

# **CREDIT FROM GROUPS SAVINGS ASSOCIATIONS AND THE PERFORMANCE OF SMALLHOLDER HORTICULTURAL AGRIPRENEURS IN KENYA**

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## **Abstract**

*Increased need for appropriate credit in the agricultural industry has forced agripreneurs to explore ways to obtain credit with favorable terms to develop and grow their agribusinesses. The provision of sustainable and adequate financial services to resource-poor rural smallholder agripreneurs faces many challenges, including limited capacity of financial service providers in the rural areas. Lack of adequate credit from formal financial institutions has been prominently highlighted as one of the main factors that contribute to underperformance in the agricultural enterprise sector in Kenya. To mitigate this challenge, smallholder agripreneurs have had to explore ways of getting credit from the informal financial sector. This study used descriptive design method which endeavoured to investigate the significance of credit from groups savings' associations on the performance of the smallholder agripreneurs in terms of production, land expansion, job creation and amount of income realized. The study was guided by credit from group savings associations as the independent variable and performance of smallholder agripreneurs as the dependent variable. The study found out that credit from group associations*

*had a significant influence on the performance of the smallholder agripreneurs in Kenya. The conclusion of the study was that credit from group savings associations is very important for enterprise development and recommended smallholder agripreneurs to join group savings associations to access effective credit.*

*Keywords: Credit, Group savings associations, Smallholder Agripreneur, Performance*

## INTRODUCTION

The provision of sustainable and adequate financial services to resource-poor rural smallholder agripreneurs faces many challenges, including limited capacity of financial service providers in the rural areas. The formal financial institutions are reluctant to serve the agricultural sector, given its seasonality and the inherent risks of farming (Kimathi *et al.*, 2008; Kloeppinger-Todd and Sharma, 2010; IFC, 2011; FAO, 2012; IFAD, 2011). Agricultural lending in Africa by formal financial institutions is the lowest in the world constituting less than one percent of all commercial formal lending (AfDB/IFAD, 2009). Advocates of credit as a poverty alleviation measure (Adam, 2010; Roodman & Morduch, 2009; World Savings Bank Institute, 2010) contend that limited availability of credit services from formal financial institutions has prevented farmers from adopting improved farming practices because of their inability to purchase the necessary inputs required in the production. Low productivity in agriculture, livestock and fishing is generally attributed to the use of poor technology resulting due to limited access to credit. Wiggins, Kirsten, and Llambi, (2010) notes that with insufficient funds, smallholder agripreneurs cannot invest in new equipment and machinery to enable them reach out to new markets and products.

Globally, 75 percent of the world's poor people live in rural areas and are mostly dependent on agriculture for their livelihoods (World Bank, 2008a). Smallholder agripreneurs involved in agricultural enterprises are the primary source of poverty reduction in most agriculture-based economies and produce 70 percent of Africa's food supply (IAASTD 2009a) and an estimated 80 percent of the food consumed in Asia and sub-Saharan Africa together (IFAD, 2011b; UN, 2012). An expansion and investment in smallholder farming can stimulates at least 2.5 times more growth for the poorest third of the population than investment in other sectors leading to faster rate of poverty alleviation by reducing food expenditure, increasing employment opportunities and reducing income inequality (Koohafkan 2011; ActionAid, 2009; Barham & Chitemi, 2008; World Bank, 2008).

Agriculture remains the mainstay of the Kenyan economy and directly contributes to 26 percent of gross domestic product (GDP). The sector performance greatly affects the poor, as

