2.6 Conceptual framework

Conceptual framework is a written or visual presentation that "explains either graphically, or in narrative form, the main things to be studied like the key factors, concepts or variables and the presumed relationship among them"(Miles and Huberman, 1994). The study seeks to investigate role of credit in maize production. It also would identify trends of provision of credit and identify major factors that hinder farmers from credit utilization in KuyyuWoreda.

The frame work of the research is summarized as the following:



FACTORS AFFECTING MAIZE PRODUCTION

- ✓ Education
- ✓ Family size
- ✓ Farming experience
- ✓ Pesticide
- ✓ Farm size
- ✓ Access to credit
- ✓ Sex
- ✓ Marital status
- ✓ Fertilizer
- ✓ Improved seed

CHAPTER THREE

3. RESEARCH METHODOLY

3.1 Description of the Study Areas

3.1.1 Location

Kuyu(also known as **GebraGuracha** or **Robi)** is a town in central Ethiopia. Kuyu is one of the 12 districts of north showa zone of Oromia Regional State. It is located at 156 km to the north west of Finfinne along the way to Amhara region. Located in the North Showa, Zone of Oromia Region, it has a latitude and longitude of 9°48′N 38°24′E9°48′N 38°24′E and geographically it is located ataltitudinal range of 1200-2800m above sea level.HidhabuAbote, Degam and WaraJarso districts of the same zone border the district in north, east and west respectively. In south and southwest, the district is bordered by west showa zone of Oromia, Meta Robi.

3.1.2 Land Size and Climate

According to information collected from Office of the District Agriculture and Rural Development, the total area of the district is estimated to be about 97,705 hectares. It has about 23 rural villages and 2 town administrative villages.Agro-ecologically, the district is constituted by 10% lowland, 50% WoinaDega and 40% highland climates. The average annual rainfall of the district is within the range of 1600-1800mm per annum while its temperature ranges from 9 Degree Celsius in October, November and December to 23 Degree Celsius in April and May. Based on the data generated from GarbaGurachameteorological station, the annual average temperature (1995-2009) computed to be 15.5^{0}c.

The highest temperature occurs during the months just before the main rainy season, whereas the least temperature occurs in July, August and September. Most of the highland and part of middle range lands surfaces are mainly characterized by waterlog problems. Because of this, the topsoil fertility of the land is very low and therefore, its productivity is very poor and farmers in this area rare animals mostly.

3.1.3 Population and Social Structures

The total number of population of the district is currently estimated at 126546 of which about 63007 are male. Out of this total, some 23,481 (11,735 male) estimated to be urban dwellers (FDRE, Population Census Commission, 2008). In the rural area, population density is relatively higher in the highland areas than in the lowland. Consistently with this, land-holding size of households in the highland areas is smaller than the lowland households.

The majority of the inhabitants, around 92.57% of the population were Ethiopian Orthodox Christian, while 5.89% of the populations were Protestant, and 1.01% of the population practiced traditional beliefs (CSA, 2007).The largest ethnic group reported in Kuyu is Oromo (96.24%), while Amhara is (3.43%); and all other ethnic groups made up 0.33% of the population. Oromiffawas spoken as a first language by 96.41%, and 3.41% spoke Amharic; the remaining 0.18% spoke other languages.

3.1.4 Agriculture as a main stay of the economy in Kuyu district

Mixed agriculture is the main stay of the economy in Kuyu district. In this mixed agriculture, crop husbandry claims 71% of the total area of the district while animal husbandry claims only 19% where the rest work out of the two. According to this information and other indicators, although currently crop production seems relatively more significant due to wide scale of extension service and introduction of some new varieties of crops such as sesame, the importance of animal husbandry is also very much significant. More importantly, the potential of the district for animal husbandry is high as there are suitable conditions for animals. In addition to that the location of the district along the main line and its proximity to the main towns including Addis Ababa makes the district an ideal for animal marketing and marketing products of animals (Fekadu, 2006).

