

# **The Extent to Which Capital Financing Affects Productivity of Seed Maize Growing: A Case Study of Kenya Seed Company in Trans Nzoia County, Kenya**

**David Kassim Matara**

David Kassim Matara School of Human Resource Development, Jomo Kenyatta University of Science and Technology, Kitale CBD Campus, P. O. Box 62000-00200, Nairobi, Kenya. Email: davidmatara52@gmail.com

**Dr. Maurice Sakwa**

School of Human Resource Development, Jomo Kenyatta University of Science and Technology, Kitale CBD Campus, Nairobi, Kenya

**Werunga Kikechi**

Department of Educational Planning and Management, Masinde Muliro University of Science and Technology, Kakamega, Kenya

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## **Abstract**

To determine the extent to which capital financing affects the productivity of seed maize growers in Trans Nzoia County, we gathered data from a sample of 31 seed maize growers, 12 employees of the seed maize production department and 10 employees of the finance department. The study was guided by the theory of social capital, theory of signaling credit risk in agriculture and farm businesses and capital structure theory. This study utilized a descriptive survey research design. The study found out that seed maize growers face high interest rates on credit facilities and a myriad challenges while accessing credit from Kenya Seed Company. The findings of the study are expected to help in the improvement on access to credit by seed maize farmers. A further detailed study is needed on the effect of seed maize growers' financing by Kenya Seed Company on productivity levels at the regional and possibly the national level.

**Key words:** Capital financing, Productivity, Seed, Seed maize growers

In Kenya, the term 'maize' is synonymous with the word "food". Maize is the major staple food crop and source of livelihood for majority of Kenyans. It is widely produced, dominates all national food security considerations and contributes highly to agricultural employment (Jayne, Yamano, Nyoro & Awour, 2001; Nyoro, Karimi & Jayne, 2004). The area under maize cultivation has stabilized at around 1.5 million hectares, producing about 26 million bags of maize per annum. This falls short of the annual domestic maize consumption estimated at 34million bags (FAO, 2003).

Agricultural output is low in developing countries especially in Kenya due to small holdings, traditional methods of farming, poor irrigation facilities, low or misuse of modern farm technology etc (Zuberi, 1989). This results in small incomes and no savings or small savings. Therefore, the need to access credit in order for farmers to apply and undertake improved farm practices. Credit is an important instrument that enables farmers to acquire commands over the use of working capital, fixed capital and consumption goods (Siddiqi, Wasif & Baluch, 2004). Credit plays an important role in increasing agricultural productivity. Timely availability of credit enables farmers to purchase required inputs and machinery for carrying out farm operations (Saboor, Maqsood, & Madiha, 2009).

Owuor, De Groote and Wangia (2001) observe that credit can help farmers increase their productivity by obtaining farm inputs in a timely manner for early planting, improving crop management practices such as application of fertilizers, weed control, pests and diseases control and timely harvesting which all lead to enhanced productivity and enhanced national seed availability. Lack of credit, on the other hand, translates into inadequate working capital implying that farmers are unable to purchase productivity-enhancing inputs such as hybrid seeds, fertilizers, and pesticides and to carry out proper land preparation and general crop management practices which result in improved output in terms of yields per acre.

Balogun (1990) observes that credit has long been identified as a major input in the development of the agricultural sector. Credit is considered the catalyst that activates other factors of production and makes underused capacities functional for increased production (Ijere, 1998). It is a major factor necessary for technological transfer in traditional agriculture (Oyatoye, 1981). Farm credit can be obtained from either formal sources which include banks and other government owned institutions or informal sources which are self-help groups, money lenders, cooperatives and non-government organizations (NGOs).

### ***1. The Financing Process of Kenya Seed Company and its Outreach***

Kenya Seed Company has an elaborate seed financing program. Every year the company procures over K.Shs. 500 million worth of farm inputs. Financing by Kenya Seed Company is in the form of advances to seed maize growers of cash or farm inputs such as basic seeds, fertilizers and agrochemicals to assist them in enhancing seed productivity. The Company advances cash to be used by the growers mainly in meeting costs related of crop management such as weeding, roguing, detasseling, pests and disease control and harvesting. Timely action of these crop management activities leads to improved yields of the seed maize crop harvests.

