The Contribution of Agriculture Finance in Boosting Agricultural Yield: A Case of Gakenke District of Rwanda

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ABSTRACT

The agricultural sector is vital in economies of all countries all over the world, not only that agriculture sector provides food stuffs but also inputs to manufacturing sector and outputs to consumers and in all spheres at large. The agriculture sector contributes about 40% of worldwide employment and a 100% food production increase will be required in developing countries to feed the 2050 population, investment in agriculture sector is critical for driving global economic growth.

The aim of this paper: The aim of the research was to investigate the contribution of agriculture finance in boosting agricultural yield in Gakenke district of Rwanda.

Materials and methods: Data were collected using android mobile phone with application designed for data collection as the best quicker tool superior to paper based. A number of 66 respondents were selected proceeding snowball technique from two sectors of Gakenke district sampled by multistage sampling procedure with two stages, this method was employed due to it reduces cost and lessen the impossibility of getting list of respondents units.

Results: Findings revealed a positive relationship between agriculture finance and agricultural yield whereby analysis of data showed that after acquiring agriculture credits, agricultural yield was tripled compared to the production before acquiring credits to invest in agriculture activities.

Conclusion: In nutshell, as findings pointed out a positive relationship between agriculture finance and agricultural yield with a tremendous increase in agriculture yield than ever before investing in agriculture activities. The research recommended sensitization and encouragement to invest in agriculture activities to keep boosting agricultural yield and maintain welfare of farmers and nation at large.

Keywords: Agriculture finance, Agriculture yield, Boosting agricultural yield.

I. INTRODUCTION

The agricultural sector is vital in economies of all countries all over the world, not only that agriculture sector provides food stuffs but also inputs to manufacturing sector and output to consumers and in all spheres at large. Agriculture financing is essentially a development strategy in a variety of ways. It promotes agricultural investment and adoption of technology necessary to spur economic growth.

The agriculture sector contributes about 40% of worldwide employment and a 100% food production increase will be required in developing countries to feed the 2050 population, investment in agriculture sector is critical for driving global economic
growth. The issues of food security, increased poverty in developing nations and overall imbalanced development of agriculture-dependent economies have highlighted the urgent need for development in that sector (IFC, 2015).

Agriculture is a major source of livelihood throughout the world, especially for the majority of poor people living in rural areas in developing countries. A key challenge for the majority of these farmers is access to finance. Lack of access to finance is a key impediment to farmers in improving the efficiency of their productions and adopting better technologies (IFC, 2014).

In most developing countries agriculture and related activities provide most of the employment for many in rural area. As a result of demographic change, increasing incomes, and structural adjustments/market liberalization programs, agro-industrialization has expanded far beyond the traditional agro-exports crops (Reardon et al, 1999).

Rwanda one the developing country its economy is mainly based on agriculture. Over 80% of Rwanda’s population live in rural areas and a large part of the farmers have an average size of their land less than 1 hectare per household. The agricultural sector has contributed on average to about 42% of the GDP in 2008 and has enjoyed an average growth rate of 11.2% in 2008. The agricultural sector plays a crucial role with regard to exports because it generates 70% of export earnings (coffee, tea, pyrethrum is the most important) in 2008. The trade balance of Rwanda is characterized by a large deficit amounted to 3.5% of GDP in 2009.

The government is pushing the diversification of exports, by promoting products such as flowers, fruits and handicrafts such as basketry (UNEP, 2015).

Agriculture is at the heart of Rwanda’s economy. According to the latest Rwanda household survey of 2010/11, the sector occupies for 73 percent of the labor force, contributes one-third of GDP and generates more than 45.0 percent of the country’s export revenues. Agriculture is also important for national food self-sufficiency, accounting for well over 90.0 percent of all food consumed in the country (World Bank, 2015).

