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Effectiveness of Extension Services in Enhancing Outgrowers' Credit System: A Case of Smallholder Sugarcane Farmers in Kisumu County, Kenya

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Abstract

The purpose of this study was to investigate the role of extension services in enhancing effectiveness of outgrowers' credit system in Kisumu County, Kenya. The study specifically sought to determine whether public and private extension services play a significant role in enhancing effectiveness of out-growers' credit system among smallholder sugarcane farmers. A total of 110 small scale farmers were randomly selected for the study. A closed ended questionnaire was used to collect data from farmers. Both descriptive and inferential statistics were used for data analysis. The findings indicated that both public and private extension services were insignificant in enhancing effectiveness of outgrowers' credit system. Further, the findings indicated that there was no significant difference between public and private sector in provision of extension services. The findings suggest that for outgrowers' credit system to be effective in terms of creation of awareness about credit, accessibility, timely supply of credit, supervision of credit and provision of extension advice on credit utilization, both public and private extension services should be intensified and coordinated to avoid duplication. The results also suggest that sugarcane factory extension division should be strengthened just like in the coffee and tea sub-sectors.

Keywords:
Public extension service, Private extension service, Outgrowers' Credit system, Effectiveness, Western Kenya

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INTRODUCTION

The importance of agriculture to the African economies is stressed due to the fact that agriculture remains the principal occupation of the majority of people, constitutes the largest production sector, and produces an average of 32% of GDP, major sources of raw materials for industries and a significant purchaser of the countries manufacturers and services (Agbamu, 2005). In Kenya for example, the economy is heavily dependent upon agricultural sector and as the World Bank (2007) report indicates, the country's future will considerably depend on productivity of smallholder farms. Agriculture is by far the single largest economic sector in Kenya and accounts for about 30% of GDP, over 60% of the exports, 75% of the total labour force and provides 80% of industrial raw materials (Economic Survey, 2007; Kenya Sugar Research Foundation, 2007, Government of Kenya, 2005). Since independence, smallholder agriculture gained ground from mere provision of subsistence and minimal marketed surplus to account for over three quarters of agricultural production and 85% of agricultural employment (GoK, 2005, World Bank, 2007). Sugarcane farming is one such subsector that contributes to the national economy. According to Guda *et al.,* (2001) smallholder farmers accounts for 89% of the total area under sugarcane farming in Kenya. This provides an investment opportunity. However, this is only possible if the problems affecting it are addressed. Some of the main problems include shortage of sugarcane due to lack of systemic and synchronised sugarcane development, poor crop husbandry practices, poor cane varieties and qualities in some factory zones, poor harvesting methods, poor management in some factories affecting factory efficiency and output and inadequate agricultural production credit among others (Guda *et al.,* 2001). However the most notable problem is complaints due to delayed payment dues to the farmers after cane delivery. These problems have elicited diverse reactions from the farmers. The most severe reactions are cases of burning the cane crop by the farmers in their own farms, so as to turn to other lucrative enterprises like maize or bean seed production (Agribusiness Development Support Project Annual Report, 2001).

Agricultural extension is considered to be an important service in increasing agricultural productivity and attaining sustainable development (Kibet, *et al.,* 2005). Its role is to help people identify and address their needs and problems. There is a general consensus that extension services if successfully applied, should result in outcomes which include observable changes in attitudes and adoption of new technologies, and improved quality of life based on indicators such as health, education and housing. It has been recognized that agricultural extension accelerates development in the presence of other factors such as markets, agricultural technology, availability of supplies, production incentives and transport (Kibet, *et al.,* 2005). Koyenican (2008) equates help in extension to empowering all members of the farm households to ensure holistic development. This is because agricultural extension brings about changes, through education and communication in farmers attitude, knowledge and skills.

The performance of the public agricultural extension service in Kenya has been a very controversial subject (Gautam and Anderson, 1999). The system has been perceived as top-down, uniform (one-size-fits-all) and inflexible and considered a major contributor of the poor performing agricultural sector (Government of Kenya, 2005). Thus there has been a desire to reform extension in to a system that is cost effective, responsive to farmer's needs, broad based in service delivery, participatory, accountable and sustainable. As a result of ineptness in the public extension system, private agricultural extension system has emerged comprising of private companies, non-governmental organizations (NGO's), community based organizations (CBO's) and faith based organizations (Nambiro *et al.,* 2005 and Rees *et al.,* 2000).