67 percent of the population and 80 percent of the poor live in rural areas and depend on agricultural activities for their livelihoods (World Bank, 2009; KIPPRA, 2013). The rural economy in Kenya is mainly dependent on smallholder agripreneur agriculture, which accounts for 75 percent of total agricultural output and 70 percent of marketed agricultural production. Smallholder agripreneurs face various constraints, which lead to low returns. Among these constraints is limited access to inputs and financial services (World Bank, 2008). Agricultural productivity is low and declining and its competitiveness, in both domestic and export market, has worsened. Agriculture production especially in dairy and horticulture declined by 5 percent between 2010 and 2011 (KIPPRA, 2013). Concerted efforts are therefore needed to turnaround the sector through private-sector driven development with its ultimate target being low income smallholder agripreneurs (Mercy Corps, 2011). With rising incomes and growing urban markets demanding higher-value products, commercialization of some of the key agricultural sub-sectors is occurring. Commercialization is also arising as agricultural exporters are trying to meet higher public and private standards within the global markets. Both these processes lead to greater use of purchased inputs, greater demand for processing, packaging and transportation, and the increased use of services like finance (World Bank, 2013). In Rwanda and Kenya, the poverty-reducing impact of agricultural growth has recently been found to be as much as three to four times greater than growth generated in other sectors (IFPRI 2012).

### **Statement of the Problem**

Lack of adequate credit from formal financial institutions has been prominently highlighted as one of the main factors that contribute to underperformance in the agricultural enterprise sector in Kenya (Kimathi et al., 2008; Kloppinger-Todd & Sharma, 2010; IFC, 2011; FAO, 2012; IFAD, 2010; CEA, 2011; Etonihu, 2010). To fill this gap created by the limited number of formal financial service providers, informal financial service providers have stepped in to provide credit to the smallholder agripreneurs (Chisasa & Makina, 2012; Marcoul & Veysièrè, 2010). While the provision of agricultural credit to the smallholder farmers in Africa by non-financial institutions has been recognized (Kamara, 2010; Egyir, 2010; Kloppinger-Todd & Sharma, 2010; Mann *et al.*, 2010; Coates *et al.*, 2011), very little and accurate information on the influence of credit on smallholder agripreneurs has been documented (Owuor, 2009; Girabi et al., 2013; Coates, et al., 2011, Reyes & Lensink, 2010).

Most studies have tended to examine other specific constraints to smallholder agripreneurs' activities (Liverpool & Winter-Nelson, 2010; Reardon et al., 2009; Markelova et al., 2009) without a comprehensive analysis of the sector especially influence of credit from group savings associations on the performance smallholder agripreneurs. According to KIPPRA

(2013) economic report, the financial sector in Kenya plays a very critical role in the development process. However, the contribution made by credit from group savings associations was not acknowledged in the report. This study sought to investigate the influence of credit from group savings associations on the performance of the smallholder agripreneurs making an empirical contribution to the available literature by documenting and highlighting their contribution to the development of the financial sector and the growth of GDP in Kenya.

## LITERATURE REVIEW

### Credit from Group Savings Associations

Savings fundamentally is about choosing between current and future consumption. Savings theories traditionally predict that present consumption is related not to current income, but to a longer-term estimate of income. The life-cycle hypothesis LCH (Modigliani, 1966) predicts that individuals hold their consumption constant over their lifetime; they save during their working years and draw down their savings during retirement. The basic idea behind the Modigliani-Brumberg model of life-cycle savings is that individuals try to smooth their consumption over a finite lifetime. Since their labor income varies over time, and since their household size varies over time, their saving rates will vary over time. In particular, a typical household will accumulate assets during its working years, and de-cumulate during retirement (Modigliani & Brumberg 1954; 1980; and Modigliani, 1986).

This theory is relevant to smallholder agripreneurs in that the savings mobilized can be used to on-lend to group members to develop and grow profitable agri-businesses. When individual savings are consolidated into one pool (Bernheim, Ray, & Yeltekin 2011), then individual smallholder agripreneurs can access adequate credit to invest in enterprise development (Duflo, Kremer, & Robinson, 2011; Brune *et al.*, 2012).