Constraints caused by population density, hilly terrain and erosion make it a critical determinant of rural poverty. Since 2001 Rwanda has worked closely with IDA to achieve food security and increase agricultural productivity - food security was attained in 2010 and between 2000/01 and 2010/11 poverty was reduced by about 14 percent (World Bank, 2015).

The agricultural sector grew at an average of 4.9 percent over the last five years, contributing about 36.0 percent to the overall Gross Domestic Product (GDP). Due to enabling sector policies and strategies, Agriculture sector was the fourth top performing sector in 2011 after tourism, ICT and Energy & Water. Investments in the agriculture sector grew to US$78m in 2011, as compared to $68.5m in 2010. Agriculture expenditure forms one of the priority expenditures of the government of Rwanda’s annual budget with focus on increasing yield in the sector. Over the past three years, allocations to the agricultural sector have increased from 4.2 percent of the budget in 2008 to 6.6 percent in the 2010/11 budget. Together with agricultural related spending allocated to other institutions, Rwanda now complies with the 10 percent commitment made under the Africa Union’s Comprehensive African Agriculture Development Program (CAADP), of which Rwanda was the first signatory (World Bank, 2015).

Average crop yields on the developed marshlands and hillsides have increased by over 100 percent relative to the baseline at
the beginning of Rural Sector Support Program One (RSSP1) i.e. maize yields have improved from 1.6 tons/ha to nearly 5 tons/ha; rice yields have improved from 3 tons/ha to 6.30 tons/ha; and potato yields have improved from 17 tons/ha to nearly 20 tons/ha; crop derived incomes have increased from a baseline of RWF 73,000 to over RWF 156,000 per farm household; over 51,000 people, of which 42 percent are female have benefited from the RSSP 1 and 2 while 6,748 people, of which about 54 percent are female have benefited from the LWH so far; preliminary results presented by the government of Rwanda on the most recent household survey indicate that the reported poverty reduction of 11.8 percent between 2005/06 and 2010/11 is likely to be attributed in part to improved agriculture production, increased number of agro businesses and increased farm wage employment; between 2008 and 2011 agricultural exports (other than coffee and tea) increased on average by 46 percent annually; and Since 2010, Rwanda has maintained a positive food balance sheet and only imports those products that are not produced locally or that are consumed by the higher end of the market (World Bank, 2015).

The term agriculture financing is mainly a long-term financing (that is, capital structure) that aims at inducing agriculture-led growth and development in an economy. Long-term foreign capital flows take several different forms. The broad groups include foreign direct investment, portfolio equity investment, official development assistance and foreign loans. The last of these groups can be further sub-divided into development loan stocks, loans from bilateral, multilateral and international capital market, bond finance, and other private loans. Long-term domestic capitals include domestic public and private debt and share capital. However, the growth of output of any economy depends on capital accumulation, and capital accumulation requires investment and an equivalent amount of domestic and external finance to match it. Two of the most important issues in development economics, and for developing countries, are how to stimulate investment, and how to bring about an increase in the level of domestic financial resources to fund increased investment (Obansa, 2013).

Funds for agriculture finance encompasses not only government funds but also funds of non-governmental organizations that use matching grants to attempt to promote community and sector development, income equality and local empowerment. Public funds are subsidized funds and private funds regardless of their price, are not subsidized, unless a contribution is tax free or the market price is affected by an explicit or implicit state guarantee of the liabilities of a development finance institution (Shreniner and Yaron, 2001).

Bank contribution, as of March 16 2012, the International Development Association (IDA) lending portfolio in Rwanda consists of 9 active projects with total commitments of US$292.3 million in the key sectors of agriculture, energy, transport, skills development, demobilization and reintegration and private sector development. In addition, Rwanda is benefiting from two large Trust Funds, to the tune of US$88 million, which are directly linked to active IDA operations in transport and agriculture. Rwanda also participates in five regional projects totaling some US$69 million in the areas of trade and transport facilitation, regional communications infrastructure, public health laboratories, Lake Victoria environment management and financial sector
development and regionalization (World Bank, 2015).