The Company has a structured inputs advances approval procedure which all farmers adhere to. Information on access to financing is provided through various outreach programs including extension services, field days and the annual research field day all of which the seed growers are expected to attend. To maintain contact with its seed growers, the Company enters into yearly contracts with them. As per the contracts, the seed growers are required to attend and participate fully during the said field days and the annual research day for dissemination of new and emerging seed technologies.

The Company has also encouraged its contracted seed growers to sign up with the Ministry of Agriculture's Credit Guarantee Scheme; an arrangement that the Ministry of Agriculture (MOA) has entered into with selected financial institutions, namely, Equity bank, Cooperative bank, Family bank and Kenya Women Finance Trust, to facilitate credit extension to farmers in the agriculture sub-sector. This credit guarantee scheme by the MOA to the financial institutions allows the institutions to advance funds in excess of K.Shs. 7 billion as loans to farmers at an affordable interest rate of 12% per annum.

It is against this background that the study set out to determine the extent to which capital financing by Kenya Seed Company and financial institutions affects the productivity of seed maize growers in Trans Nzoia County. Trans Nzoia County was selected based on its agricultural potential, accessibility, agronomic practices, high levels of maize production and being the County that hosts the Kenya Seed Company, which is the regional market leader in seed maize production in Kenya.

## **1. Methodology**

### **2.1. Research Design**

The study employed a descriptive survey research design. According to Kombo and Tromp (2006), descriptive studies are designed to establish facts and often result in formulation of important principles of knowledge and solutions to significant problems. Thus, unless research first generates an accurate description of a phenomenon as it exists, it will lack a firm basis for explaining or changing it. Borg, Gall and Gall (2003) add that descriptive research is a type of quantitative research that involves making careful descriptions of educational phenomenon. This design was deemed appropriate because it has been found to offers to social scientists and other educators a systematic and logical method of collecting data, for the purpose of measuring characteristics and describing populations that are too large to be observed directly.

### **2.2 Sample and Sampling Technique**

From a population of 224 seed maize growers in the three districts of Trans Nzoia County, 91 were randomly selected to form the final sample size for the study. The 91 seed maize growers represented 40% of the target population to be used in the study and this is considered ideal by O'Connor (2011) who says that, there are formulas for determining sample size, but the main thing is to be practical, and for a small population of interest you would most likely need to sample about 30% and above of the population. The study, however, put the sample size at 40% because of the questionnaires that might not have been returned or lost by the seed maize growers during data collection. This enabled the researcher to get at least 30% and above of the total population filling the questionnaires.

Stratified sampling technique was then employed in order to have subjects in various strata (districts) for subsequent analysis that made it easy to make comparisons and draw conclusions. This is a technique that generally provides increased accuracy in sample estimates. To obtain a representative sample, the 224 seed maize growers were formally classified into three categories according to their district of origin. Probability to proportion sampling technique was then used to obtain the sample size from each district. All Kenya Seed Company employees in the finance department (25) and seed production department (30) participated in the study because their numbers were small and manageable. The distribution of the respondents in the different strata for seed maize growers is as shown in table 1.

**Table 1: Distribution of the sample size for Seed Maize Growers in Trans Nzoia County**

No.	District	Sample Size of Seed Maize Growers
1	Trans Nzoia East	64
2	Trans Nzoia West	9
3	Kwanza	18
<b>Total</b>		<b>91</b>

### 2.3. Data Collection Instruments

Instruments were developed to gather information from three categories of respondents. A questionnaire was used as the main research tool for this study, since it provides a more comprehensive view than any other research tool. The questionnaire was administered to Seed Maize Growers to determine the extent to which capital financing by Kenya Seed Company has influenced their crop productivity levels. The questionnaire were also administered to staff in the departments of Finance and Seed Maize Production of the Company to obtain information on finances or credit provision by the Company and utilization of the said finance by the seed maize growers. The questionnaire was further used to assess if the Company realizes improved crop yields as a consequence of the credit advanced to the growers.