Agricultural extension as a public sector institution has an obligation to serve the needs of all agricultural producers, either directly or indirectly (Anderson, 2007). This is because public sector extension is a public good. The Kenya government has tried a number of extension

models and styles, including the progressive (farmer approach) model, integrated agricultural rural development approach, farm management, training and visit, farming systems approaches and farmer field schools. All these approaches have emerged with varying level of success for different groups. However, the effectiveness of extension services in enhancing effectiveness of outgrowers' credit system among sugarcane farmers in Kisumu County of Kenya has not been examined. Thus the present study was set with the premise that both outgrowers' credit and extension service are instruments for promoting agricultural development and that an efficient and effective extension service is important in enhancing effectiveness of outgrowers credit system. Credit to farmers is an important instrument in improving productivity. Indeed as Wangia (2001) noted, it is a prerequisite to the adoption of improved agricultural technologies for the smallholder farmers. Nevertheless, for credit system to help the smallholder farmers it should be tied to improved technologies, remunerative prices for the farmers' output and good extension network (Ogunsumi, 2004).This paper presents results on the role of extension services in enhancing effectiveness of outgrowers' credit system among smallholder cane farmers in Kenya.

Conceptual Framework

This study formulated a conceptual model that encompassed major variables and their possible patterns of influence on each other and eventually on effectiveness of outgrowers' credit system. The effect of the extension services namely public and private services are mediated by level of education, farm size and farmers period of residence. What this structural model indicates therefore is that the moderator variables influence adoption of sugarcane technologies disseminated by extension agents whether from public or private sector. In view of this model, the theory underpinning this study is that, adoption is complex and multifaceted process. While the main activity of extension centers on increasing production, this study concentrated on implementation of such activities. These are; creation of awareness about credit, accessibility to credit, timely supply of credit, supervision of credit and provision of extension advice on credit utilization (Table 1).

MATERIALS AND METHODES

Ex-post facto survey design was adopted for this study. Kisumu county in Kenya was purposely selected because of its uniqueness in that the county boasts of three major sugar factories.

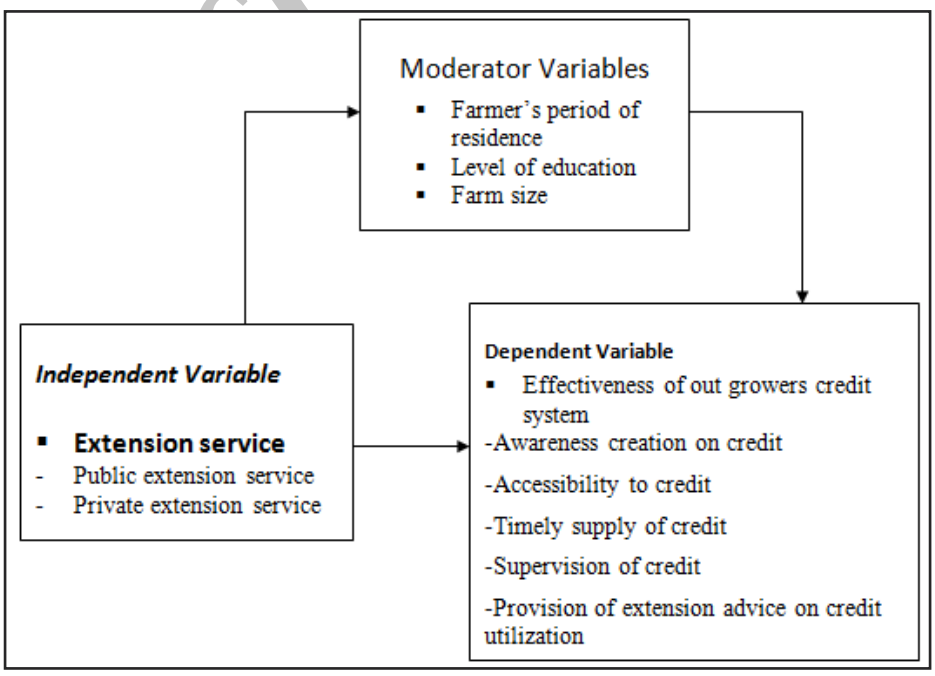

Figure 1: The Conceptual Framework on the Role of Extension in Enhancing Effectiveness of Outgrowers' Credit System

