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Smallholder Farmers' Perceptions towards Agricultural Credit in Tanzania

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Agricultural sector plays a pivotal role in the Tanzanian economy in such a way that it qualifies as the major trigger of sustainable and robust growth of the country's economy. Though agriculture in Tanzania is largely under small scale, smallholder farmers earn little income and therefore demand credit necessary to initiate farming and adopt new technology. Hence, demand for agricultural credit is the willingness and ability of farmers to access existing sources of funds to meet farm investment needs. This study therefore aimed at assessing the smallholder farmers' perceptions towards agricultural credit in Morogoro municipality, Tanzania. Rational choice theory was used in this study and given priority due to its importance in explaining the access of financial services as attributes of the individual heavily influence credit demand by smallholder farmers. A multi-stage sampling technique involving purposive sampling of 10 wards out of 29 wards based on their potential in crop production and presence of credit services was adopted, followed by a simple random sample of 300 smallholder farmers randomly chosen from the selected wards. The primary data were collected using questionnaire, interviews, Focus Group Discussion (FGD) and observation from the 300 sampled farm households in the study area while secondary data were obtained through documentary book reviews, ward office reports, online internet materials and journal articles. Findings show that, smallholder farmers' attitude towards risk associated with agricultural credit were highly perceived by the majority of them. Also, results showed that inaccessibility of credit

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information, lack of education, bureaucratic procedures (i.e., lending procedures) and high repayment rate i.e., price of loan were perceived to be the main challenges that affected smallholder farmers' decisions to demand and access agricultural credit from MFIs (Microfinance Institutions). Therefore, the perception of smallholder farmers that the application procedures are cumbersome and take a long time for the applicant to get a feedback, is having a negative influence on the probability of their demand for credit from MFIs. The study recommends education provision to smallholder farmers on agricultural credit use and improved market information systems. Also, credit institution should ensure effective provision of information on agricultural credit to boost their credit services to smallholder farmers.

Keywords: Smallholder farmers; perception; agricultural credit.

1. INTRODUCTION

Agriculture is the backbone of the economy in the United Republic of Tanzania. In Tanzania, agriculture employs 75% of workers, contributes a share of 24.1% of GDP, 30% of export earnings, and 65% of raw materials for industries [1]. Our agriculture depends on smallholder farmers who cultivate between 0.2 and 2.0 ha per year, mainly for subsistence with little surpluses which can be sold to raise money for buying other requirements for the family [2]. Mostly, these smallholder farmers are characterized by low level of capital equipment, low use of appropriate technology, and poor use of agro-inputs like fertilizer, improved seeds, and agrochemicals which lead to low agricultural productivity and remain the major problem that they find difficult to solve. Credit is seen as a solution to the problem. Credit is necessary for smallholder farmers to increase their agricultural productivity and farm income [3]. Credit is a major component of agricultural production and access to it ensures increased output and food security. In developing countries, lack of it constitutes a critical constraint to the adoption and use of improved inputs and modern technologies of farming [4].

Agricultural credit accelerates agricultural modernization and facilitates agricultural production and economic growth provided the capital is used efficiently. It also creates and maintains adequate flow of inputs thus increasing efficiency in farm production [5]. Rural development and, in particular, farm productivity, can be influenced by several factors including access to credit [6]. Demand for agricultural credit is the willingness and ability of farmers to access existing sources of funds to meet farm investment needs. Financing of agricultural production, especially through the provision of credit to smallholder farmers, remains the key to macroeconomic development induced by agriculture [7]. Therefore, credit is critical to agricultural finance, in purchasing inputs such as seeds, fertilizer, pesticides and other chemicals, acquisition of agricultural equipment or stools, and/or to cover ongoing operational costs prior to harvest time. Modernizing agriculture requires large infusion of credit to finance the use of purchased inputs such as fertilizers, improved seeds varieties, herbicides, insecticides, animal feeds, and additional labor among others. In this regard, the provision of agricultural credit can be a powerful economic tool for development, if used to inject appropriate capital for the purchase of agricultural inputs that are not otherwise available to farmers from their own financial, physical and labor resources.

In the quest for the assessment of the agricultural credit as an instrument of rural development in Tanzania, Masawe [8] found that the credit program was not performing to the expected level due to lack of supportive system to the credit program. Also, [9,10] observed that greater number of smallholder farmers is unable to access the credit due to required credit conditions and securities. Therefore, this study will dwell on the smallholder farmers' perception towards agricultural credit and the findings will assist in policy formulation by the credit providing institutions.

1.1 The Theoretical and Analytical Framework

This study used Rational Choice Theory (RCT) which was developed by the first economist Adam Smith on the ideas of rational choice theory through his studies of self-interest and the invisible hand theory. Adam Smith discusses the invisible hand theory in his book "An Inquiry into the Nature and Causes of the Wealth of Nations", published in 1776. Smallholder farmers' decision-making process can be explained by rational choice theory. Also, RCT is an umbrella term for

a variety of models explaining social phenomena as outcomes of individual action that can in some way be construed as rational. Rational Choice Theory is an approach used by social scientists to understand human behavior [11]. The rational choice theory is propounded by neo-classical economists but recently it is widely spread beyond conventional economic issues and used in other disciplines such as Sociology, Political Science, and Anthropology. The theory, generally, starts with the consideration of the choice behavior of the individual farmers making the decision. The proponents of the rational choice theory believe that the individual making the decision is a representative of a group in a financial market, such as farmers.

The approach of the rational choice theory is based on the fundamental principle that the choice made by individual are the best choice to help him/her to achieve their objectives in the light of all the uncontrollable factors [12]. Also, rational choice theory begins with the consideration of the choice behavior of individual decision-making units which in basic economics are most often consumers and/or a firm but in this case, we consider the smallholder farmers. Rational Choice Theory also known as Choice Theory or Rational Action Theory. It is a framework for understanding and often formally modeling social and economic behavior. The basic premise of rational choice theory is that aggregate social behavior results from the behaviors of individual actors such as smallholder farmers in this case, each of whom is making their individual decisions. The analysis of rational choice theory of demand for financial services generally involves or describes farmer's desire or willingness to demand credit for farm operations. The theory takes in the nature of services provided by the financial institutions and the conditions under which the services are provided. The individuals (farmers in this case) face the problem of choice among services provided by the financial institutions. Researchers then selected this theory in assessing smallholder farmers' perception towards agricultural credit because it focuses on the determination of the individual's choices (methodological individualism).

Rational choice theory in this case assumes that smallholder farmers have preferences among the available choice alternatives that allow them to state which option they prefer. These preferences are assumed to be complete and transitive (i.e., if a farmer prefers A to B and B to C, then he/she necessarily prefers A to C. If he/she is indifferent between A and B, and indifferent between B and C, then he/she is necessarily indifferent between A and C). The rational agent is assumed to take account of available information, probabilities of events, and potential costs and benefits in determining preferences, and to act consistently in choosing the self-determined best choice of action. The theory dictates that every individual, even when carrying out the most mundane of tasks, perform their own personal cost and benefit analysis in order to determine whether the action is worth perusing for the best possible outcome. Therefore, this approach takes preferences as primitive and views them as determining choices.