Yusuf *et al.*, (2009) agrees with Modigliani's Life-Cycle study that people choose to save with Rotating Saving and Credit Associations (ROSCAs) which help them to acquire credit services in short notice with little or no restrictions. This is very popular among the smallholder agripreneurs in the rural areas in Africa. According to Bernheim, Ray, and Yeltekin (2011), empirically, the reason why there is low savings among people in the rural areas is not that the people are simply too poor to save but because of self-control problems which lead to the low asset trap model. Experimental evidence from a multiplicity of countries show that being part of peer groups can increase individuals' saving rates and access to commitment savings products like credit (Kast, Meier, & Pomeranz, 2011; Karlan *et al.*, 2011). This is what necessitates smallholder agripreneurs to join saving groups to avoid the temptation to use up the savings prematurely (Banerjee & Mullainathan, 2010).

Choi, Laibson, and Madrian (2011) posit that some form of commitment is needed for people with time-inconsistent preferences to make savings in the United States. Smallholder agripreneurs prefer to make agricultural investments through group savings in Kenya and Malawi (Duflo, Kremer, & Robinson, 2011; Brune *et al.*, 2012). In an attempt to save and benefit from group saving financial services, there is evidence of savings misallocation in Kenya due to intra-household heterogeneity in time preferences (Schaner, 2011) while there is evidence from the Philippines that hiding money from one's spouse is desirable under certain intra-household decision-making structures (Ashraf, 2009).

## METHODOLOGY

This study used descriptive design method which endeavored to investigate the significance of credit from traders and processors on the performance of the smallholder agripreneurs in terms of production, land expansion, job creation and amount of income realized. The study was guided by credit from traders and processors as the independent variable and performance of smallholder agripreneurs as the dependent variable. This study targeted the smallholder agripreneurs involved in horticulture farming in Kenya. This study focused on a sample drawn from the target population of 337 smallholder horticultural agripreneurs who were carrying out farming in Yatta division in Machakos County. Out of the total 337 agripreneurs, 110 were female representing 33% and the rest 227 were male agripreneurs representing 67%. Using the simple random sampling method, Yatta division was chosen for the study out of four areas namely Sagana, Mwea and Kibwezi.

The sample size of 100 smallholder agripreneurs was computed using Glenn (1992) formula

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

n = Sample size

N = Target population

e = Level of precision considered at 90% confidence level

According the formula, this was the minimum sample size that needed to be considered in the study. Sample sizes larger than 30 and less than 500 are appropriate for most research (Roscoe, 1975). Stratified sampling method was used to obtain a sample from the target population. Stratification was done to categorize members of the population into homogeneous subgroups before sampling. Thereafter, the systematic sampling technique was applied in each stratum to select items for the sample (Kothari, 2012). The strata sample sizes were obtained through proportional allocation. The sampling frame was the list of all the 337 agripreneurs registered with Horticultural Crop Development Authority office in Yatta division in Machakos County. Based on the sampling formulae, this study used the stratified systematic random

sampling technique to draw out a sample from the population of smallholder agripreneurs stratified in terms of gender and groups in each of the geographical areas. According to Kothari, (2012); Locke et al., (2010), this technique aimed at ensuring proportionate representation with a view of accounting for the differences in stratum characteristics. Based on the sampling formulae, this study targeted to work with a minimum sample of 100 agripreneurs who were proportionally and scientifically selected.

The researcher designed and provided respondents with structured questionnaires with guided questions with a fixed set of choices, often called closed questions. There were a few open-ended questions that gave room for any suggestions and opinions that the respondents might have had. To ascertain the validity and reliability of the questionnaires, the researcher carried out a pilot test on a few smallholder agripreneurs who were selected from the target population. The validity tests carried out were on face and content validity. Further, Cronbach's alpha ( $\alpha$ ) was used to ensure that items have reasonably good internal consistency to measure the same underlying construct consistently. After the pilot study, the questionnaire was revised and reliability test using Cronbach's Alpha Coefficient carried out on the tool to ensure it gave reliable results. Amongst all the variables, the lowest Alpha coefficient was 0.741 while the highest was 0.865. This reliability test results indicated that the individual components and overall coefficient were above the 0.7 Cronbach's. For inferential analysis, several statistical methods were used including the Ordinal Logistic Model and the Two-Way ANOVA to analyze the data. Since the responses to the variables were scaled to more than two responses, the Ordinal Logistic model was the most appropriate for necessary computation of data in this study.