Table 1: Creation of Awareness on credit facility

Activity		SD	D	U	A	SA	Total
Creation of Awareness	f (n=23)	2.0	17.0	-	2.0	2.0	23.0
	%	8.7	73.9	-	8.7	8.7	100.0

Key (SD= Strongly Disagree, D= Disagree, U= Undecided, A= Agree, SA= Strongly Agree)

Table 2: Land Preparation

Activity		SD	D	U	A	SA	Total
Land Preparation	f (n=23)	2.0	14.0	-	6.0	1.0	23.0
	%	8.7	60.2	-	26.0	4.3	100.0

Key (SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree, SA= Strongly Agree)

These are; Miwani, Muhoroni and Chemelil which were established in the years 1923, 1966 and 1968 respectively. The County has favourable moderate climatic conditions, with temperatures averaging 27^{o} C and receives bimodal rainfall ranging from (560 -1630) mm per annum. Kisumu County comprises of the main topographical land formations namely, the Nandi hills, the Nyando plateau and Kano plains which are sandwiched between two hills. The Kano plains comprise predominantly black cotton clay soils derived from igneous rocks. The County's altitude range from 1000-1860 M above sea level. The target population was the sugarcane farmers in Kisumu county. A total of 110 smallholder cane farmers were randomly selected for the study but only 108 farmers questionnaire were useful for analysis. A closed ended questionnaire was used to collect data by personal interviews. The information gathered was analysed using both descriptive and inferential statistics.

RESULTS AND DISCUSSIONS

Public extension Services

Tables 1, 2 and 3 below shows data on different extension activities done by public sector extension service for cane farmers. Table 1 show result on the effect of public extension services in relation to creation of awareness. Creation of awareness was one of the activities used to measure public extension services. To elicit information on creation of awareness, the farmers were asked to respond to statement designed to elicit negative responses on performance resulting to creation of awareness. A 5-point likert scale was constructed to record these responses. Table 1 show results on public extension services in

Table 3: Appropriate Input Use

Activity		SD	D	U	A	SA	Total
Appropriate Input Use	f (n=23)	2.0	7.0	6	6.0	2.0	23.0
	%	8.7	30.4	26.0	26.0	8.7	100.0

Key (SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree, SA=Strongly Agree)

Table 4: Creation of awareness on credit facility

Activity		SD	D	U	A	SA	Total
Creation of Awareness	f	16.0	51.0	-	9.0	4.0	80.0
	%	20.0	63.8	-	11.3	5.0	100.0

Key (SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree, SA=Strongly Agree)

Table 5: Land Preparation

Activity		SD	D	U	A	SA	Total
Land Preparation	f (n=80)	9.0	12.0	1.0	35.0	23.0	80.0
	%	11.25	15.0	1.25	43.8	28.8	100.0

Key (SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree, SA=Strongly Agree)

Table 6: Use of Appropriate Inputs

Activity		SD	D	U	A	SA	Total
Timely Use of Appropriate Inputs	f (n=80)	3.0	17.0	-	44.0	16.0	80.0
	%	3.75	21.3	-	55.0	20.3	100.0

Key (SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree, SA=Strongly Agree)

relation to creation of awareness.

The results in Table 1 indicated that majority of farmers (82.6%) receive information on credit facility from public extension providers.

Advice on land preparation was one of the activities used to measure public extension services. To elicit information on land preparation, the farmers were asked to respond to statement designed to elicit positive knowledge of performance resulting to land preparation. A 5-point likert scale was constructed to record these responses. Table 2 show results on public extension services in relation to land preparation.

The result in table 2 showed that land preparation as an activity has not been satisfactorily addressed by public service extension officers as reflected by the high percentage (68.9%) of farmers who disagreed with the positive statement. This suggests that perhaps the declining cane production in Kisumu County is due to poor and inadequate land preparation, culminating from inadequate machinery to prepare land for cane growing.

Advice on appropriate use of inputs was one of the activities used to measure public extension services. To elicit information on the use of appropriate input, the farmers were asked to respond to statement designed to elicit positive knowledge of performance resulting to use of appropriate input. A 5-point likert scale was constructed to record these responses. Table 3 show results on public extension services in relation to appropriate use of input.

The results in table 3 showed that 39.1% of the farmers have not received services on appropriate use input from public sector extension services. This suggests that farmers do not know whether the inputs they use are appropriate or not.