The rational choice theory uses utility function as a mathematical function that assigns a numerical value to each of the possible alternatives the smallholder farmer faces in decision making. Usually, Rational Choice Theory presents the preferences of individuals (smallholder farmers in this case) with a utility function [13]. The use of utility functions means the idea of smallholder farmers making the preferred choice from among the alternative that is translated into mathematical exercise in constrained optimization. That's to say the smallholder farmer is assumed to make the feasible choice that results in the highest possible value of his or her utility function. Constrained optimization methods are well developed in mathematics [14]. The rational choice theory states that individuals use rational calculations to make choices and achieve outcomes that are aligned with their own personal objectives. Therefore, using rational choice theory is expected to result in outcomes that provide smallholder farmers with the greatest benefit and satisfaction given the choices they have available basing on best and self-interest.

$$U = f(x, y)$$

Whereby; the function $U = f(x, y)$ is a general function i.e., a shorthand way of saying that the variable U depends on the variables x and y without describing the precise nature of that dependence. Therefore, the demand for agricultural credit (financial services) by smallholder farmers in this case is a function of the service characteristics, the attributes of the financial institution (services providers) and decision-making unit.

Researchers used rational choice theory in this study despite of its criticism because it is a good

basis in explaining how smallholder farmer's economic decisions are affected by their attributes. Therefore, the theory has been adopted in this study due to its importance in explaining the access of financial services as attributes of the individual are taken to be explanatory variables that influence credit demand by smallholder farmers. Also, the rational choice theory is the foundation to the development of the bounded rational choice. The theory of bounded rational choice was developed by Herbert A. Simon who was the self-proclaimed and proclaimed prophet of bounded rationality [15-17]. The theory of bounded rational choice proposed that individuals are limited to some information meaning that they are not always able to obtain all information of the issues they would need to make the best possible decision.

2. RESEARCH METHODOLOGY

This section presents systematically the research methodology and research techniques used in this study that includes; research design, the description of study area, the study population, sample size and sampling techniques, types and source of data, the data collection methods and data analysis. Since, it is an expertise of studying how research is done scientifically, this section dwells on various research designs adopted by researchers in studying the research problem along with the logic behind them and highlighting their main characteristics. Moreover, it aimed at providing an explicit rendering of the structure, order and broad patterns found among a group of participants [18].

2.1 Research Design

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure [19]. It is the conceptual practices and structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data or research design is a blueprint used to guide a research study towards its objectives. It is a detailed plan of work to be done to achieve the research objectives [21].

This study employed a cross-sectional design based on both qualitative and quantitative approach. Cross sectional study design was used in this study due to the fact that, it is the only design which is best suited to studies aiming at finding out the prevalence of a problem or phenomena. Also, it facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible yielding maximal information with minimal expenditure of effort, time and money [19]. Data were collected from all stake holders in agriculture farming and rural financing sector based on mixed or triangulation method. Quantitative research utilized certain measurement techniques while the qualitative research employed observation techniques that are interviews [20]. This is because no single method of data collection is perfect in itself.

2.2 Description of the Study Area

The study was conducted in Morogoro Municipality. Morogoro Region occupies a total of 72,939 square kilometers which is approximately 8.2% of the total area of Tanzania mainland. It is the third largest region in the country after Tabora and Rukwa Regions. Morogoro region covers an extensive area well-endowed with fertile land, numerous water sources (Ngerengere River, Ruaha, Wami, Morogoro River, Mindu Dam, Kilakala River, Melela River, Kilombero River etc.), irrigable areas and a low population density. All these factors put together make the region very much attractive for agricultural investment. Total arable land is estimated to be about 5,885,800 Ha, of which 1,177,500 Ha are under agricultural production [2]. Demographically, the total estimated population of Morogoro municipality was 315,866 people whereby 151,700 were male and 164,166 were female [21]. Population density was 31 persons per square kilometer [21]. Morogoro municipality is located in the eastern part of Tanzania, 196 kilometers (122 miles) west of Dar es Salaam, the largest and commercial city in the country and 260 kilometers (160 mi) east of Dodoma, the country's capital city. Its geographical coordinates are 6° 49' 0" South, 37° 40' 0" East. The social-economic activities in Morogoro municipality are agriculture, tourism, forestry, wildlife and forestry, industry. However, Agriculture is the major economic activity in the Morogoro Region [2,22]. Morogoro lies at the base of the Uluguru Mountains and it is a Centre of agriculture in the region. Also, Morogoro municipality has a total number of 7766 smallholder farmers in 20 different wards [23].

2.3 Population of the Study

Population refers to the total of items about which information is desired [19]. The targeted population in this study was all smallholder

farmers in Morogoro municipality. The target population for this research is defined to include all smallholder farmers, credit providers and agricultural extensions services providers in the study areas. Morogoro municipality has a total number of 7766 smallholder farmers in 20 different wards [23]. Table 1 presents a record of the number of smallholder farmers in 10 selected wards in this study. Indeed the 10 selected wards have a total number of 4670 smallholder farmers.

Table 1. The distribution of the total population in the study area

S/No.	Ward	No. of smallholder farmers
1	Bigwa	939
2	Mindu	776
3	Kingolwira	601
4	Tungi	425
5	Mzinga	402
6	Kichangani	259
7	Mafisa	133
8	Mazimbu	168
9	Chamwino	451
10	Mkundi	516
Total		**4,670**

Source: Computed by the researchers, 2020

2.4 Sample Size and Sampling technique

2.4.1 Sample size

In some instances, a population may be big enough that it may entail selection of a representative sample, as it will be applied in this study. A sample size in this study is, therefore, made of a group of selected smallholder farmers, credit Institutions and Agricultural extension agents all drawn through a definite procedure from the population. The sample of the population of this study stood at 300 smallholder farmers, 10 credit Institutions and 10 Agricultural extension agents, all giving a total of 320 respondents. The sample was obtained using the formula developed in 1981 by Boyd and Westfal as cited by Baingana [24]. Therefore, the sample size in this study was determined by using the adopted formula for infinite population which is written as:

$$\mathrm{n} = \frac{Z^2.N.P.(1-P)}{(N-1).e^2 + Z^2.(1-P)}$$

Whereby,
$n =$ Sample size
$Z =$ The critical value of standard deviation for a 95% confidence level = 1.96
$N =$ Population Size
$P =$ Expected proportion of the sample size to the size of the population which is equal to 30% as emphasized by Kothari in his book titled Research Methodology [19].
$e =$ Accepted error of 5% referred to as the significance level.