Beside of its great potential for animal husbandry, the district is also important for its crop production. Main crops produced in the district are cereals (teff, maize, sorghum, wheat, and barley), pulses (bean, pea, ground nuts, vetches and chickpea) and oil seeds (noog i.e. Guizotiaabyssinica, Sunflower and sesame) which can be very much important for food security, cash income and animal feed. Currently, almost all cereals and pulses are primarily produced for food need, except teff and sorghum are sold for a matter of necessity that households address their demanding financial needs they can’t cover with the sales of cash crops alone or from other sources. Farmers also produce different oil seeds widely in almost all parts of the district for cash purpose. However, the importance of these crops is very much limited for the farmers due to different reasons like low level of productivity caused by lack of effort to improve its cultivation system and productivity (Fekadu, 2006).

3.2 Data Sources and types

In this study both primary and secondary data were used to get adequate information about the role of agricultural credit in production of maize in the study area. The farmers would were used as primary sources and secondary sources like journals, books and agricultural office of the district have been used as secondary sources.

3.3 Data Collection Techniques

In this study, primary data were collected from farmers using key informants via application of interview and questionnaire. One set of questionnaire containing both open-ended and close-ended types would be designed and administered to the samples. Questionnaire was prepared in English, but it has been translated orally into Oromiffaa, to make more understandable for respondents. The secondary data were gathered from reading files, office manuals, books, journals, published theses, websites and reports to make the study fruitful.

3.4 Sampling Techniques and Frame

Both probability and non-probability sampling design were used to get information about the larger population of study. From non- probability, purposive sampling was used to conduct interview with to collect information from financial institutions of the district. In the case of probability sampling, simple random sampling was employed when to gather information from farmers of study area.Kuyu district has 23 rural kebeles and 2 town administrative villages. Agriculture is practiced by farmers as usual life of rural farmers. The study has purposively (using purposive sampling) used the three villages of the district.

3.5. Sample Size

There are 1086 households producing maize from 3 kebele in district Dawwichakerensa accounts for 348 household, Halelucheri accounts for 376 households and WuyeGose accounts for 362 household. Determination of sample size was resolved by means of Yamane's sampling formula with 90% confidence level:

$$n = \frac{N}{1+N(e)^2}$$

Where n=total sample size

N= total number of household population

e= error, which is 0.1 in case of this proposal

Taking the total population of youth 1086, the sample is determined as follow:

Table 1: Sampling Respondents from each Kebelewereas follow:

Kebeles	Population	Total population in sample	Proportion
Dawichakerensa	348	348/1086*91=29.2	32.04%
Halelucheri	376	376/1086*91=31.50	34.6%
WuyeGose	362	362/1087*91=30.33	33.33%
Total	1086	91	100%

$$\text{Where,} \quad \text{Proportion} = \frac{\text{population in kebele n}}{\text{population in both kebeles}} * 100\%$$

$$\text{sample in kebele n} = \frac{\text{proportion of kebele n} * \text{total sample}}{100}$$

3.6 Procedure of Data Collection

In the outset, face to face contact with leaders of targeted village was done to have their cooperation in journey of data collection. Next, the researcher has obtained general information regarding role of credit in maize production. Questionnaire was distributed to sample respondents randomly to farmers living in three kebeles.

3.7 Data Analysis and Presentation

The descriptive statistics such as percentage and frequency of distributions were used to analyze data obtained through close-ended questionnaire regarding role of credit in maize production and characteristics of respondents. This was appropriate for the study, since descriptive statistics helps in description, analysis and interpretation of the situations the way they are at the time of study. Finally, the collected data was organized, edited and analyzed using SPSS-20 software.

3.8 Method of data analysis

The study had used both descriptive and econometric analysis. Percentage and frequency were used to analyze the socio economic characteristics of farmers and other role of agricultural credit in productivity of maize.

3.8.1 Model specification and Estimation Technique

The method or data used to measure the functional relationship between a quantities dependent variable and one or more independent variable will be regression analysis. A linear regression equation of the dependent variable is y and x independent variable x1,x2,x3……………xi given by:

$$\gamma i = \beta 0 + \beta 1 IS + \beta 2 E + \beta 3 FS + \beta 4 FE + \beta 5 P + \beta 6 AC + \beta 7 FS1 + \beta 8 FER + \beta 9 SEX + \beta 10 MS + \mu i$$

Where

Y=maize production which is dependent variable, Bo= intercept and the Independent variables are; IS (Improved seed), E (Education),-FS (family size),-FE (farm experience) ,-P (pesticide),,-FS1 (farm size),-μi = is the value of Y when all independent variables assume zero value (variables that affect maize production which is ignored by the researcher at the study in the case climate and whether condition.