Annually, IDA disburses about US$100 million as general budget in support of Rwanda’s poverty reduction strategy. The Bank also undertakes a number of analytic pieces and just-in-time policy notes in each year. Current IDA investments in agriculture include RSSP 2 (US$ 35 million), RSSP 3 (US$80 million) and LWH (US$34 million) (World Bank, 2015).

In Rwanda, agriculture remains the mainstay of the economy since it is the largest sector in terms of its share in employment. In an effort to diversify agricultural base economy, Rwanda is placing much emphasis on financing agricultural sector, since agriculture has the potential to stimulate economic development through provision of raw materials, food, jobs and increased financial stability. It follows that agriculture financing is one of the most important instruments of economic policy for Rwanda, in the effort to stimulate development in all directions. Finance is required by agricultural sector to purchase land, construct buildings, acquire machinery and equipment, hire labor, irrigation etc. The aim of this paper was to investigate the contribution of agriculture finance in boosting agricultural yield, and researcher selected to conduct the research in Gakenke district of Rwanda because it is in rural area agriculture activities are dominant.

II. METHODOLOGY

This research titled the contribution of agriculture finance in boosting agricultural yield in Gakenke district of Rwanda was carried out in Gakenke district and information gathered covers agriculture seasons B and A for 2014 and 2015 respectively.

Research design: This research has used a combination of three research designs (case study, ex-post facto and cross-sectional) to reach objectives of the whole undertaking. According to Kothari (2004) no single research design can solely be sufficient for a whole research process. This study adopted a mixed paradigm, which is phenomenological and positivistic studies; some elements of case studies were involved by the researcher in order to get reasonable findings. Green et al.(1989) ascertain that the mixed approach helped to produce better results in terms of quality and scope. Mixed method is a way to come up with creative alternatives to traditional or more monolithic ways to conceive and implement evaluation.

This research has adopted case study design; due to case study is an in-depth study of a particular research problem rather than a sweeping statistical survey. It was useful to narrow down a very broad field of research into one or a few easily researchable examples (C.R. Kothari, 2004). The case study research design is also useful for testing whether a specific theory and model actually applies to phenomena in the real world. It is a useful design when not much is known about a phenomenon. The researcher also adopted an ex post facto as his research design in that there is no control or treatment of variables required (C.R. Kothari, 2004). An ex-post facto research design is one which does not involve experimentation. The researcher also adopted a cross-sectional study where a cross-sectional study analyzes data at one time point, and thus does not consider future or past periods (Chava, N. and Frankfurt, D, 2005).

Source of data: This study has mainly used primary data gathered from respondents who acquired credits from financial institutions aiming at investing in agriculture sector in Gakenke district.

Target population: For the success of the study, information to be representative of the population covered by the research
questions, researcher took case study of people practicing agriculture in Gakenke district of Rwanda. This was in accordance with Chava opinion stating that population refers to the total number of elements covered by the research questions (Chava, N. and Frankfurt, D., 2005).

**Sample size:** The study must consider a sample size that is within the cost constraint but should provide the ability to detect an independent variable effect. Williamson (1982) comments on the sample size as being a phase of research, which is crucial because of its major impact on time and money that must go into data collection. According Depelteau (2010) most methodological manuals in human sciences recommend that a sample must represent at least 10% of the size of the study population. The same manuals recommend a minimum of 30 units for a sample. Nevertheless, our sample of 66 individuals remains in the limits of a representative sample, acceptable and even recommended.