## 2. Results

### 3.1. Demographic Information of the Respondents

The study examined the following under the demographic information; age, gender, type of farm owned and their distribution within the county, educational levels of seed maize growers, membership to a cooperative society and experience of the farmers in seed maize growing.

#### 3.1.1. Age Distribution of Respondents

Table 4 points out that, all the 91 seed maize growers, 55 employees of Kenya Seed Company in the finance and seed maize production departments responded to the question on age. The responses from seed maize growers indicate that most of them (41.75%) are in the 51 to 60 years age bracket with another 26.37% in 41-50 range, only 12.09% are in the 61-70 range and 5.5% in the above 70 years of age bracket. Interestingly, only 14.29% of the respondents are below the age of 40 years.

**Table 2: Age distribution of seed maize farmers in Trans Nzoia County**

Years	Frequency	Percentage
20-30	4	4.4
31-40	9	9.89
41-50	24	26.37
51-60	38	41.75
61-70	11	12.09
Above 70	5	5.5
<b>Totals</b>	<b>91</b>	<b>100</b>

This suggests that seed maize farming is not very attractive to the youth in Trans Nzoia County. It was also revealed that financial institutions as well Kenya Seed Company were cautious in giving credit to young people because of the quest to travel outside the County in search of white collar jobs in the middle of their farming. Seed maize farming is therefore left mostly in the hands of the aged; a fact that may contribute to the low seed maize production in the county.

On the responses from the employees of Kenya Seed Company in the finance and seed maize production departments, it was observed that most of them (32%) and (40%) respectively were in the age bracket of 31-40 years. A few (36.67%) of the seed maize production officers were in the age bracket of 41-60 years of age (Table 3).

**Table 3: Age distribution of employees of KENYA SEED COMPANY Finance & Seed Maize Production departments**

Years	Employees of the KENYA SEED COMPANY finance department		Employees of the KENYA SEED COMPANY seed production department	
	Frequency	Percentage	Frequency	Percentage
20-30	6	24	7	23.33
31-40	8	32	12	40
41-50	6	24	5	16.67
51-60	5	20	6	20
<b>Total</b>	<b>25</b>	<b>100</b>	<b>30</b>	<b>100</b>

This implies that most of the seed maize production officers lack the experience to advise the seed maize farmers on financial matters and hence farmers end up receiving inadequate advice on agronomy.

### 3.1.2 Gender of the Respondents

Table 4 gives a summary of gender distribution of seed growing farmers and employees in the finance and seed maize production departments. The seed maize farmers were made up 78 males and 13 females. Though equal opportunity is given to both men and women to access financial assistance from the Kenya Seed Company and microcredit facilities, the ratio of men to women is about 6:1. This implies that in Trans Nzoia County, women have not taken a leading role in engaging in seed maize growing, which might be partly due to issues of land ownership, poverty, low levels of education among women and even ignorance.

**Table 4: Summary of gender distribution of seed growing farmers and employees in the finance and seed maize production departments**

Gender	Seed Maize Growers		Employees of the KENYA SEED COMPANY finance department		Employees of the KENYA SEED COMPANY seed production department	
	F	%	F	%	F	%
Male	78	85.71	16	64	18	60
Female	13	14.29	9	36	12	40
<b>Totals</b>	<b>91</b>	<b>100</b>	<b>25</b>	<b>100</b>	<b>30</b>	<b>100</b>

Note: F=Frequency, % = Percentage

### 3.1.3. Type of Farm Owned by the Seed Maize Farmers

Table 5 shows that most of the farmers (70.33%) owned medium scale farms with Trans Nzoia East having the majority (75%) of them. Only 9.89% of the farmers in the whole county own large scale farms, with Trans Nzoia East, Trans Nzoia west and Kwana owning 44.45%, 22.22% and 33.33% of them growing seed maize respectively. Only 19.78% of the farmers own small scale farms which they use for seed maize growing.