Model Estimation

The ordinary least square model

Theatrically there are various econometrics method (estimator) with which we may obtain numerical value of estimates of parameters such as ordinary least square (OLS), maximum livelihood and method of moments and so on among the methods we will choice ordinary least square (OLS) to estimate our model. It is the most commonly used estimator in econometrics analysis. Because OLS has some optimal properties than other potential estimators When OLS is used to estimate idea with Qualitative variable the resulting model is linear. That means the dependent variable have linear relationship .Because of this case we can apply ordinary least square (OLS)

The assumption under OLS is the coefficients of the linear regression model are estimated under the assumption that the random term assumes normal distribution with zero mean and constant variance. The values of random term are also assumed to be independent. P- Value and tests whether each independent t variable is statically significant

3.9 Definition of variables

The study identified the dependent variable which can be affected by independent variable. The dependent variable is maize production while independent variables are improved seeds, education, family size, farm experience, pesticide, access to credit, farm size, fertilizer, sex, and marital status.

Improved seed: Improved seed was expected to affect maize production positively since it is assume that the more farmers used improved seed more improve their maize production. **Education**: education status was expected to affect maize production positively since it is assume that the more the farmers are literate the more they adopt technology in maize production. It will be measured in years.

Family size: This was also expected to affect maize production positively .Because the more family size the household has the more will be labor for the farmer which could increase maize production provides that it holds true up to return to scale.

Farming experience: this variable was expected to correlate positively with maize production because the longer the households are maize production the more will be production they are assume to have awareness on production system. It was measured in years.

Pesticide: was expected to correlate positively with maize production his is because the more pesticide in due production of maize the lesser pest or the higher pest and weed control which contributes to higher maize production. This also works up to the concept of return to scale. **Farm size**: It was expected to affect maize production positively since the more land holing size is the more will be the maize production It was measured in hectare.

Fertilizer: As more Kg of fertilizer applied the more will be soil fertility which directly contributes to maize production. This variable was taken as dummy and was expected to affect maize production positively.

Access to credit: this variable was expected to affect maize yield positively because the more access to credit it was assumed as the easier to afford inputs on time which contributes to higher maize production. It was treated as dummy variable.

Sex: was expected to affect maize production positively because the more participation in both male and female is more the maize production. It was treated as dummy variable.

Marital status: It was expected to affect maize production both positively and negatively because positively both wife and husband participant more maize production. It was treated as categorical variable.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1Results of Descriptive Analysis

This method of data analysis refer to the use of mean, frequency, percentage, in the process of examining and describing respondents characteristics through given explanatory variables.

4.1.1 Socio-demographic characteristics of respondents

Sex is the most fundamental characteristics of a population which can reflect population dynamics and ratio of men and women in the given area (URT, 2002). In this study it was found that that 36.3% were female where as 63.5% were male in the study area. This implies that more male are leading household in maize production than female (table below).

Table 2: sex of house hold

	Frequency	Percent
Female	33	36.3
Male	58	63.7
Total	91	100.0

Source: Own survey, 2019

When marital status of farmers is concerned, it has been found by the study that 9.9% of respondents were single, 58.2% were married 15.4% were widowed, and 16.5% were divorced. These is an implication of that more than half of the respondents surveyed while the study in the area were married implying that maize is playing great role in family as food and source of income (Table below). Table 3; marital status of house hold

	Frequency	Percent
Single	9	9.9
Divorce	15	16.5
Widowed	14	15.4
Married	53	58.2
Total	91	100.0

Source: Own survey, 2019

As religion of respondents is concerned, it was found that 49.5% were followers of Orthodox, 36.3% are protestant, and 14.3% were wakefata (table below).
Table 4 : religion of house hold

	Frequency	Percent
Orthodox	45	49.5
Protestant	33	36.3
Wakefana	13	14.3
Total	91	100.0

Source: Own survey, 2019

The level of education is also believed to influence farmers' participation in agribusiness. It was found that 23.1% of respondents were illiterate; implying that is bad achievement in education. It is also found that 76.9% of respondents were literate, that they can read and write implying good work was done by respective body (Table below).