**Sampling techniques:** To succeed representative sample, research have used multistage sampling. Multistage sampling was generally used because it is lessened the cost and lightened the impossibility to form a list of all the units in the target population. A multi-stage sample is often more precise than a simple random sample of the same cost (Nathaniel Bell et al., 2012), and it is for this reason that the method was employed. The study population was selected in two stages, the first stage, 2 sectors (also known as clusters or enumeration areas) was selected randomly; basically Gakenke district comprises 19 sectors and researcher economically selected two sectors randomly as representing clusters of Gakenke district and the second stage comprised of the individuals. From these two stages, the researcher used both simple random and snow ball sampling techniques as these enabled him to select respondents who could provide him with the information needed for the study (Browne & Kath, 2005).

**Data collection methods and tools:** The information; primary data, was obtained through a structured questionnaire loaded in electronic device (tablet) with application designed for data collection. This collection tool is superior to paper-based methods in terms of speed, data quality, and security, and is a cost-effective alternative to manual data entry (Ntegereze Peter, 2015). Researcher used the Form Builder to design surveys that run in the application for electronic devices. The survey contained many kinds of questions, including text or numerical input, multi-select and single-select.

**Data processing and analytical methods:** Data processing was done in accordance with the purpose of the research study. After carrying out interviews with respondents there was editing and the information was arranged in a meaningful and organized form by coding it according to a pre-designed coding manual aid keyed into the computer in a spreadsheet, the coded variables were then summarized into descriptive statistics, frequencies and statistical diagrams and charts used for the presentation.

**Quality control:** Quality control in any research is a great important; this is because it assures standard information gathered so that researcher comes out with exact data, which reflect prevalent situation. It is therefore to be done through editing and coding both in the field and at home. In that note there will be checking of answer against the questions asked. This aimed at ensuring consistence, completeness, uniformity, and comprehensiveness of all questions asked to the clarity, spellings, wordings and sequencing in the dataset.
III. RESULTS AND DISCUSSION

Findings in this paper represent views of 66 respondents who responded to the research questions with respect to the Contribution of Agriculture Finance in Boosting Agricultural Yield.

Demographic Profile of the Respondents

The information that the respondents provided is important for understanding the behavior and knowledge of the population with respect to the Contribution of Agriculture Finance in Boosting Agricultural Yield. Profile of respondents is important to describe characteristics of key informants who responded to the research questions. Demographic characteristics of respondents have impact on findings as the understanding, the behavior and knowledge of respondents differ accordingly.

The Table 1 shows that among 100 respondents 51.5 percent were females and the remaining 48.5 percent were males. This imbalance was due to that the research has asked the person who borrowed money to invest in agriculture activities to get more relevant information, and for most of the cases they were females.

The Table 1, also summarizes the education level of respondents. It indicates that slightly more than 24 percent of the respondents do not have a formal education, nearly 38 percent got primary school, slightly more than 24 percent frequented secondary education, and only nearly 14 percent of them have attended university education.

<table>
<thead>
<tr>
<th>Sex of respondent</th>
<th>Frequency</th>
<th>Percentage%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>32</td>
<td>48.5</td>
</tr>
<tr>
<td>Female</td>
<td>34</td>
<td>51.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education attainment of the respondent</th>
<th>Frequency</th>
<th>Percentage%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No schooling</td>
<td>16</td>
<td>24.2</td>
</tr>
<tr>
<td>Primary</td>
<td>25</td>
<td>37.9</td>
</tr>
<tr>
<td>Secondary</td>
<td>16</td>
<td>24.2</td>
</tr>
<tr>
<td>Post-Secondary</td>
<td>9</td>
<td>13.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age group</th>
<th>Frequency</th>
<th>Percentage%</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30</td>
<td>23</td>
<td>34.8</td>
</tr>
<tr>
<td>31-40</td>
<td>31</td>
<td>47.0</td>
</tr>
<tr>
<td>41-50</td>
<td>12</td>
<td>18.2</td>
</tr>
</tbody>
</table>

Source: Primary data

Given the implication of age in analyzing demographic characteristics, outstanding attention was paid to making sure this statistic was accurately recorded in the research. Prior to recording any information, the interviewer asked respondents to tell truly accurate information about them.