**Table 5: Type of farm owned by seed maize growers and their district**

District	Large scale farm		Medium scale farm		Small scale farm	
	F	%	F	%	F	%
Trans Nzoia East	4	44.45	48	75	12	66.67
Trans Nzoia west	2	22.22	5	7.81	2	11.11

Kwanza	3	33.33	11	17.19	4	22.22
<b>Totals</b>	<b>9</b>	<b>100</b>	<b>64</b>	<b>100</b>	<b>18</b>	<b>100</b>

Note: F=Frequency, % = Percentage

This implies that most seed maize that Kenya Seed Company receives comes from Trans Nzoia East and therefore growers in that region are bound to be visited more for offers of agricultural extension advice than any of those who come from Trans Nzoia west or Kwanza districts. This shows why Trans Nzoia East might be doing well in terms of productivity of seed maize growing.

### 3.1.4. Educational level of Seed Maize Farmers

Figure 1 show that most of the farmers (46%) have secondary school education while only 25% and 17% have college and university education respectively. A small number (7%) had no formal education at all. Only 5% of the respondents have primary education.

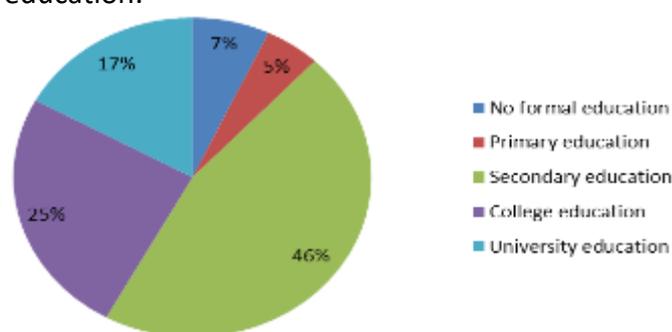


Figure 2: A chart showing the level of education of seed maize growers

This implies that only a small proportion of farmers (with university and college education) understand the importance of accessing financial assistance in order to improve on the seed maize yields.

### 3.1.5. Seed Maize Farming Experience

Table 6 shows that there were very few seed maize growers (29.67%) with an experience of more than 10 years. This might be due to the challenges faced during seed farming which make a good number withdraw from seed maize farming. This implies that seed maize growers with more experience in seed maize farming are bound to get higher yields than those with less experience.

**Table 6: Seed maize growers' experience in the field of seed maize farming**

Experience	Seed maize growers	
	Frequency	Percentage
1-5 years	40	43.96
6-10 years	24	26.37
Above 10 years	27	29.67
<b>Totals</b>	<b>91</b>	<b>100</b>

## 3.2 The effects of capital financing on the Productivity of Seed Maize Growers in Trans Nzoia County

The respondents were asked about the main source of capital financing for their seed maize farming and the majority (57.14%) responded that they get their capital financing from commercial banks as a credit facility while 26.37% said they get credit to finance their seed farming businesses from cooperative societies. A fairly good

number (12.09%) do finance their seed maize farming from own savings while 4.4% of the farmers get their finances from other sources such as micro finances, family or personal friends (see table 7).

**Table 7: Seed maize growers’ source of capital finance**

Sources of capital finance	Frequency	Percentage
Commercial banks	52	57.14
Cooperative societies	24	26.37
Own savings	11	12.09
Other sources	4	4.4
<b>Totals</b>	<b>91</b>	<b>100</b>

The seed maize growers were also asked to respond on the extent to which capital financing has assisted them in seed maize farming. Table 8 shows that many of them agreed (65.94%) or strongly agreed (10.99%) that access to capital financing assisted them to attain high yields in seed maize farming. Only a few (20.88%) disagreed or strongly disagreed that access to capital financing assists them in attaining high seed maize yields.

**Table 8: Seed Maize Growers’ responses on the effects of capital financing on productivity of seed maize in Trans Nzoia County**

Effects of capital financing on productivity of seed maize farming	Str	A	N	D	S
	ong	g	o	i	t
	ly	r	t	s	r
	Agr	e	S	a	o
	ee	e	u	g	n
			r	r	g
			e	e	l
				e	y
					D
					i
					s
					a
					g
					r
					e
					e
	%	%	%	%	%
Access to capital financing assists me to attain high seed maize yields.	10.99	65.94	20.88	1.11	1.09