Table 5 :Education status of household head

	Frequency	Percent
Illiterate	21	23.1
Literate	70	76.9
Total	91	100.0

Source: Own survey, 2019

In production of maize it is clear that type of seed either being local of improved affects the total yield from production of maize. Accordingly, 29.7% of respondents were using local seed and the rest, 70.3% of population under study used improved seed type. Over all it shows that input supply looks like good which is done by concerning body (table below).

Table 6:improved seed

	Frequency	Percent
local seed	27	29.7
improved seed	64	70.3
Total	91	100.0

Source: Own survey, 2019

Access of credit is potential source for farmers to undertake agribusiness anywhere in the world. It is productive resource vital for efficient and sustainable production activities especially in developing countries. Farm credit is among the essential factors needed for agricultural production, and with it, farmers can secure farm inputs such as; farm equipments and hired labor (Odoh, *et al*., 2009). The result of survey in this study showed only 70.3% of sample respondents took credit before from any source in which Oromia credit and saving institution, relatives, friends & money lenders were source of money mostly in cash form for maize producers whereas 29.7% of respondents have not taken any credit before. This shows some of respondents knew importance of credit that they are using for agriculture.

Table 7 accses to credit

		Frequency	Percent
Credit access	Yes	64	70.3
	No	27	29.7
	Total	**91**	**100.0**

Source: Own survey, 2019

For agriculture, especially crop production needs different inputs, one can state how much fertilizer is so important in improving maize yield. As application of fertilizer is concerned it was found that 34.1% of respondents were not using fertilizer and 65.9% were using fertilizer (table below). This shows some didn't get chance to use fertilizer and others know its importance. Generally it needs to be paid attention so that farmers have to get extension service for how to apply fertilizer and its importance.

Table 8 fertilizer

	Frequency	Percent
No	31	34.1
Yes	60	65.9
Total	91	100.0

Source: Own survey, 2019

Descriptive Statistics of continuous variables

Under this survey, it was found that per one house hold there were 12 family members and 10 active members at maximum level. Contrary there was only couple of family members and active family member per one household. When maize yield is concerned, it was found that farmers produced 24 quintals of maize per last year on maximum and 8 on minimum. With number Oxen is treated as one among many explanatory variables, it was found that there was one ox at minimum and 5 at maximum at hand of population under study(table below).

Table 9 family size

	N	Minimum	Maximum	Mean
Family size	91	2.00	12.00	7.6484
Number of active members	91	2.00	10.00	5.6264
Amount of maize yield in quintal	91	8.00	24.00	14.5495
Land size	91	0.50	6.00	3.25
Farming experience in year	91	3.00	18.00	8.9121

Source: Own survey, 2019

It is scientific to say life in agriculture is impossible without land. Accordingly it was taken as explanatory variable for which households have 3.25 hectare on average. It was found through the study there were households with a half hectare of land at minimum level and five hectare of land at maximum. This indicates existence land shortage where population is growing very fast (table above).

4.2 Role of credit in production of maize

It is believed that credit access plays great role in agricultural production. As credit is essential input for agriculture, it enhances crop production like maize. According to this research, it was found that 36.26% of respondents have taken credit from any source of financial institutions. This result shows about 33 of household heads have used credit service for production of maize. This is how much credit service has played role in maize production and improving yield of its production (see table below).

Table 10Maize production * Access to Credit Cross tabulation

		Access to Credit		Total
		Yes	No	
Maize production	No	31	14	45
	Yes	33	13	46
Total		64	27	91

4.3. Major factors that hinder farmers from credit utilization

There are so many factors hindering farmers from credit utilization. This is critical issue especially in developing countries. It has been assessed through the study that many factors found in hindering maize producers in the study area obtained data from survey, Kuyu district from using credit for agricultural purpose. Among these the most prominent were: lack of collateral, dishonesty of some farmers, high cost of credit, lack of perfect information or awareness on credit utilization and failure to pay back the credit for some cases people use credit for consumption rather than for buying inputs.