Table 1 shows the respondents’ age 21-50 grouped by ten-year age increments. Nearly 35 percent of respondents reported that they are aged between 21-30, 47 percent of borrowers reported that they are aged between 31-40, and slightly more than 18 percent of respondents reported that they are aged between 41-50.

Generally, among 66 respondents who responded the research questions, it is clearly evident that females outnumbered males in engaging in agriculture activities, it is not surprise because national census of population and housing reported that the sex composition of the population, as measured by the sex ratio, indicates that, at national level, there are 93 males for every 100 females whilst this ratio was 91 in 2002.

In Kigali City, however, there are more males than females with a sex ratio of 106. Apart from the districts of Kigali City where there are more males than females, there are more females than males in the rest of the districts with sex ratios varying between 99 (Nyanza District) and 86 (Ngororero District). The most of farmers have primary studies, this infer that as education increase, people engage in other occupations/activities apart from agriculture. Also most of farmers have age group between 31 and 40 meaning that all of those respondents are in working ages knowing the risks and returns of agriculture activities there are engaged in, this category of age have many farmers due to even those who went to school come back to put what they learnt into practice.
Analysis of Agriculture Finance in Relation to Agriculture Yield

Size of the land in hectare

Agriculture is essential for a development and need land coverage to be practiced on in order to produce more agricultural yield. Table 2 represents the size of land used for agriculture activities.

The majority of respondents (63.64 percent) reported that they have less than ½ hectare, nearly 23 percent reported they have between ½ hectare and 2 hectares, slightly more than 12 percent reported that they have between 2 hectares and 3 hectares and only nearly 2 percent reported that they have more than 3 hectares.

Table 2: The size of the land or farm in hectare

<table>
<thead>
<tr>
<th>Size of the landholding or farm in hectare</th>
<th>Frequency</th>
<th>Percent %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than ½ hectare</td>
<td>42</td>
<td>63.64</td>
</tr>
<tr>
<td>Between ½ hectare and 2 hectares</td>
<td>15</td>
<td>22.73</td>
</tr>
<tr>
<td>Between 2 hectares and 3 hectares</td>
<td>8</td>
<td>12.12</td>
</tr>
<tr>
<td>More than 3 hectares</td>
<td>1</td>
<td>1.515</td>
</tr>
</tbody>
</table>

Source: Primary data

Findings from data collected on field divulged that landholding is generally less than one half of hectare and this is a significant factor that contribute to agriculture productivity as land size increases as the productivity increases but we should note that this is not exhaustive because it happens in according with other factors of production such as seeds, fertilizers, erosion control etc. However, it is remarkable that once agriculture activities are maintained in normal conditions influence positively the yield.

Source of fund to invest in agriculture sector

Agriculture financing is essentially a development strategy to promote agricultural investment and in return agricultural yield. Agricultural finance as an economic study of borrowing funds by farmers, the organization and operation of farm lending agencies and of society’s interest in credit for agriculture. Fund to invest in agriculture sector comes from different sources and are presented in Figure 1 below.

Figure 1: Source of fund to invest in agriculture sector

Source: Primary data

Figure 1 presents the sources of fund to invest in agricultural activities. Slightly more than 39.4 percent of respondents interviewed reported that they get fund to invest in agriculture from banks and slightly more than 39.4 percent stated that they get fund to invest in agriculture from other financial institution money lenders and subsidized by government and 21.2 percent reported that they get fund from their own finance.

Ways farmers receive agriculture credits

In order for the agricultural sector to successfully play its role to achieve the objectives assigned to it, substantial financial investments are necessary. Agriculture finance encompasses not only government funds but also funds of non-governmental organizations that use matching grants to attempt to promote community and sector development, income equality and local empowerment. Public funds are subsidized funds and private funds regardless of their price, are not subsidized, unless a contribution is tax free or the
market price is affected by an explicit or implicit state guarantee of the liabilities of a development finance institution, hence financial institutions to decide to provide agriculture credits in different ways as described in Figure 2 below.