Using the above the simple size becomes:

$$\mathrm{n} = \frac{Z^2.N.P.(1-P)}{(N-1).e^2 + Z^2.(1-P)}$$

Where,
$N = 7766$ (The total number of smallholder farmers in Morogoro municipality)
$Z = 1.96$ (Critical value at 95% confidence level or interval)
$P = 30\% \ (0.3)$
$e = 5\% \ (0.05)$

Therefore,

$$n = \left(\frac{(1.96)^2 \times 7766 \times 0.3(1-0.3)}{[(7766-1) \times (0.05)^2] + [(1.96)^2 \times (1-0.3)]}\right)$$

$$n = \left(\frac{3.8416 \times 7766 \times 0.3 \times 0.7}{(7765 \times 0.0025) + (3.8416 \times 0.7)}\right)$$

$$n = \left(\frac{6265.111776}{(19.4125 + 2.68912)}\right)$$

$$n = \left(\frac{6265.111776}{22.10162}\right)$$

$$\text{Sample Size} = 283.4684415\ Smallholder\ Farmers$$

Therefore, researchers decided to use a sample size of 300 smallholder farmers and 20 key informants (10 ward's agricultural officers and 10 bank or MFIs representatives that provided the additional information that were used intensively in the discussion of the study findings). Researchers were confident that a sample of 300 smallholder farmers equal or greater than 5% of population size identified in the study area was large enough to yield reliable and robust results. Since the wards were purposively selected, the simple size for each ward was 30 smallholder farmers and 2 key informants i.e., agricultural officers and bank representative as shown in Table 2.

2.4.2 Sampling techniques

A multistage sampling technique was employed to select representative households for the study [25]. The study used multistage sampling because it is an effective technique in primary data collection from a geographically dispersed area and it is characterized by cost-effectiveness, time-effectiveness, and flexibility. The main purpose of multi-stage sampling is to select samples which are concentrated in a few geographical regions. Once again, this saves time and money. Multistage sampling technique involved firstly purposeful selection of 10 wards out of 29 wards based on their potentiality in smallholder farming and presence of credit services. Therefore, Bigwa, Mindu, Kingolwira, Tungi, Mzinga, Kichangani, Mafisa, Mazimbu, Chamwino and Mkundi were selected to represent enough number of smallholder farmers in Morogoro municipality. From each ward, 30 households were randomly selected to constitute 300 households for interview. In each household, a household head was a unit for interview. Moreover, from each ward one operating credit institution (one interviewee from each) and one Agricultural extension agent were purposefully selected for interview as these were knowledgeable entities in this kind of study. These two entities constituted 20 interviewees.

2.5 Data Type and Collection

To generate both qualitative and quantitative data from 300 smallholder farmers of the study area field observation, interview and structured questionnaires were used. Moreover, twenty (20) respondents (10 credit officers from Credit Institutions and 10 Agricultural Extension Agents) where interviewed through checklist and informal group discussion. Since the study needed large variety of information to enable researchers

Table 2. The distribution of villages in the Sample

S/No.	Ward	No. of smallholder farmers	No. of Credit Institutions	No. of Agric. Extension Officers
1	Bigwa	30	1	1
2	Mindu	30	1	1
3	Kingolwira	30	1	1
4	Tungi	30	1	1
5	Mzinga	30	1	1
6	Kichangani	30	1	1
7	Mafisa	30	1	1
8	Mazimbu	30	1	1
9	Chamwino	30	1	1
10	Mkundi	30	1	1
Total		**300**	**10**	**10**

Source: Field study, 2020

to assess the determinants of credit demand by smallholder farmers in Tanzania both primary data and secondary data were used.

2.5.1 Primary data

The primary data are those which are collected afresh and for the first time, and thus happen to be original in character [19]. Primary data in this study were collected through field study which involved visiting the study area, administrating interviews based on structured questionnaires [20] and informal group discussion with targeted smallholder farmers. Primary data were collected on household's demographic and socio-economic characteristics as well as on income and expenditure variables. Therefore, the study employed field observation, focus group discussion, interview and structured questionnaires to obtain the relevant information from 300 smallholder farmers.

2.5.1.1 Interview

The interview method of collecting data involves presentation of oral-verbal stimuli and reply in terms of oral-verbal responses [19]. Structured interviews refer to interviews that involve the use of a set of predetermined questions and of highly standardized techniques of recording. The study used personal interview method which requires a person known as the interviewer asking questions generally in a face-to-face contact to the other person or persons [19]. Therefore, twenty (20) respondents (10 credit officers from Credit Institutions and 10 Agricultural Extension Agents) where interviewed using structured questionnaire which was designed to capture both qualitative and quantitative data in the study area.

2.5.1.2 Field observation

The observation method is the most commonly used method especially in studies relating to behavioral sciences [19]. The study employed observation technique which involved a direct examination of behavior used in the fieldwork for the purpose of revealing issues beyond those which were covered in the interview through structured questionnaires. Observation becomes a scientific tool and the method of data collection for researchers when it serves a formulated research purpose. It is systematically planned and recorded and subjected to checks and controls on validity and reliability. Therefore, this study used observation method to provide information about the actual behavior of smallholder farmers in the study area. Through the survey, the researchers observed several activities undertaken by smallholder farmers like farm preparation, cultivation, irrigation etc. but also researchers had a wide scope concerning the subject matter under the study.

Plate 1. Field observation
Source: Field Study, 2020

2.5.1.3 Structured questionnaire

The structured questionnaires in this study were used to gather information or data from smallholder farmers through questionnaires in order to obtain significant information which helps in understanding the accessibility of agricultural credit to smallholder farmers. The study used structured questionnaire to facilitate the process of collecting large amount of data at a minimal cost and time to 300 smallholder farmers. The questionnaire was designed to capture information on socio-economic and demographic data like age, gender, household size, size of farm, education level, household income, types of agricultural crops, and level of household access to formal credit. The questionnaire was pretested to remove the possibility of having any ambiguity in its interpretation and validation of its effectiveness and relevance to the study objectives. These household data were collected from the cross-sectional survey of households in Morogoro municipality 2019-2020.

2.5.1.4 Focus group discussion and key informant interviews

The study used Focus Group Discussions (FGD) and key informant interviews to collect qualitative data. Moreover, FGD constituted knowledgeable people in crop production and credit, such as village authority and progressive farmers. In this study a focus group discussion composed by 6-8 individuals who shared certain characteristics, which are relevant in assessing the determinants of credit demand by smallholder farmers. Informal group discussions enabled researchers to get large variety of information and perceptions from various groups of people by sharing ideas with the group. The groups were important as they played different roles as far as development of training programs in public sectors is concerned.

2.5.2 Secondary data

The secondary data, on the other hand, are those which have already been collected by someone else and which have already been passed through the statistical process [19]. Secondary data were collected from agricultural extension agents in each ward and municipal agricultural officer (administrative office). Therefore, secondary data in this study on farm credit were collected from existing documents i.e., both published and unpublished documents, consisting of references, abstracts, guides and contents analysis techniques. Content analysis is an approach to the analysis of documents and texts that seek to quantify contents in terms of predetermined categories and in a systematic and replicable manner [20]. Therefore, the information and data were collected through existing and own surveys and reports.