Private extension service

Private sector extension may play a predominant extension role for particular inputs, particular enterprises / commodities and for particular farmer's in particular geographical areas. This enables farmers to benefit from increased incomes and economic security. Tables 4, 5, and 6 shows data on different extension activities done by private sector extension service for cane farmers.

Table 4 show result on the effect of private extension services in relation to creation of awareness. Creation of awareness was one of the activities used to measure private extension services. To elicit information on creation of awareness, the farmers were asked to respond to statement designed to elicit negative knowledge of performance resulting to creation of awareness. A 5-point likert scale was constructed to record these responses. Table 4 show results on private extension services in relation to creation of awareness.

The results in table 4 showed that majority of farmers (83.75%) received information on credit facility.

Advice on land preparation was one of the activities used to measure private extension services. To elicit information on land preparation, the

Table 7: Comparison between role of public and private extension services in Kisumu County

		Public Extension Service (N=23)				Private Extension Service (N=80)			
		LP	UAI	CA	Average	LP	UAI	CA	Average
SA	f	1.0	2.0	2.0	2.0	23.0	16.0	4.0	13.2
	%	4.3	8.7	8.7	8.7	28.8	20.3	5.0	16.5
A	f	6.0	6.0	2.0	5.0	35.0	44.0	9.0	28.2
	%	26.0	26.0	8.7	21.5	43.8	55.0	11.3	35.3
U	f	-	6.0	-	2.0	1.0	-	-	00.8
	%	-	26.0	-	8.7	1.25	-	-	01.0
D	f	14.0	7.0	17.0	12.5	12.0	17.0	51.0	27.4
	%	60.2	30.4	73.9	53.8	15.0	21.3	63.8	34.3
SD	f	2.0	2.0	2.0	1.8	9.0	3.0	16.0	10.4
	%	8.7	8.7	8.7	7.74	11.25	3.75	20.0	13.0
Total	f	23.0	23.0	23.0	23.0	80.0	80.0	80.0	80.0

Key (SD=Strongly Disagree, D=Disagree, U=Undecided, A= Agree, SA=Strongly Agree)
LP- Land Preparation
UAI- Use of Appropriate Inputs
CA- Creation of Awareness

farmers were asked to respond to statement designed to elicit positive knowledge of performance resulting to land preparation. A 5-point likert scale was constructed to record these responses. Table 5 show results on public extension services in relation to land preparation.

The results in 5 showed that majority of the farmers (72.5%) received extension services on land preparation from private sector. Perhaps this is due to the diverse nature of private sector extension where land preparation machines are readily provided to try and promote return on investment as well as enabling the farmers to increase their income through increased cane production.

Advice on appropriate use of inputs was one of the activities used to measure private extension services. To elicit information on the use of appropriate input, the farmers were asked to respond to statement designed to elicit positive knowledge of performance resulting to use of appropriate input. A 5-point likert scale was constructed to record these responses. Table 6 show results on public extension services in relation to appropriate use of input.

The results in table 6 showed that majority of the farmers (75%) receive advice on use of appropriate input from private sector.

A comparison of public and private extension services

Table 7 shows a comparison of the role public and private extension play with respect to various cane farming activities. The relevant information was elicited by asking the farmers to state from whom they receive extension services from, followed by their responses to statements designed to elicit positive knowledge of performance to various cane farming activities. A 5-point likert scale was used to record these responses.

The results in table 7 indicate that, public extension has a lesser role in enhancing effectiveness of outgrowers' credit system as compared to private extension services. This was because the majority of the public extension recipients (61.5%) either disagreed or strongly disagreed compared to 47% private extension recipients in terms of advising farmers on various farm activities.

Table 8: Chi-square test for Effectiveness of Outgrowers Credit System by Type of Extension

	Value	df	Asymp. Significance 2 sided
Pearson Chi-square	14.952	18	0.667
No. valid cases	103		

Significance set at (α = 0.05)

Hypotheses testing

The null hypothesis tested stated that there is no significant difference between the public and private extension services in terms of enhancing effectiveness of out-grower's credit system in Kisumu County. Both the public and private sector extension services were measured with respect to advice given to farmers on land preparation, use of appropriate inputs and creation of awareness. The information on public and private extension services with their effects on effectiveness of out-grower's credit was elicited by use of farmers' questionnaire. Testing of this hypothesis was carried out by use of chi-square test and the results are presented in Table 8.