Table 11 factors that hinder farmers from credit utilization

Factors hinder farmers from credit utilization	Frequency	Percentage
Lack of collateral	25	27.47
dishonesty of some farmers	17	18.47
high cost of credit	27	29.67
lack of perfect information	5	5.43
failure to pay back the credit	17	18.47
Total	91	100

Source: Own computation (2019)

According to above table 4.3 The result imply that the factor hinder farmers from credit utilization such as lack of collateral, dishonesty of some farmers, high cost of credit, lack of perfect information or awareness on credit utilization and failure to pay back the credit. Among this factors high cost of credit highly affect farmer from credit utilization it percentage is 29.67% that is greater than all other factors.

4.4. provision of credit in Kuyu Woreda

The financial service sector in Ethiopia is composed of formal, semi-formal and informal sectors. The formal sector comprises diverse range of financial institutions such as commercial banks, insurance companies and microfinance institutions that are regulated and licensed by the National Bank of Ethiopia (NBE). However, the semi-formal and informal sector mainly comprises of financial institutions like saving and credit cooperatives, and iqquband iddir, respectively. These institutions play a central role within the financial sector in providing liquidity for payment services and facilitating financial transactions of various entities. Accordingly it is found that, in the study area mainly Oromia credit and saving is providing credit services for farmers. According to survey gathered from workers in Oromia credit and saving institution, the provision of credit service is increasing time to time. In the same time, number of customers is also increasing rapidly targeting mainly farmers and other business men. Targeting farmers, the company is working to assist farmers in agricultural activities. It is expected that with credit provided to farmers, farmers purchase agricultural inputs that increase productivity of agriculture. With credit provided, farmers but different inputs like seed, fertilizer, herbicides and even rent for land. It has been identified that to take credit there must be some collateral so that is ensures the back payment of loan. It is also identified that the lending institutions provide special treatment for farmers with like low interest rates. Despite these, it is found that farmers fail to pay back the loan. These failures happen due to many factors affecting loan back payment. The challenges are sourced from using the loan not for what was intended but like for home consumption and low production in agricultural outputs. The failures in agriculture happen in the district some times. Drought and water log are among challenges leading agriculture to low yield capacity.

Table 12: provision of credit in KuyuWoreda

provision of credit in KuyuWoreda	Frequency	Percentage
commercial banks	15	16.48
insurance companies	11	12.08
microfinance institutions	29	31.86
Saving and credit cooperative	21	23.07

Ikub	5	5.49
Iddir	10	10.98
Total	91	100

Source: Own computation (2019)

According to above table 4.3 The result imply that theprovision of credit in KuyuWoreda such as commercial banks,insurance companies,microfinance institutions,Saving and credit cooperative,Ikub and Iddir.Among this microfinance institutions provide the highest credit in kuyuwereda its percentage 31.86% and ikub provide the lowest credit from this provision of credit shares 5.49% only.

4.5Econometric Analysis Result

The results of empirical estimation of linear regression model showing the coefficients, significance levels and R-Square are presented in table below.

Fitness of the Model: From multiple regression result it is found that the value of R Square for the model is 65.65; meaning the explanatory variables included in the model jointly explain the production of maize. An R-square of 65.65implies that all the explanatory variables included in the model were able to explain about 65.65% of the variations in the dependent variable. This shows the model is fit.