2.6 Data Analysis

The data collected through interviews, and a structured questionnaire captured information on socio-economic and demographic data like age, gender, and household size, size of farm, education level, household income, types of agricultural crops, and level of household access to formal credit. The questionnaire was pretested to remove the possibility of having any ambiguity in its interpretation and validation of its effectiveness and relevance to the study objectives. Before data analysis, the primary data was organized, coded, processed and analyzed using qualitative and quantitative methods.

3. RESULTS AND DISCUSSION

3.1 Perception on Agricultural Credit by Smallholder Farmers

In examining the influence of smallholder farmer's perception towards agricultural credit in Tanzania, the respondents were asked on how they perceive the importance of credit on agricultural development, what problems they are facing in receiving agricultural credit and if the loans applied for are used for agricultural purposes. Also, the respondents were required to answer by indicating the degree of improvements they know and/or perceive to get from receiving agricultural credit. This implies that the smallholder farmers with positive perception towards credit schemes are more likely to access agricultural credit. The study findings revealed that smallholder farmers' attitude towards risk associated with agricultural credit were highly perceived by majority. Also, bureaucratic procedures (i.e., lending procedures) and high repayment rate i.e., price of loan were also perceived to be the main challenges influencing smallholder farmers' decisions to demand and access agricultural credit from MFIs. Therefore, the perception of smallholder farmers regarding how cumbersome and long the application procedures are has a negative influence on the probability of their demand for credit from MFIs. The findings of this study would benefit both

lending institutions (credit providers) streamlining the agricultural credit market and smallholder farmers from enhanced knowledge of benefits that would be earned from the acquisition and use of such credit.

The study asked the questions on how they perceive the importance of credit on agricultural development in Tanzania, what problems they are facing in receiving agricultural credit and if the loan applied for was used for agricultural purposes. Respondents were required to answer by indicating the degree of improvements they know and/or perceive.

The study found out that 256 respondents counting for 85.3% of interviewees perceived credit to be very important and major component of agricultural production and development. Also, 34 respondents comprised of 11.3% perceived credit to be important while 5 respondents comprised of 1.7% agreed that to some extent credit is an important component in agricultural development. The study results are summarized in the Table 3.

The study result is in line with the findings of various related studies which found that accessing agricultural credit enhances average production and technical efficiency of the farmers with the overall increases of production that lead to agricultural development [26-30]. In this regard, the study concludes that agricultural credit has positive impacts in facilitating agricultural production and economic growth provided that it is used efficiently.

Table 3. Perception on agricultural credit (n=300)

Category	Frequency	Percent	Valid Percent	Cumulative Percent
Very important	256	85.3%	85.3%	85.3%
Somehow important	5	1.7%	1.7%	87.0%
Important	34	11.3%	11.3%	98.3%
Not important	4	1.3%	1.3%	99.7%
Undecided	1	0.3%	0.3%	100.0%
Total	**300**	**100.0%**	**100.0%**	

Source: Field Study, 2020

The same information is presented using graph as shown in Fig. 1.

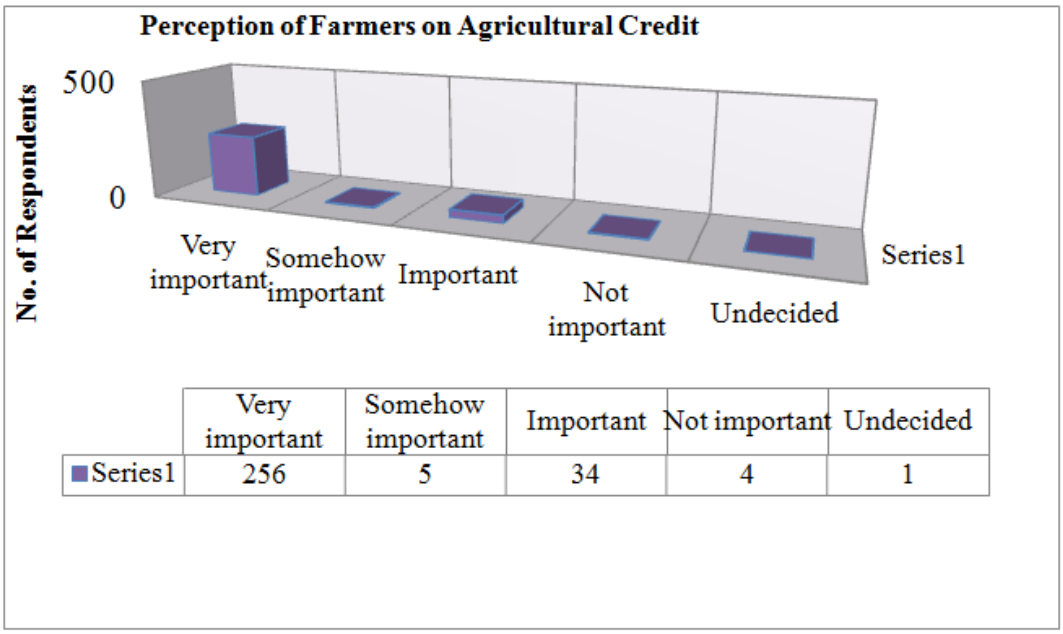

Fig. 1. Perception on agricultural credit (n=300)
Source: Field Study, 2020

3.2 Problems Smallholder Farmers Face in Accessing Credit

The study sought to know the problems smallholder farmers face in receiving agricultural credit from MFIs. Respondents were required to answer by indicating the degree of improvements they know and/or perceive whether they are Strongly Agree (SA), Somewhat Agree (SoA), Undecided (U), Somewhat Disagree (SoD) and Strongly Disagree (SD). The study results are presented in the Table 4.

The study findings revealed that unawareness of available facilities, inaccessibility to credit information, lack of education, high interest rate and complex documentation and procedures were strongly agreed upon by the majority of smallholder farmers to be found to be the major problems in accessing agricultural credit. Also lack of cooperation from the bank, untimely credit disbursement, administrative bureaucracy, difficulties in opening bank account and insufficient loan were perceived to be minor challenges facing smallholder farmers in accessing credit.

3.2.1 Inaccessibility to credit information

Smallholder farmers with bank account are more likely to have more credit information than those who don't have [31]. The study sought to know how smallholder farmers from the study area perceive on an inaccessibility of credit information since access to credit information increases chances of demand for and access to credit from credit provision institutions like banks. The study results found that 233 respondents totaling 77.7% strongly agreed that inaccessibility to credit information was the major problem facing smallholder farmers in accessing agricultural credit followed by 14.3% who agreed to some extent. Fig. 2 presents the study results.