![Figure 2: The ways farmers receive agriculture credits](image)

Source: Primary data

Figure 2 presents various ways farmers receive agriculture credits. A number of farmers reported that they received agriculture credits through associations (40.9 percent), 31.8 percent reported that they received agriculture credits through groups, 21.2 percent reported that they received agriculture credits through cooperatives and only 6.1 percent reported that they received agriculture credits by themselves.

Noting that agriculture financing is essentially a development strategy to indorse agricultural investment and adoption of technology necessary to spur economic growth through a number of channels and this research revealed the most important channels including associations, cooperatives, groups as the most means to access credits easily even though individuals got it but grouped people has a considerable chance to get it easily. Research revealed that agricultural credit by farmers depends on their attitudes to towards such borrowings, it is to be denoted that the attitudes of large and small farmers towards borrowing activities are quite different from one to another. Although the proportionate number of marginal farmers is higher than that of large farmers, the amount of credit requirement per farmer is definitely higher for larges farmers than small farmers. In addition, the large farmers seem to have relatively higher access to institutional credit than the small farmers and these boost output as well.

**Criteria to obtain agriculture loan**

For effective administration of agricultural credit, financial institutions while granting credit to farmers for agricultural purposes consider a number of factors. The determinants of credit supply for agricultural purposes were found to be profitability of the investment, level of assets of the farmer-borrower interest rate, availability of credit, loan transaction costs, and level of risk bearing. Hence, for financial institution to disburse a loan impose certain criteria as depicted in Figure 3 below.

![Criteria to get agriculture credit](image)

Source: Primary data

The Figure 3 displays the criteria to obtain agriculture loan. The majority of
respondents (50 percent) mentioned attitude to repay the loan as the most criterion to be given a loan, slightly more than 30 percent mentioned level of saving as the basis of being given the loan and nearly 20 percent mentioned grant and interest as the criteria to be given agriculture loan.

**Average amount of credits borrowed from banks to invest in agriculture activities**

Table 3 presents the average amount of credit borrowed from banks to invest in agriculture activities. The majority of borrowers (56.1 percent) reported that they borrowed amount money between 101,000 and 500,000Rwf. Slightly more than 15 percent reported that they borrowed amount money less or equal to 100,000Rwf, nearly 20 percent reported that they borrowed amount of money ranged between 501,000 and 1,000,000Rwf, research revealed that this range of amount is mainly disbursed to farmers in associations and cooperatives. And only 9 percent reported that they borrowed amount of money more than 1,000,000Rwf and it was found that is accessed by people from cooperatives.

<table>
<thead>
<tr>
<th>The average amount of credit borrowed from banks to invest in agriculture activities</th>
<th>Frequency</th>
<th>Percentage%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less or equal to 100,000Rwf</td>
<td>10</td>
<td>15.2</td>
</tr>
<tr>
<td>Between 101,000 and 500,000Rwf</td>
<td>37</td>
<td>56.1</td>
</tr>
<tr>
<td>Between 501,000 and 1,000,000Rwf</td>
<td>13</td>
<td>19.7</td>
</tr>
<tr>
<td>More than 1,000,000Rwf</td>
<td>6</td>
<td>9.1</td>
</tr>
</tbody>
</table>

**Source: Primary data**

Table 3 presents the average amount of credit borrowed from banks to invest in agriculture activities. The majority of borrowers (56.1 percent) reported that they borrowed amount money between 101,000 and 500,000Rwf. Slightly more than 15 percent reported that they borrowed amount money less or equal to 100,000Rwf, nearly 20 percent reported that they borrowed amount of money ranged between 501,000 and 1,000,000Rwf, research revealed that this range of amount is mainly disbursed to farmers in associations and cooperatives. And only 9 percent reported that they borrowed amount of money more than 1,000,000Rwf and it was found that is accessed by people from cooperatives.