Research null hypothesis: Credit sourced from group savings associations does not influence smallholder horticultural agripreneurs' performance.

## **ANALYSIS AND RESULTS**

The Chi-Square test for independence was used to establish whether there was a relationship between the two categorical variables i.e. credit from group savings associations and the performance of the smallholder horticultural agripreneurs in terms of change in production. The Chi-Square test for independence was used to establish whether there was an association between the two categorical variables i.e. credit from group savings associations and the performance of the smallholder horticultural agripreneurs in terms of change in horticultural crop production. The test established that the change in crop production was 54.281a with a p-value of 0.042 as shown in Table 1. Since the p-value on the change in production was found to be less than 0.05, it was established that statistically there was a significant association between

the two categorical variables namely credit from group savings associations and crop production. This finding revealed that credit from group savings associations played a very key role in increasing, significantly, the horticultural crop production for agripreneurs. A similar study carried out by Rao and Qaim in Kenya (2011) found that apart from accessing credit to boost productivity, working as a group association also actually aided the group savings association to undertake communal marketing triggering increased production.

Table 1: credit from group savings associations and performance of agripreneurs in terms of change in production

Chi-Square Tests at 95% Confidence Level			
N of Valid Cases	Value	Df	Asymp.Sig. (2-sided)
105			
Pearson Chi-Square	54.281a	38	.042
Likelihood Ratio	70.504	38	.001
Linear-by-Linear Association	.999	1	.317

The Chi-Square statistic test on the above two categorical variables realized 18.918a with a p-value of .041 at 95% confidence level as shown in Table 2. Since the p-value on change in the size of the land under crop production was found to be less than 0.05, it was concluded that statistically there was significant association between the two categorical variables. The finding affirmed that credit sourced from savings associations contributed significantly to substantial increase in the land leased by agripreneurs for horticulture. Dalberg (2011) research findings on credit support to SMEs in developing countries in Africa are in tandem with this research test result disclosing that access to credit by smallholder agripreneurs from formal or informal sources encourages market entry, facilitates growth, reduces risks and fosters innovation and entrepreneurial activity. As per another study by Amoah (2013) and Nguyen *et al.*, (2014), access to credit increases production and land under crop production.

Table 2: Credit from group savings associations and performance of agripreneurs in terms of change in land for horticultural crop production

Chi-Square Tests at 95% Confidence Level			
N of Valid Cases	Value	Df	Asymp. Sig. (2-sided)
105			
Pearson Chi-Square	18.918a	10	.041
Likelihood Ratio	21.744	10	.016
Linear-by-Linear Association	9.785	1	.002

The Chi-Square test was carried out to establish whether there was an association between credit from group savings associations and the performance of the smallholder horticultural agripreneurs in terms of change in the number of permanent employees. In Table 3, on changes in permanent employees, the statistical results were 13.899a with a p-value of .178. This implied that there was no substantial relationship between the two categorical variables. This was mostly occasioned by the seasonal and informal nature of both agricultural micro and small businesses whereby owners tend not to engage new permanent workers. Characteristically most of these categories of businesses especially in agriculture tend to have only one permanent employee who normally is the business owner-manager (Mead & Liedholm, 1998).