Table 4. Problems smallholder farmers face in accessing credit (n=300)

Problem(s)	SA		SoA		U		SoD		SD	
	N	%	N	%	N	%	N	%	n	%
Inaccessibility to Credit Information	233	77.7	43	14.3	14	4.7	5	1.7	5	1.7
Lack of Education	237	79	36	12	13	4.3	6	2	8	2.7
High Interest Rate	250	83.3	25	8.3	11	3.7	7	2.3	7	2.3
Complex documentation and procedures	250	83.3	22	7.3	10	3.3	10	3.3	8	2.7
Not aware of the facilities available	266	88.7	30	10	3	1	1	0.3	0	0
Untimely credit disbursement	200	66.7	34	11.3	55	18.3	4	1.3	7	2.3
Lack of service / co-operation from the bank	93	31	24	8	138	46	12	4	33	11
Difficulties in opening bank account	78	26	25	8.3	130	43.3	6	2	61	20.3

Source: Field Study, 2020

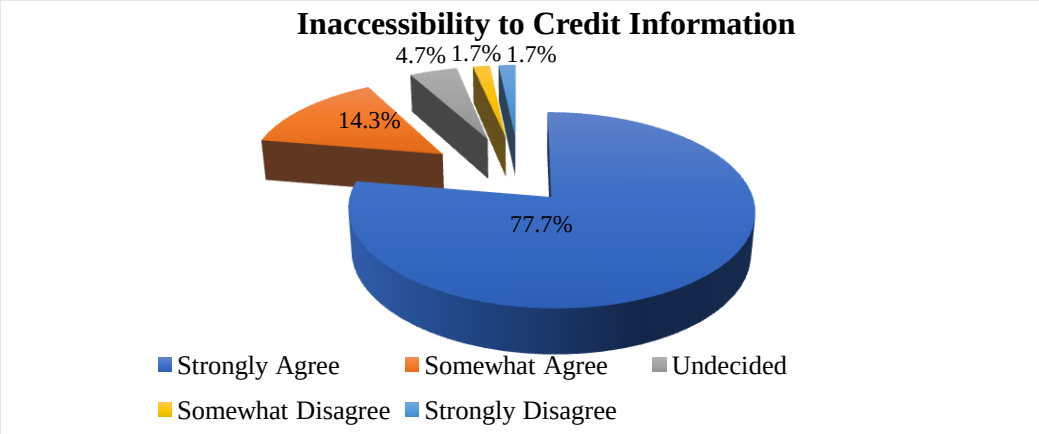

Fig. 2. Perception on inaccessibility to credit information (n=300)
Source: Field Study, 2020

The study result are consistent with the findings of various related studies which found that lack of information about the credit availability affects smallholder farmers' probability to demand agricultural credit [32,33]. In order to solve this problem, the study basing on analyzed results recommends that extension services should be improved to provide essential information to smallholder farmers regarding new agriculture technologies, facilitating farm management, marketing and processing equipment and loan acquisition procedures.

3.2.2 Lack of education

The study results found out that 79% of respondents strongly agreed that lack of proper understanding the loan acquisition procedures was another major problem faced by smallholder farmers in accessing agricultural credit. Basing on the study findings it is recommended that MFIs and/or agricultural officers should educate farmers on the loan acquisition procedures and appraisal of borrower economic activities. The study results are consistent with the findings of Llanto [34] who found that lack of education affects negatively smallholder farmer's participation on financial market. The study concludes that education would increase the knowledge about available opportunities and influence the probability of smallholder farmer's participation in agricultural credit. Fig. 3 presents the study results.

3.2.3 High interest rate

It was found that 250 respondents counting for 83.3% strongly agreed that high interest was a major constraint factor facing smallholder farmers in accessing agricultural credit from MFIs. This result is consistent with various related studies which found that smallholder farmers are reluctant to credit scheme with higher interest rate [35-37]. Basing on the study findings it is recommended that MFIs should not charge high interest rate in financing agriculture since interest rate contributes a vital role in borrowing decision. Also, MFIs could use interest rate to equilibrate the market and allocate agricultural credit. Fig. 4 presents the study results.