Access to capital financing has assisted me use better farm machinery on the farm.	19.78	32	12	20	14
		.9	.0	.8	.2
		7	9	7	9
Access to capital financing has assisted me	34.07	29	8.	15	12
		.6	7	.3	.0
		7	9	8	9
use better farming methods.					
Access to capital financing has assisted me get more educated farm workers.	14.29	18	16	40	9.
		.6	.4	.6	.9
		8	8	6	
Access to capital financing has made me lose my property through auction.	6.59	19	0	43	29
		.7		.9	.6
		8		6	7
Short repayment period limits me from borrowing more funds for seed maize farming.	26.37	34	19	7.	12
		.0	.7	.9	.0
		6	9		9
I depend on my personal savings and not credit finance to produce seed maize.	23.08	14	18	13	30
		.2	.6	.1	.7
		9	8	9	6
I usually use my assets as collateral when borrowing a bank loan.	50.55	37	6.	2.	3.
		.3	5	1	3
		3	9	9	
		7			
Loans acquired are always accompanied by short repayment period.	43.95	31	14	8.	1.
		.8	.2	.9	
		7	9		
The yield acquired after acquiring credit finance is better than that acquired when using merger personal savings.	23.08	29	12	26	8.
		.6	.0	.3	.9
		7	9	7	

Access to capital financing has	35.	2	7	2	6
assisted me cushion some	17	3	.	7	.
challenges I encounter in seed		.	6	.	5
maize farming.		0	9	4	9
		8		7	

Table 8 also shows that a majority of the seed maize growers (52.75%) also either agreed or strongly agreed that access to capital financing from commercial banks or micro finance institutions has assisted them to acquire and make use of efficient farm machineries. It also assisted them to either buy their own farm machineries or lease from alternatives available.

#### 4. Discussion and Conclusion

The issue of gender in productivity has received a fair share of research attention. Earl (2008) observes that financial institutions always focus in areas where the returns to their investments are always high while Goetz and Gupta (2009) observe that men are more likely to go for credit facilities than women. They also make a similar argument that it is mostly the men of the households and not the women who actually exercise control on borrowing.

Most farmers had secondary school education while only a few have college and university education respectively. A small proportion of the maize seed growers had no formal education at all. Five percent of the respondents had primary education. This implies that only a few of farmers who had university and college education could understand the importance of accessing financial assistance in order to improve on their seed maize yields. Appelton and Balihuta (1996) found a positive relationship between education level and household agricultural output. This is consistent with studies done by Fasant (2006); Oladebo (2006); Oluwatosin (2011); Adeyemo, Oke, and Akinola (2010), Amos, Chikwendu, and Nmadu (2004) and Adejoh (2009) which found out that more educated farmers are more likely to access financial facilities available and adopt progressive farming practices and new technologies and thus increase their overall efficiency and farm yields.

The study also found that very few seed maize growers are members of cooperative societies. This indicates that they rarely benefit from the financial facilities offered by cooperative societies fully. This implies that seed maize farmers need to join cooperative societies to enjoy the financial and other services provided for by the cooperative societies. This will lead to increased rates of return on their seed maize per year.

The study also established that seed maize growers' main source of capital for their seed maize farming was from commercial banks as a credit facility. They also do get capital to finance their seed maize farming from cooperative societies, own savings and other sources such as micro finances, family or personal friends and shylocks in Kitale town respectively.

Many of the seed maize growers were in agreement that access to capital financing assisted them to attain high yields in seed maize farming. This did not corroborate with Peke (2008) who observed that experience in farming plays a very important role

in productivity. Experience brings along better farming methods and better utilization of credit facilities. Only a few disagreed or strongly disagreed that access to capital financing assists them in attaining high seed maize yields. Capital financing from commercial banks or micro finance institutions has assisted a majority of the seed maize growers to access or use better farm machinery than the financial assistance from Kenya Seed Company. It assisted them to either buy their own farm machinery or lease the best from all the alternatives available.