Table 3: credit from group savings associations and performance of agripreneurs in terms of change in number of permanent employees

Chi-Square Tests at 95% Confidence Level			
	Value	Df	Asymp.Sig. (2-sided)
Pearson Chi Square	13.899a	10	.178
Likelihood Ratio	17.004	10	.074
Linear-by-Linear Association	.315	1	.575
N of Valid Cases	105		

#### **Effect of credit from group savings associations on the number of casual employees:**

The Chi-Square test was applied to investigate whether there was a significant relationship between credit from group savings associations and the performance of the smallholder horticultural agripreneurs in terms of change in the number of casual employees. Table 4 on the change in the number of casual employees, the Chi-Square test revealed a statistical result of 38.343a with a p-value of .008 inferring that there was a significant relationship between the two categorical variables. This test result means that credit sourced from group savings associations contributed significantly to the increase in the number of casual employees engaged by the agripreneurs for horticultural enterprise expansion. Horticultural farming is normally labour-intensive. During peak seasons, agripreneurs tend to engage more casual workers. The engagement of casual workers is usually facilitated better when the agripreneurs access loans either from the formal or informal sources to enable them to effectively engage and pay casual workers (Mead & Liedholm, 1998).

Dalberg (2011) research findings on credit support to SMEs in developing countries in Africa were found to be in tandem with this research test result disclosing that access to finance by smallholder agripreneurs from either formal or informal sources encourages market entry,



facilitates growth, reduces risks and fosters innovation and entrepreneurial activity. According to another study by Amoah (2013), an increase by 1 acre of land increases production by 2.578 times leading to increased employees mainly casuals.

Table 4: Credit from group savings associations and the performance of agripreneurs in terms of change in casual employees

Chi-Square Tests at 95% Confidence Level			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi Square	38.343a	20	.008
Likelihood Ratio	43.988	20	.002
Linear-by-Linear Association	3.789	1	.052
N of Valid Cases	105		

The Chi-Square test was conducted to examine whether there was a significant association between credit from group savings associations and the performance of the smallholder horticultural agripreneurs in terms of change in the average net income. In Table 5 on the change in average net income, the Chi-Square test presented a statistical result of 60.665a with a p-value of .011 inferring that there was a significant relationship between the two categorical variables; credit from group savings associations and change agripreneurs' average net income. This finding showed that credit from group savings associations played a pivotal role in increasing the average net income for the agripreneurs. Several similar research studies carried out in Nigeria showed that when agricultural credit is used, it stabilizes farming enterprise and often leads to increases in productivity, agricultural production, value addition and net incomes for smallholder farmers, thus fulfilling the main objective of taking credit (Nwaru & Onuoha, 2010; Omonona *et al.*, 2010; Nguyen *et al.*, 2014).

Table 5: credit from group savings associations and performance of agripreneurs in terms of change in average net income

Chi-Square Tests at 95% Confidence Level			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	60.665a	38	.011
Likelihood Ratio	80.915	38	.000
Linear-by-Linear Association	20.8861		.000
N of Valid Cases	105		

### Hypothesis Testing - $H_0$

The hypothesis for credit from group savings associations was earlier stated as:

***$H_0$ : Credit sourced from group savings associations does not influence smallholder horticultural agripreneurs' performance.***

This study sought to find out whether credit from group savings associations had any effect on the performance of the smallholder horticultural agripreneurs in terms of crop production, size of land, number of employees engaged and the amount of net income being realized by the horticultural enterprise. The research analysis established that 46.7% of the respondents had taken credit from group savings associations. The Chi-Square tests on the two categorical variables and sub-variables revealed clear results whose significance is highlighted. The relationship test between the credit sourced from group savings associations and horticultural crop production revealed a result of 54.281a with a p-value of 0.042 establishing that there was a significant relationship between the two variables since the p-value was less than 0.05. This result meant that credit sourced from group savings associations played a very key role in increasing crop production substantially.