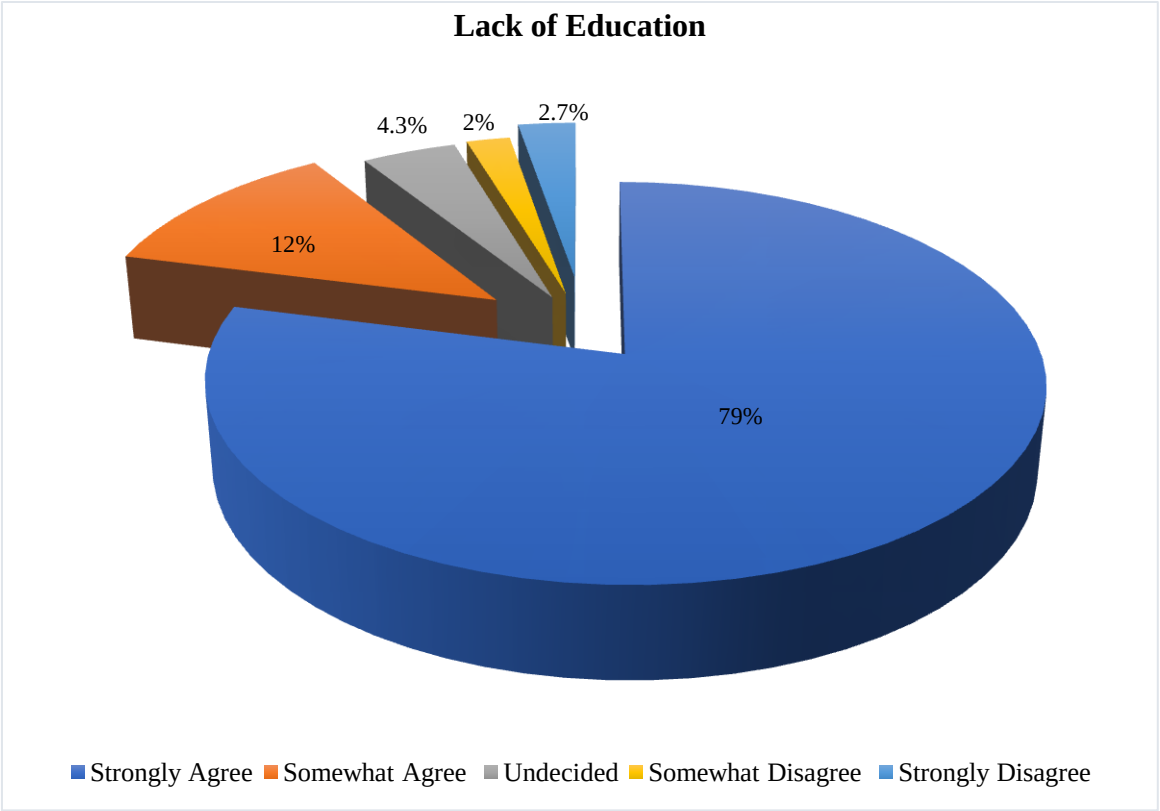

Fig. 3. Lack of education (n=300)
Source: Field Study, 2020

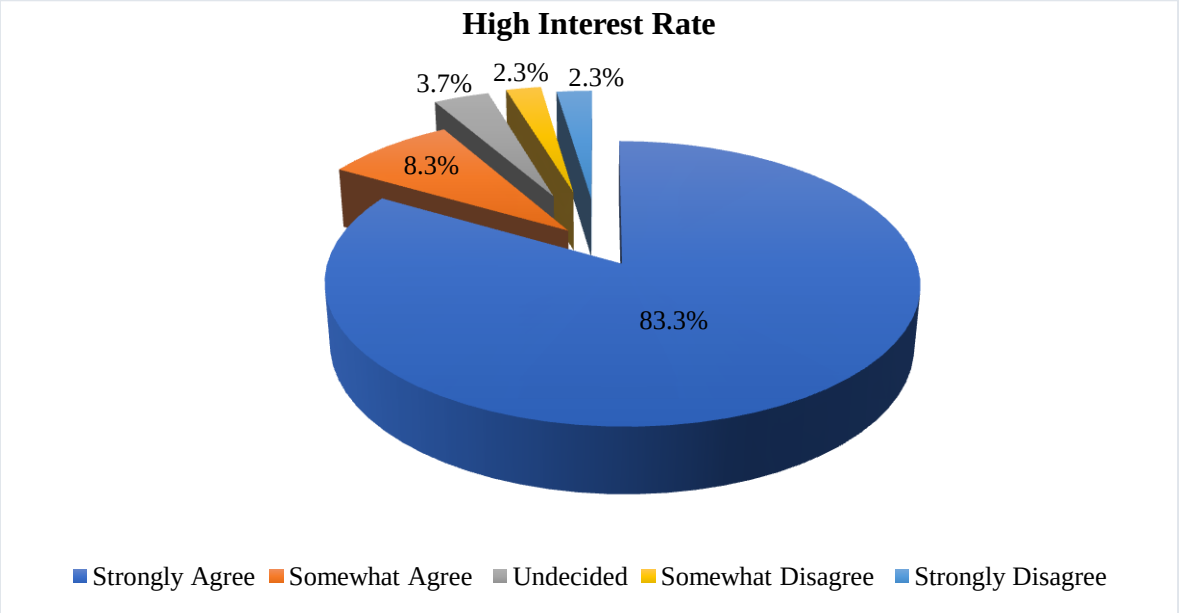

Fig. 4 High interest rate (n=300)
Source: Field Study, 2020

3.2.4 Complex documentation and procedures

It was found that 250 respondents counting for 83.3% strongly agreed that long application procedures and its complexity was the major problem faced by smallholder farmers in accessing credit for agricultural production. Akudugu [4] found that the farmer's perceptions regarding complexity and long application procedures have negative influence on the smallholder farmer's decision to demand agricultural credit from MFIs. The study result is consistent with the findings of various related studies [10,38-40] which found that complex documentations and long application procedures affect farmer's demand and access to agricultural credit from MFIs. Fig. 5 presents the study results.

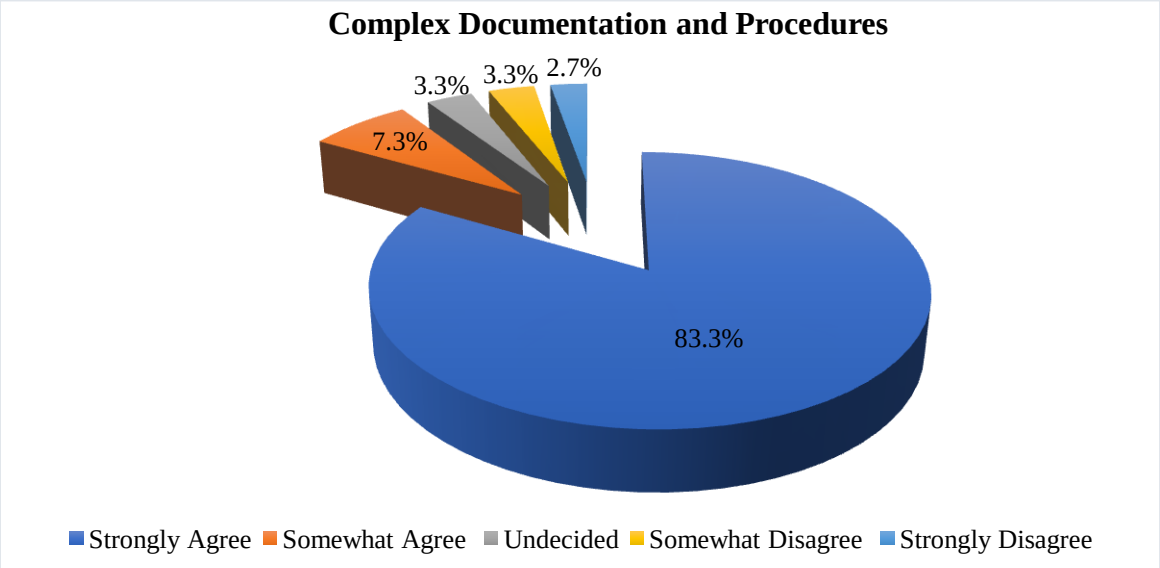

Fig. 5. Complex documentation and procedures (n=300)
Source: Field Study, 2020

3.3 Use of Credit Borrowed

It was observed that only 106 out of 300 smallholder farmers obtained credit from MFIs and the study sought to know the purpose of the applied credit. The study findings revealed that 104 (98.11%) of respondents used the loan applied for agricultural activities while 2 (1.89%) used the credit in non-agricultural activities i.e., business activities, consumption smoothing, paying tuition fees, building houses and health insurance. In the survey conducted in Morogoro Municipality most of smallholder farmers counting 98.11% accessed credit and used it for agricultural purposes i.e., purchasing farm inputs, employing labour, land preparation and planting operations. Yehuala [39] stated that agricultural credit plays a pivotal role for the smallholder farmers to adopt improved agricultural technologies in the farming sector. Table 5 presents the results.

Table 5. Perception on the use of credit borrowed (n=106)

Credit Applied	Frequency	Percent	Valid Percent	Cumulative Percent
Agricultural Use	104	98.11%	98.11%	98.11%
Non-Agricultural Use	2	1.89%	1.89%	100.0%
Total	**106**	**100.0%**	**100.0%**	

Source: Field Study, 2020

The same information is presented using pie chart as shown in Fig. 6.

