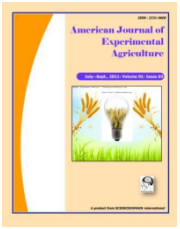

American Journal of Experimental Agriculture
1(4): 466-476, 2011

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Challenges Facing Small Scale Maize Farmers in Western Province of Kenya in the Agricultural Reform Era

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Case Study

Received 21st July 2011
Accepted 7th October 2011
Online Ready 23rd October 2011

ABSTRACT

The national maize production levels in Kenya have been declining from an all time high of over 34 million bags to about 25 million bags over the years. The situation is made worse by agricultural reforms which have affected small scale farmers in Western Province, which is one of Kenya's food baskets. This paper therefore addresses the challenges facing the small scale maize farmers in Western Province of Kenya in the agricultural reform era. Two hundred small scale farmers were selected through systematic sampling from Lugari, Bungoma, Mt. Elgon and Busia districts which were purposively selected. In addition one hundred extension staff was selected through systematic sampling. The small scale farmers were interviewed with the help of an interview schedule containing open and closed ended questions. While the extension staff filled a self administered questionnaire containing open and closed ended questions. Data were analysed using descriptive statistics with the help of Statistical Package for Social Sciences (SPSS). The results revealed that small scale farmers in Western Province lack awareness of improved agricultural practices and technical knowhow because the extension staff to farmer ratio is high. They also lacked finance, experienced high interest rates on credit facilities and uncertainty of the right seed to use due to flooding of the market by many seed companies.

Keywords: Challenges; small-scale; maize; farmers; Kenya; agriculture; reform era;

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ABBREVIATIONS

AGMARK: Agricultural Marketing Development Trust of Kenya; CBS: Central Beural of Statistics; CNFA: Citizens' Network for Foreign Affairs; GOK: Government of Kenya; ML&FD: Ministry of Livestock and Fisheries Development; MOA: Ministry of Agriculture; SACRED Africa: Sustainable Agriculture Centre for research and Development; SAPs: Structural Adjustment Programmes; USAID: United States Agency for International Development.

1. INTRODUCTION

The national food security in Kenya is often pegged on availability and adequate supplies of maize to meet domestic demand. Small scale farmers account for 70% of the total production and over 80% of the total maize area (GOK (Government of Kenya), 2008; Tegemeo Institute and East African Grain Council, 2009; Muhia, 2010; Oluoch -Kosura, 2011). However, maize production has continued to decline since the introduction of agricultural reforms which resulted from Structural Adjustment Programmes (SAPs).

The national maize production levels have been declining from an all time high of over 34 million bags to about 25 million in 2008 (Tegemeo institute and East African Grain Council, 2009). The agricultural reforms focused on removing government monopoly in the marketing of agricultural commodities and associated price controls which were vested in parastatals, and removal of government controls on importing, pricing and distribution of purchasable farm inputs (Nyangito, 2003; Sacred Africa, 2009). Furthermore there is reduction in government involvement and expenditure on agriculture, resulting in low investment and support for farmers (Oluoch -Kosura, 2011). This has led to inefficient maize production and marketing systems which have contributed to economic stagnation and worsening levels of poverty in Kenya (USAID (United States Agency for International Development), 2011).

The low government involvement as a result of the agricultural reforms also resulted into high seasonal price fluctuations, sometimes as high as 80% in six months. This is due to the emergence of a large number of informal traders (Sacred Africa, 2009). In addition, there is increased farm storage as opposed to the period before agricultural reforms when the state stored the grain, resulting in a lot of grain losses which have been estimated at over 40 percent due to poor storage (Sacred Africa, 2009).

Western Province, which is the study area, has a high agricultural potential and receives bimodal rainfall, it is among the provinces that are expected to produce enough food to feed its people and surplus to feed people in other parts of the country and for export. However, maize production in the province like the rest of the country has continued to decline over the years with the introduction of agricultural reforms. There is therefore need to address the challenges facing small scale maize farmers in western province of Kenya in the agricultural reform era.

2. MATERIALS AND METHODS

2.1 Research Design

Ex-post facto research design was used via a cross sectional survey. This was because the study used naturally occurring treatments on subjects having a self-selected level of the

independent variables. The manifestations of the effect of the independent variables on the dependent variable had already occurred and the researchers, therefore, did not manipulate them. Cross sectional survey was used instead of longitudinal survey because of limited time and finance for carrying out the study. In addition, the study sought to investigate the relationship between the dependant variable and the independent variables (Kathuri and Pals, 1993; Borg and Gall, 1993).

2.2 Research Population and Area

The study was conducted in Western Province which is administratively divided into eight districts as shown on Figure 1, with the following agro-ecological zones: Busia and Teso – LM_1 – LM_2; Bungoma: UM_1- UM_4 – LM_3; Kakamega and Lugari: LM_1 – UM_3 - UM_4; Vihiga: LM_3 – UM_1 and Mt. Elgon: Tropical Alpine to upper highland zones to lower upper highland to lower midland zones.

The Province covers an area of 8436 Km^2 out of this 6670 Km^2 has potential for agriculture of which, 3591 Km^2 is cultivated for various crops. Rainfall is bimodal. The long and short rains come in March-May and August-November periods, respectively. Annual rainfall ranges from 900mm in Busia to 2100mm in Bungoma annually (MARD, 2002a).

The study divisions were Bumula and Webuye in Bungoma District; Kaptama and Kapsokwony in Mt. Elgon District; Funyula and Butula in Busia District and Lugari and Likuyani in Lugari District as shown in figure 1.