Test for Multicollinearity problem: Regarding multicollinearity, the test shows that the data used was free of multicollinearity problem since variances of inflations for all variables were found to be all are less than two where for **VIF <10** it is possible to say there is no problem of multicollinearity (**Appendix 1**).

```
. vif
```

Variable	VIF	1/VIF
Mars	3.11	0.321392
FS	3.06	0.326336
FA	2.09	0.479240
is	1.92	0.521609
ac	1.38	0.723636
PS	1.30	0.770065
ms	1.24	0.803706
FE	1.21	0.823174
s	1.11	0.902220
FER	1.08	0.928793
Mean VIF	1.75	

Test for heteroskedasticity: To check presence of heteroskedasticity problem, Breusch-Pagan test was used in the analysis of data for this research. Accordingly, it is found that data is free of the problem hence the test found significant at "Prob>chi2 = 0.0299< 0.05% of significance level". Therefore, there is heteroskedasticity problem.

```
. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of mp

         chi2(1)      =     4.71
         Prob > chi2  =   0.0299
```

Normality Test: For the best model assumes that the random variable has normally distributed, to prove that data is also run to see really it is normal.Skewness/Kurtosis tests for Normality were adopted to test the data. Accordingly, the data is found normally distributed since it is found not significant at >0.05% (See Skewness/Kurtosis tests for Normality from Appendix 1).

```
predict resid, residual

swilk resid
```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
resid	91	0.98543	1.112	0.235	0.40706

Regression result

Ten variables were included in to the regression analysis of the study; four variables become significant at 5% significance levels

Farm sizewith significance value of .0000 and Coefficient of 2.46 shows that as increase by one hectare, then maize production increases by 2.46 quintal. As access to credit increase by one hectare then maize production increases by 2.86 quintals with 5% significance level. With use pesticide, the production of maize increases by 3.03 quintals keeping other variables constant. Sex of household head was also significant at 5% significance level; showing that there is significant difference among male and female in maize production.

Dependent Variable: Maize production in quintal

p

```
. reg  mp  FE  FER FA ac s ms is PS FS  Mars , robust

Linear regression                                      Number of obs =      91
                                                       F( 10,    80) =   30.17
                                                       Prob > F      =  0.0000
                                                       R-squared     =  0.6565
                                                       Root MSE      =  3.1876
```

mp	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
FE	-.4108444	.8035343	-0.51	0.611	-2.009929	1.18824
FER	.2624199	.7586883	0.35	0.730	-1.247418	1.772258
FA	2.466472	.375043	6.58	0.000	1.720112	3.212831
ac	2.86249	.8521539	3.36	0.001	1.166649	4.55833
s	-.2356038	.8477937	-0.28	0.782	-1.922767	1.451559
ms	-.2255517	.4170547	-0.54	0.590	-1.055517	.6044137
is	.5906843	1.085166	0.54	0.588	-1.568865	2.750234
PS	.3037947	.1313085	2.31	0.023	.0424824	.565107
FS	-2.064265	1.170354	-1.76	0.082	-4.393344	.2648148
Mars	.5336208	.4608498	1.16	0.250	-.3834995	1.450741
_cons	5.462244	6.937535	0.79	0.433	-8.34389	19.26838

Source: Own regression, stata 13 (2019)

CHAPTER FIVE:

CONCLUSION AND RECOMENDATION

5. 1CONCLUSION

Agriculture is the largest sector in the Ethiopian economy approximately employing 85% of the country's population (World Bank, 2012). From other researchers also there is evidence that from labor forces working in agriculture of Ethiopia, about 50% were youth people (Maïga et. al., 2015).Despite the importance of agriculture in Ethiopian economy, the development of Ethiopian agriculture was given less attention especially, to smallholder's agriculture until 1990s. The constraints of maize production in Ethiopia include both biotic (weeds, plants, pathogens, wild animals) and biotic factors (drought, flood, nutrients, soil type, weed infestation is supreme importance among biotic factors that are responsible for low maize grains yield (Amare et.al .2013).

Producers take lower risk, low output option given the risks and certainty of credit market and technology, information gap literacy diversion of other related problems are present in the Ethiopia. This is a case of rural poor farmers to be trapped in vicious circle of low income, low saving, low capital formation, low agriculture productivity. This in turn leads to fail to purchase better seed, fertilizer, farm animal and tools to adopt new technology and this lead to low investment in Ethiopia.

There different factors affecting maize production, which was the main intention of this study. Ten variables were included in to the regression analysis of the study; three variables become significant at 5% significance levels.