The Chi-Square test on the effect of credit sourced from group savings associations on the land size under horticultural crop production presented a result of 18.918a with a p-value of 0.041. Since 0.041 is less than 0.05, this implied credit sourced from group savings associations caused the substantial increase in the size of land leased by the agripreneurs for enterprise growth through more crop production. The test on the relationship between the credit sourced from group savings associations and the agripreneurs' permanent employees presented an outcome of 13.899a with a p-value of 0.178 showing that credit sourced from group savings associations did not increase the number of permanent employees engaged in the horticultural enterprise. The result of a similar test between credit sourced from the group savings associations and the number of casual employees was 38.343 with a p-value of 0.008 showing that credit sourced from groups' savings associations yielded a substantial increase in the number of casual employees engaged by the agripreneurs. The Chi Square test result for the agripreneurs' average net income revealed an outcome of 60.665a with a p-value of 0.011 indicating that credit sourced from group savings associations played a pivotal role in supporting agripreneurs to increase their average net income since the p-value was less than 0.05.

A good example is Mary Mailu who took a Ksh 35,000 loan from Kimmuni Focus Group and bought improved seeds, fertilizer, chemicals and hired some casual workers. At the end of the year Mary had increased her French bean production from 850kgs to 1150 kg (82%). After obtaining the credit from the group, she increased the land size under French beans from 1 acre

to 2 acres (50%). Before acquiring credit, Mary was the only employee of her enterprise. Immediately she increased the land size, she hired 6 casual workers. At the end of the year, she increased her average net income from Ksh 40000 to 60000 (50% increase). This shows that credit from group savings associations had significant influence of the development and growth of the smallholder horticultural agripreneurs.

Since four out the five depended sub-variables were found to have significant relationship with the independent variable, the null hypothesis was therefore generally rejected. Overall, the Chi-Square tests clearly revealed that credit from group savings associations had significant influence on the performance of the smallholder horticultural agripreneurs because it led to substantial increase in crop production, increase in land size, increase in the number of casual workers as well as an increase in the average net income for agripreneurs in Yatta division, Machakos County. This is because the p-values of the four variables were less than 0.05. These study findings are similar to findings by other researchers like Yusuf *et al.*, (2009) who found out that people choose to save with Rotating Saving and Credit Associations (ROSCAs) to acquire credit services in a short notice with little or no restrictions. Agripreneurs join peer groups to increase their individuals' saving rates and to have access to commitment savings products like credit (Kast, Meier, & Pomeranz, 2011; Karlan *et al.*, 2011). In Kenya and Malawi, smallholder agripreneurs prefer to make agricultural investments through group savings (Duflo, Kremer, & Robinson, 2011; Brune *et al.*, 2012). This study findings are also strongly supported by a study carried out by Nguyen *et al.*, (2014) in Vietnam which found out that smallholder enterprises that acquired credit from their own internally mobilized savings experienced higher growth than those who acquired credit from other sources.

## CONCLUSION AND RECOMMENDATIONS

The study sought to investigate whether credit from group savings associations had any influence on the performance of smallholder horticultural agripreneurs. The study statistical analysis revealed that credit from GROUP savings associations had significantly influenced the performance of the smallholder horticultural agripreneurs in Kenya in terms of increased production, land size, number of casual employees and the average net income realized by the horticultural enterprises.

Having established from the study that a big number of the agripreneurs who took credit from group savings associations had realized significant positive outcomes in terms of agribusinesses' growth and profitability, it was concluded that credit from group savings associations is very important for agripreneurs. It was also concluded that smallholder agripreneurs should be encouraged to join groups as members to mobilize savings and access

credit to effectively finance their agribusinesses. This study recommends that all smallholder agripreneurs in all the agricultural sub-sectors should be encouraged to join group savings associations to help them develop a resilient savings culture bolstered by the inherent groups' peer accountability structures. This could further be scaled up and strengthened by documenting and sharing varied successful group savings and on-lending case studies across different sub-sectors from different regions and internationally.

### LIMITATION OF THE STUDY

Some of the smallholder horticultural agripreneurs who participated in the study were not able to read and write. The respondents required assistance from the research assistants to read and interpret the questions in the questionnaires. This affected the confidence and willingness of some of the agripreneurs to participate fully and therefore increased the rate of respondent attrition. As a result, this challenge may have affected the accuracy of the information that was given by the respondents.

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