Results in Table 8 indicate that, there was no significant difference between public and private sector extension services. This was because the Pearson chi-square value (14.952) was not significant at $\alpha = 0.05$ ($p>0.05$). The null hypothesis was thus accepted. This result suggests that public and private sector extension services are inadequate in terms of quantity despite the fact that cane farmers require it to realize a positive change.

DISCUSSION

Akroyd and Smith (2007) noted that lack of agricultural services has negatively impacted on food production. Consequently, in many parts of less developed countries, agricultural extension services often bypass or do not reach the rural farmers (FAO, 1997). In most countries extension services provided by the government are supplemented by private sectors. Milu and Jayne (2006) acknowledged that, in developing countries, the private sector extension is extremely diverse. Depending on the particular economic and political situation, the private sector may consist of individual farmers/ farm enterprises of all sizes, agricultural input industries, agro-services enterprises, processing industries, marketing farms and multinational firms. It may also include a wide range of agricultural production and marketing co-operatives, farmers associations and private and voluntary organizations. Despite their differences, all these organizations share a common market orientation. They all try to make profit by selling goods and services. As a result all these private sector organizations have a strong incentive to deliver goods and services (including agricultural extension) efficiently and effectively so as to enhance their ability to survive. Firms that supply agricultural inputs such as seed, chemical fertilizer, pesticides may provide farmers with a wide range of technical and managerial information (through various outreach mechanisms) both to assure that their products are used correctly and also increase agricultural production and income to the farmers. These also motivate customers to buy more products in future (Milu and Jayne 2006). Examples of these private extension agencies are the Muhoroni Sugarcane Outgrowers Company and Chemelil Outgrowers Company, which are currently operating and supporting farmers.

The findings of this study indicated that majority of farmers (82.6%) receive information on credit facility from either from public or private extension providers. The results agree with the findings by Khasiani (1992) who indicated that agricultural technologies might not be adopted if the farmers are not aware of its existence. He continued that lack of awareness acts as a hindrance to the effective participation in agricultural activities. Similarly, Madhur (2000) argued that, impact would be limited if extension is unable to appreciably increase the level of farmers awareness. Further, the results also supports the findings by Mbata (1991) who acknowledged that through extension services the small-scale farmers should be made to understand that credit supervision is for his / her own interest and that, through supervision, credit would be better managed and used for the intended purposes which in turn will increase his productivity and raise their capital base.

The findings of the study also showed that majority of the farmers received extension services on land preparation from private sector. Perhaps this is due to the diverse nature of private sector extension where land preparation machines are readily provided to try and promote return on investment as well as enabling the farmers to increase their income through increased cane production. However, among the farmers

who received advice from public extension officers it was noted that the services were not satisfactory. This suggests that perhaps the declining cane production in Kisumu County is due to poor and inadequate land preparation, culminating from inadequate machinery to prepare land for cane growing.

The results further showed that majority of the farmers receive advice on use of appropriate inputs from private sector. This suggests that probably a few farmers may be benefiting as the private sector normally targets potential farmers to maximize the profit from their products. Absence of dependable information to farmers on inputs, on credit and marketing would erode the credibility of extension, hence the rate of adoption by, farmers would be low (FAO, 1994, Khasiani, 1992). However there should be a positive correlation between farmers' link with information sources and adoption (World Bank, 1992 & Chitere, 1995).

This result suggests that public and private sector extension services are inadequate in terms of quantity, that is, in terms of extension agent contact with the farmer despite the fact that cane farmers require it to realize a positive change. Perhaps inadequate extension from government is due to the retrenchment of many staff in the Ministry of Agriculture in the study area (Owuor, 2002).

CONCLUSIONS

Based on the findings of the study a number of conclusions were drawn:

-Public extension service has a role in enhancing effectiveness of the outgrowers' credit system among smallholder cane farmers in Kisumu County. However, the sector needs to enhance the following: provision of advice with respect to, land preparation and use of appropriate inputs.

- That except for inadequate quantity of extension, private extension service plays a greater role in enhancing effectiveness of outgrowers' credit system.

- That in terms of enhancing effectiveness of outgrowers' credits system there was no significant difference between public and private sector extension services.

Recommendations

From the findings of the study, the following recommendations were suggested.

- Intensification of both public and private extension services.

- Strengthening factory extension division.

- Increasing the number of extension personnel.

- Establishing the contribution of extension among other factors in cane production.

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