As Land size increase by one hectare then maize production increases by 2.46 quintals with 5% significance level. Now days, no one can expand land size, but there is duty of all bodies to take care of land uses. With use of pesticide, the production of maize increases by 2.86 quintals keeping other variables constant. Access to credit was also significant at 5% significance level; showing that a unit increases to credit farmers maize production increase by 3.03 quintals keeping other variables constant.

5. 2 RECOMMENDATION

Based on the result of the study, the following policy implications are drawn by the researcher as follows:

1. As credit is playing great role in maize production, it has to be given attention in expanding credit services for the community.
2. As there are so many factors hindering farmers from credit utilization, government should create environment that enables farmers to utilize credit according to the intention. Therefore the government better to do expand the farmer training center and which provide know how to the farmers about the role of inputs and how to use them in a best way.
3. Governmental and non- governmental organizations try to focus more on promoting the use of modern inputs and should provide these inputs in appropriate manner.
4. Government and local administrators should further provide extension service that enables producers to produce more products from small plot of land in addition with providing different inputs.
5. Government should provide further family planning and create variety of businesses so that agriculture shall not get busy in employing large people
6. Farmers better to developed the habits of use of inputs and increase their efficiency in order to expand crop production.
7. More numbers of technologies such as improved seeds, fertilizer, credit service etc. better to develop and disseminated to farmers at required amount and at right time to develop the agricultural sector.
8. For it must not be significance difference among female and male farmers, government should support females so they can be independent in running agribusinesses.

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Appendix 1: Questionnaire

Introduction:

My name is Aster Solomon. I am student of Economics at Wolkittie University carrying out a research on role of agricultural input credit on productivity of maize in KuyuWoreda.; The Case of Kuyu District, North Shewa Zone of Oromia Regional State. You have been identified as respondent and you are kindly requested to assist in providing the information by filling in the questionnaire in a very honest way as far as possible. The information you provide is for academic purpose and will be treated with high confidentiality.

Thank You!!

General Direction:

a. For questions which have choices in numeric, cross over the number of your responses
b. For those questions which do not have choices write your response in the space provided

1. Sex: Male=1, Female=0

2. Marital status: Single=1, Married=2, Widowed=3, Divorced =4

3. Age (years) ____

4. Religion? 1= orthodox, 2= protestants, 3=Muslim, 4= waaqeffannaa, 5= others

5. Family size? ____

6. Your academic qualification in grade? 0= illiterate , 1= literate

7. Kebele? (Tick over number indicating your kebele)

1= DawichaKerensa, 2=Halelu Cheri, 3=WuyeGose

8. Have you taken agricultural credit before to produce maize?

Yes=1, no=0

9. If yes, from whom you have taken?_________________
10. How much many have you taken last year? _______________
11. What are challenges in credit utilization?
____
____
____

10. How many are members of your family?_________

12. How many are active in work? ________________

12. What type of maize seed did you use?

1=improved, 0=local

13. If improved, how you got it? 1= by purchasing, 2= taking as credit 3= by donation

14. Did you use fertilizer? 1= yes, 0= no

15. If yes, how did you get it? 1= in buying, 2= by taking credit 3= by donation

16. Do you produce maize? 1= yes, 0= no

17. If yes, how much did you produce last year? _______________quintals

18. For how many years you have been farming ?_______________________

18. Do you have oxen? Yes=1, no=0

19. If yes, how many are you oxen? ______________

20. What kind of practice did you use in maize production? 1= mechanical, 0=manual

21. Did you use pesticides? 0= no, 1= yes

22. D o you have land? Yes=1, no=0

23. If yes, how many hectare or timad?___________________________

Trends of credit provision

1. Name of body in position;______________________________
2. Role ____
3. Do you provide credit service? Yes=1, No=0
4. If yes, to whom do you give the loan services?

   ____
5. Is your credit free of interest? Yes=1, No=0
6. If No, What is the rate of interest to which you provide the service?

   ____
7. Is your capital increasing or not? ____
8. Is number of customers increasing or not?____________________________________
9. What are requirements that borrowers have to fulfill to get credit from your institution?

   ____

   ____
10. Do farmers take credit? Yes=1, No=0
11. If yes, do they have special treatment from you? Yes=1, no=0
12. If yes, what types of treatments?

    ____

    ____

    ____