Generally, the majority of borrowers (56.1 percent) reported that they borrowed amount between 101,000 and 500,000Rwf, this high concentration is due to that many borrowers were within groups and associations and it is critical criterion to be allowed to access to such great amount. The research pointed out that while granting credit to farmers for agricultural purposes resulted from consideration of a number of factors including profitability of the investment, level of assets of the farmer-borrower interest rate, availability of credit, loan transaction costs, and level of risk bearing and it is recommended to take care of that to access sufficient amount that can boost the investment.

**Changes in quantity of agricultural yield resulted from agriculture credits**

The Figure 4 shows the comparison of agricultural yield before and after agriculture credits. Findings show that after acquiring agriculture credits, output has increased tremendously than you can imagine.

Before acquiring credits, agricultural yield was ranged between 0-800Kg where 6.1 percent was between 0-200kg, 77.3 percent was between 201-400kg, and 16.7 percent was between 401-800kg and after acquiring credits, agricultural yield was increased and ranged between 201-801kg and majority is above 801 kg where 6.1 percent was between 201-400kg, 24.2 percent was between 401-800kg, and 69.7 percent was above 801 kg. Changes in agricultural yield are illustrated in Figure 4 below.
The research findings revealed that by getting agricultural credits, farmers improve agricultural processes and hence agricultural yield boosts tremendously. Before using agriculture credits average of production was ranging between 201-400 kg and maximum of production could not reach 801 kg. However after using agricultural credits, yield boosted exponentially where average of production tripled to above 801kg.

**Changes in monetary value of agricultural yield resulted from agriculture credits**

The estimate of monetary value of agriculture yield as the result of using agriculture credit as means to boost agricultural yield is vital indicator to track the impact of agriculture financing.

The Figure 5 shows the evolution of agriculture productivity before and after acquiring agriculture credits. Acquiring agriculture credits, productivity has increased tremendously. Before acquiring credits, agriculture productivity was ranged between 20,000-100,000Rwf and above where most of respondent nearly 40 percent earned between 20,000 and 40,000 Rwf and after credits productivity was raised to above 100,000Rwf with extent of 97 percent of farmers interviewed as presented in Figure 5 below.

**Changes in agriculture productivity(yield)**

<table>
<thead>
<tr>
<th>Output situation before agriculture credit</th>
<th>Output situation after agriculture credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-200kg</td>
<td>6.1</td>
</tr>
<tr>
<td>201-400kg</td>
<td>0</td>
</tr>
<tr>
<td>401-800kg</td>
<td>1</td>
</tr>
<tr>
<td>801kg and above</td>
<td>24.2</td>
</tr>
</tbody>
</table>

**Changes in monetary value of agricultural yield as result of agriculture credits**

<table>
<thead>
<tr>
<th>Less than 20,000Rwf</th>
<th>Between 20,000 and 40,000Rwf</th>
<th>Between 41,000 and 70,000Rwf</th>
<th>Between 71,000 and 100,000Rwf</th>
<th>Above 100,000Rwf</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>37.9</td>
<td>31.8</td>
<td>1.5</td>
<td>97</td>
</tr>
<tr>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.6</td>
<td></td>
<td>69.7</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>13.6</td>
<td></td>
<td></td>
<td>15.2</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0.2</td>
<td></td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4: The agriculture output (in quantity) before and after agriculture credits**

Source: Primary data

**Figure 5: Changes in monetary value of agricultural yield resulted from agriculture credits**

Source: Primary data

Generally, the majority of respondents (97 percent) reported that they earned amount above 100,000Rwf following acquiring agriculture credits, the things which did not exist ever before. Before agriculture credits average earnings was between 20,000 and 40,000 Rwf however after getting agriculture credits almost beneficiaries earn more than 100,000Rwf and no one who earn below 71,000Rwf.