### References

- Adejoh, S. D. (2009). Analysis of Production Efficiency and Profitability Of Yam-Based Production Systems In Ijunmu LGA of Kogi State. Msc Thesis Department of Agricultural Economics And Extension, Ahmadu-Bello University, Zaria.
- Adeyemo, R. J., Oke, T. O., & Akinola, A. A., (2010). Economic Efficiency of Small Scale Farmers In Ogun State, Nigeria. *Tropicultura* 28(2).
- Amos, T. T, Chikwendu, D. O, & Nmadu, J. N., (2004). Productivity, technical efficiency and cropping patterns in the savanna zone of Nigeria. *J. Food Agric. Environ.* 2: 173-176.
- Appleton, S. & Balihuta, A. (1996: 307 – 487). Education and Agricultural Productivity: Evidence from Uganda. *Journal of International Development*, 8 (3).
- Balogun, E. D, (1990). Banking and Credit Facilities for Integrated Rural Development; Paper presented at the National Seminar on Rural Development Policy in Nigeria, Sheraton Hotel, Abuja.
- Borg, W. R, Gall, M. D., & Gall, J. P. (2003). *Educational Research - An Introduction*, New York: Longman.
- FAO, (2004). 'Towards effective and sustainable seed relief services' FAO Plant Production and Protection Paper 181.
- Fasoranti, M. M, (2006). "A Stochastic Frontier Analysis of Effectiveness Of Cassava-Based Cropping Systems In Ondo State, Nigeria." Phd Thesis, Department of Agricultural Economics and Extension, FUTA, Akure.
- Goetz, A. and Gupta, S. (2009). Who Takes the Credit? Gender, Power, and Control over Loan Use in Rural Credit programs in Bangladesh. *World Development*, 24(1): 45-63.
- Ijere, M. O. (1998). Agricultural Credit and Economic Development. In: Ijere, M.O. and Okories, A. (eds), *Reading in Agricultural Finance*, Longman, Lagos, pp. 4 – 9.
- Jayne, T. S, Yamano, T., Nyoro, J. and Awour T. (2001) "Do Farmers Really Benefit From High Food Prices Balance Rural Interests in Kenya's Maize Pricing and Marketing Policy." Working Paper 2b, Tegemeo Institute, Nairobi, Kenya.

- Nyoro, J., Kirimi, L and Jayne, T. S. (2004), "Competitiveness of Kenyan and Ugandan maize production: Challenges for the future", Working Paper 10, Egerton University, Tegemeo Institute, Nairobi.
- Oladeebo, J. O., (2006). "Economic Efficiency of Rain-Fed Upland Rice Production in Osun and Oyo States of Nigeria." Phd Thesis Department of Agricultural Economics and Extension, FUTA, Akure.
- Oluwatosin, F. M. (2011). "Measuring Technical Efficiency Of Yam Farmers In Nigeria: A Stochastic Parametric Approach." *Agricultural Journals* 6(2).
- Owour, G., De Groote & Wangia, M., (2001). Impact of self-help groups credit on input use in maize production in Siaya, Kenya. Seventh eastern and Southern Africa Regional Maize Conference. 11<sup>th</sup> – 15<sup>th</sup> February, Pp 407-412.
- Oyatoye, E.T.O., (1981). Financing Small Scale Farmers: A Change of Strategy, In: Edordu (Ed), *Agricultural Credit and Finance in Nigeria, Problems and Prospects*. Proceedings of a Seminar Organized by the Central Bank of Nigeria, April 27-30.
- Peke, O. R., (2008). "Economic Analysis of Food Crop Farming Under Ekiti State ADP." Msc Thesis, Department of Agricultural Economics And Extension, FUTA, Akure.
- Saboor, A, Maqsood., H., & Madiha, M., (2009), —Impact of micro credit in alleviating poverty: An Insight from rural Rawalpindi, Pakistan,|| *Pak. j. life soc. sci.* (2009), 7(1): Pp90-97.
- Siddiqi, M., Wasif M., Baluch K. N., (2004), — Institutional credit: A policy tool for enhancement of agricultural income of Pakistan. *International Research Journal of Arts & Humanities (IRJAH)* Vol. 37
- Zuberi, H.A (1989), —Production function, institutional credit and agriculture development in Pakistan". *The Pakistan Development Review* 28:1Pakistan Institute of Development Economics, Islamabad