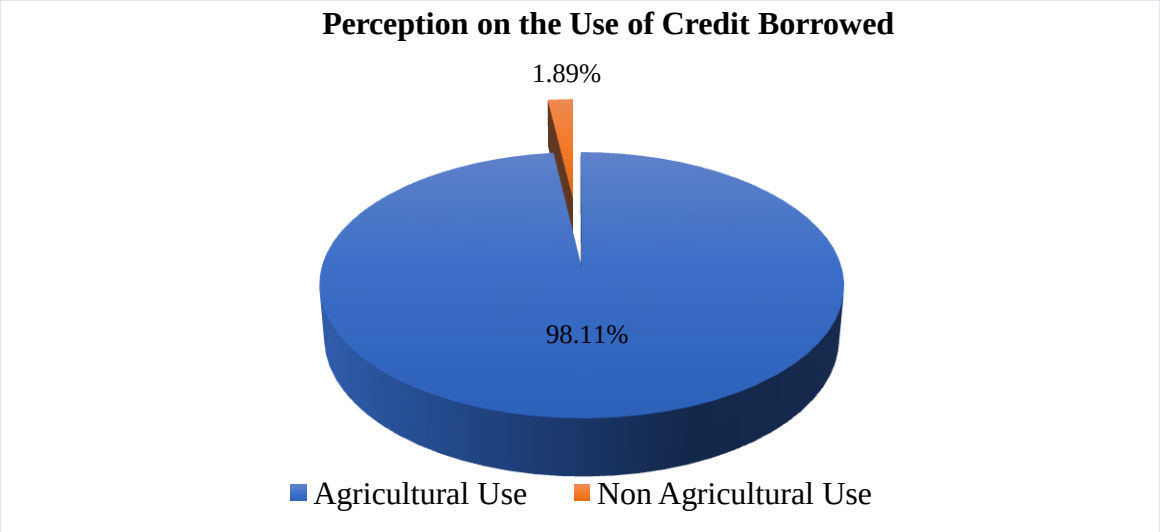

Fig. 6. Use of credit borrowed (n=106)
Source: Field Study, 2020

From the study findings the same 104 respondents agreed that the applied loan was used for agricultural purposes i.e., purchases of inputs, equipment acquisition, wages and salaries and payments to the hired labor.

3.3.1 Inputs

The study findings revealed that the 104 smallholder farmers (borrowers) used agricultural credit as a working capital to purchase inputs namely improved seeds, fertilizers and pesticides. Also, the smallholder farmers needed additional capital during harvesting period. The study result is consistent with various related studies [41-44] which found agricultural credit to be necessary for smallholder farmers for accessing improved agricultural technology in order to increase productivity. The information is presented using pie chart as shown in Fig. 7.

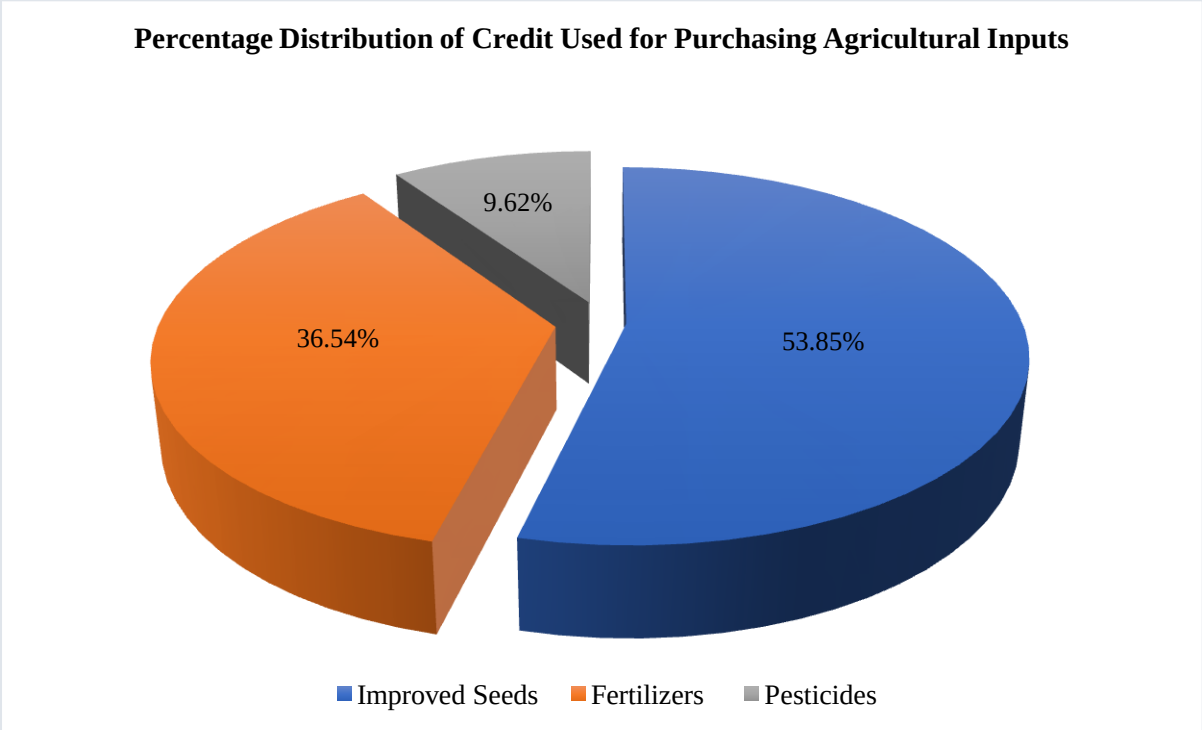

Fig. 7. Agricultural credit for purchasing inputs (n=104)
Source: Field Study, 2020

The study findings revealed that agricultural credit is essential in modernizing agricultural sector in Tanzania. Modernization process requires a large infusion of credit for smallholder farmers to finance farm operation i.e., purchasing improved seeds, fertilizers and pesticides hence agricultural credit is a catalyst which drives the machinery of production to optimum performance [5,6,45-47]. Therefore, the study concludes that agricultural credit accelerates agricultural modernization since it creates and maintains a flow of inputs hence increases efficiency in agricultural productivity.

3.3.2 Equipment

The study results found out that agricultural credit enhances smallholder farmers in equipment acquisition. It was found that 100 out of 104 smallholder farmers accounted to 96.15% who obtained credit used it in acquiring agricultural equipment while 4 respondents comprised 3.85% used it in other farm operations. Table 6 presents the results.

The study result revealed that agricultural credit makes traditional agriculture to be more productive because it influences smallholder farmers to purchase and use modern farm equipment due to the adoption of technological changes. The study result is consistent with the findings of various related studies [45,48] which found that smallholder farmers acquired agricultural credit to replace the old equipment to increase productivity. The information is presented using pie chart as shown in Fig. 8.