**Challenges faced by farmers while borrowing money from financial institutions**

Access to agriculture finance is indispensable however, farmers meet a numbers challenges as depicted in Figure 6 below.

Figure 6 presents challenges faced by farmers while borrowing money to invest in agriculture activities. The majority of respondents (54.5 percent) reported that they dramatically faced a problem of delay of the loan as the process of getting loan takes longer time. 33.3 percent pointed out the problem of long distance to reach financial
institution offices, 9.1 percent said that charges they are charged for the loan is high compared to their economy, 3 percent reported other challenges including mainly not qualified of workers to assess their projects.

Figure 6: Challenges faced while borrowing money  
Source: Primary data

### IV. CONCLUSION

Agriculture outputs are vitally important to all beings. In Rwanda, agriculture remains the mainstay of the economy since it is the largest sector in terms of its share in employment. In an effort to diversify agricultural base economy, Rwanda is placing much emphasis on financing agricultural sector, since agriculture has the potential to stimulate economic development through provision of raw materials, food, jobs and increased financial stability.

Findings revealed that after accessing agriculture loans, the agriculture productivity was increased tremendously.

The analysis was made in purpose of investigating the Contribution of Agriculture Finance in Boosting Agricultural Yield in Gakenke district of Rwanda. For people interviewed, research found that before using agriculture credits average of production was ranging between 201-400 kg and maximum of production could not reach 801 kg. However after using agricultural credits, yield boosted exponentially where average of production tripled to above 801kg and there was no longer production less than 200kg as it was before.

Even though farmers pointed some challenges in accessing agriculture credits such as delay of loan, long distance to financial institution offices from home and higher charges, the research inferred that using agriculture credits boost yield and therefore farmers and financial institutions should collaborate to maintain and increase access to credits in order to keep increasing productivity. Although, the research was successfully reached the objective, it has a got a number of limitation. Major problem encountered was data collection tools with limited time span, which the researcher found it was a tiresome work to get the required data. Funding the research was also another problem since transport and material to obtain accurate and sufficient data as well as costs in typing and loading were so costly.

However, using mobile phone helped researcher to minimize time and cost of printing questionnaires and internet tried to solve the problem of loading questionnaire forms in appropriate data collection tool. Due to limited funds, the researcher used snow ball type of sampling to present total population as a possible way to use available financial resources that compiled the research paper.

### V. RECOMMENDATIONS

Reviewing key findings of the research. The researcher came up with a number of suggestions to farmers, financial institutions, Gakenke district/government and to other researchers. To farmers: Research recommends continuous borrowing money for investing in agricultural activities because it is proved to
It is advised to farmers to merge into associations, groups and cooperatives to garner a number of credits in affordable manner. Integurally to acquisition of agricultural credits and as in Rwanda land scarcity is common, it is recommended to practice intensive agriculture practices to exploit maximally the benefit of land in order to boost agricultural yield. To financial institutions: Researcher recommends financial institution to encourage, facilitate and sensitize farmers to take loans for investing in agriculture because it is proved that farmers are good customers who can repay their loans following that their investment in agriculture is bringing much more revenues. To Gakenke district of Rwanda: Researcher recommends district officials to encourage and sensitize farmers to take loans for investing in agriculture because it is proved to boost exponentially agricultural yield and also should sensitize financial institutions to facilitate farmers to get loans in quicker and easy way to investing in agriculture because it is proved to boost agricultural yield and for sure they repay loans easily as production obtained in increasing trend. To other researchers: This research did not cover all the corners related to the agriculture finance in Gakenke district of Rwanda, and this is due to that the subject is multidimensional and immense of agriculture activities. Research suggests other researchers the following points: Further researches to deepen the research on this subject matter to increase the evidence base and promote the use of agriculture credits evidence to finance agriculture activities for economic development; Go for further scientific researches, books and journals to publish evidence and case studies that can help farmers, financial institutions and nation as whole.

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VII. REFERENCES


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