Table 6. Acquisition of equipment (n=104)

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Acquiring Equipment	100	96.15%	96.15%	96.15%
Other Farm Operations	4	3.85%	3.85%	100.0%
Total	**104**	**100.0%**	**100.0%**	

Source: Field Study, 2020

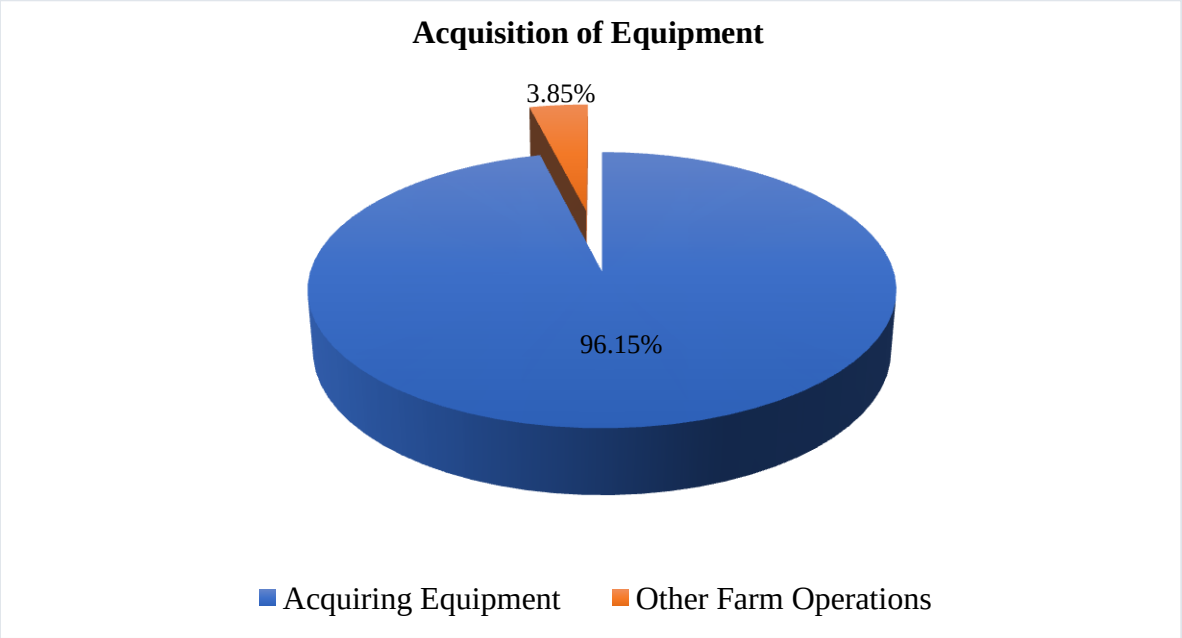

Fig. 8. Acquisition of equipment (n=104)
Source: Field Study, 2020

3.3.3 Payments of wages, salaries and rent

The study revealed that 90 smallholder farmers out of 104 comprising 86.54% used agricultural credit for paying wages and salaries while 14(13.46%) used borrowed credit for paying rent payments. Smallholder farmers with large farm sizes demand more labor or workforce to meet the farm requirements that are needed to accommodate additional capital [49]. This implies that smallholder farmer's demand for and access to agricultural credit for wages and/or salaries for hired labors. Fig. 9 presents the study results.

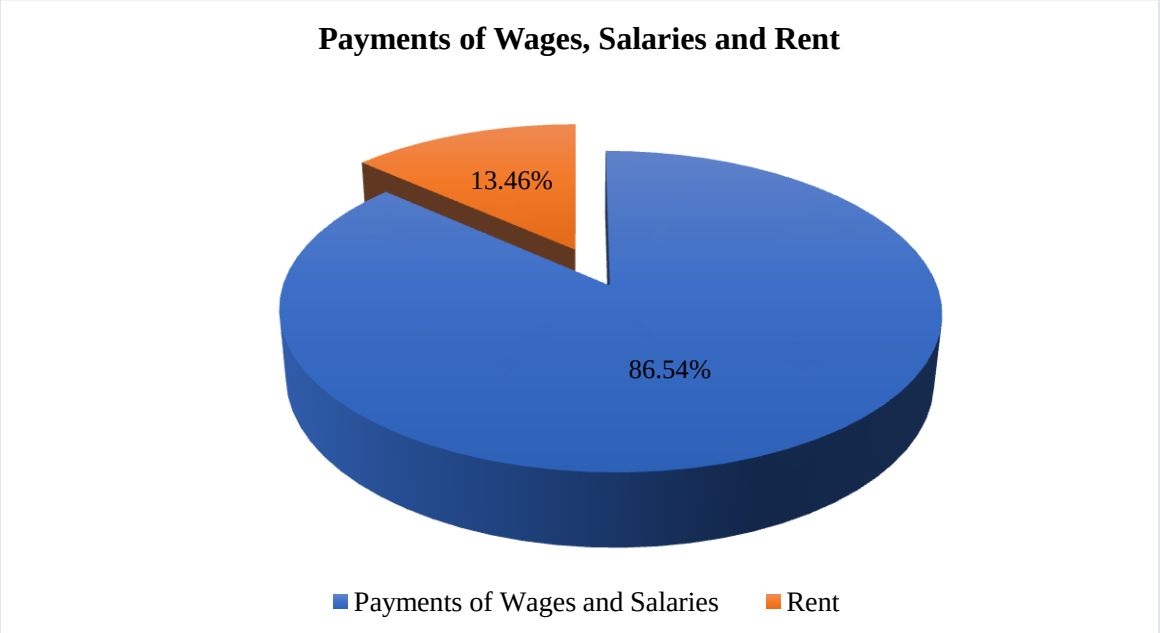

Fig. 9. Wages and salaries payment (n=104)
Source: Field Study, 2020

The study findings revealed that the larger the farm size the more labor required that demands additional capital that might be obtained through credit. The study found out that an increase in average cost (AC) of the hired labor increases cost of production and expands the need for capital investment that influences smallholder farmers to demand agricultural credits to finance farm operations i.e., wages and salaries payments in this case. The study result is consistent with various findings of related studies [4,50,51] which found that the larger the cultivated land size the more labor required that influences demand for credit. This study concludes that increased number of hired labor influences smallholder farmer's decision to demand agricultural credit for financing different farm activities performed by labor including farm preparation, weeding and harvest.

4. CONCLUSION AND RECOMMENDATION

The study aimed at identifying smallholder farmer's perception towards agricultural credit that influences farmer's decision to demand and access agricultural credit. The study findings revealed that smallholder farmer's attitude towards risk associated with agricultural credit were highly perceived by the majority. Also, the results showed that inaccessibility of credit information, lack of education, bureaucratic procedures (i.e., lending procedures) and high repayment rate i.e., price of loan were also perceived to be the main challenges influencing smallholder farmer's decision to demand and access agricultural credit from MFIs. Therefore, the perception of smallholder farmers regarding how cumbersome and long the application procedures are having negative influence on the probability of their demand for credit from MFIs. The study recommends that education provision to smallholder farmers on agricultural credit use and improved market information systems is important. Also, credit institution should ensure effective provision of information on agricultural credit to boost their credit services to smallholder farmers.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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