The target population was made up of small scale maize farmers and extension staff in Western Province. The accessible population consisted of 41,809 farm households in Lugari District, 158,370 farm households in Bungoma District, 19,746 farm households in Mt. Elgon Disrict 136,736 farm households in Busia District and 48 extension staff (CBS, 2001).

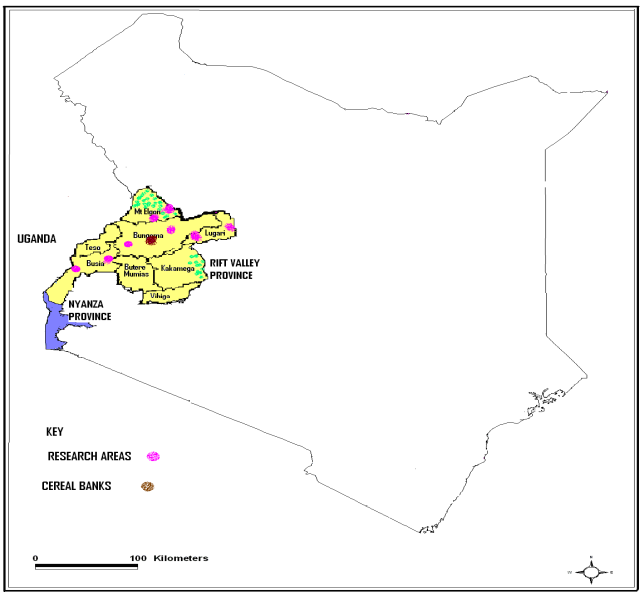

Figure 1: Map of Kenya Showing the Western Province

2.3 Sampling Procedure

Busia, Bungoma, Mt. Elgon and Lugari districts were purposively selected to represent Western Province because Busia District had the lowest average maize yields (7 bags per acre) in the province while, Lugari District experienced the highest average maize yield (18 bags per acre) in the province, Bungoma (10 bags per acre) and Mt. Elgon (15 bags per acre) districts were in-between in terms of maize yield (CBS, 2001; MOA, 2006). In addition, the four districts represented Western Province in terms of all the Agro-ecological zones that exist in the province and therefore, results obtained could be generalized to the whole province.

Two divisions from each of the four districts were selected by simple random sampling. For uniformity purposes the respondents were selected from focal areas through simple random sampling hence ensuring that they all had been exposed to extension staff. At the time of data collection, the extension staff had trained the farmers in one focal area per division and had moved to the next. These focal areas were purposively sampled in the selected divisions.

The focal area approach which is under the National Agriculture and Livestock Extension Programme (NALEP) aims at improving livelihoods of the poor rural households (MOA and ML&FD, 2006). In the focal area approach the extension staffs works in one area of approximately 400 farmers per year. The focal area is taken as a demonstration site where farmers from the rest of the division can learn latest technologies (Baiya, 2003). The key informants were sampled purposefully based on their positions of authority.

The sample size was arrived at using the following formula:
$n = NC^2/C^2 + (N-1)e^2$

Where n= Sample size; N = population size; C= Coefficient of variation which is £ 30%; e = margin of error which is fixed between 2- 5%. The study sample was calculated at 25% coefficient of variation and 5% margin of error (Nassiuma, 2000).

Twenty five percent coefficient of variation was used to ensure that the sample was wide enough to justify the results being generalised for Western Province. Higher coefficients of variation were not used to avoid very large samples due to limitation of research funds. Five percent margin of error was used because the study was an ex-post facto survey, whereby the independent variables could not be manipulated hence necessitating relatively higher margin of error.

The study sample was, therefore, as shown in Table 1. The key informants included the Provincial Director of Agriculture and Livestock Extension, the Provincial Crops Officer, an officer in position of authority in Agricultural Finance Corporation and an officer in position of authority at the National Cereals and Produce Board, Western Province.

2.4 Instrumentation

Interview schedule containing both open and closed-ended items was developed. The interview schedules which were administered to the farmers and extension staff, contained items investigating the challenges facing small scale maize farmers in Western Province. The first draft of the instrument was circulated to supervisors, experts in extension research

and social sciences at Egerton University, to determine clarity and adequacy of the instrument for purposes of ascertaining their construct validity (Jaeger, 1990).

The suggestions given by the experts were then incorporated into the second draft, which was then pre-tested in Lurambi Division of Kakamega District (which had similar characteristics with the selected study districts) to determine its reliability. The pre-testing exercise also helped the researcher to establish the clarity of meaning and comprehensibility of each item in the research instruments, and also to determine the time needed to complete and get the necessary information from the respondents (Jaeger, 1990; Field 2000).

Table 1: Total Number of Subjects by Category from which the Sample was drawn

Category	Number of subjects	Sample size
Extension Staffs in Western Province		
Men	620	25
Women	212	75
House hold heads in Busia District		
Men	50,715	25
Women	86,021	25
House hold heads in Lugari District		
Men	23,831	25
Women	17,978	25
House hold heads in Bungoma		
District	82,385	25
Men	75985	25
Women		
House hold heads in Mt. Elgon		
District	8946	25
Men	10800	25
Women		
Key Informants		4
Total	357,493	284

2.5 Data Collection and Analysis

A research permit was obtained from the Ministry of Education. Since the study focused on focal areas and the assistance of the extension staff in the specific areas was required, permission was sought from the Provincial Director of Agriculture and Livestock Extension and the Provincial Director of Agriculture, Western Province.

The researchers interviewed the farmers using the interview schedule. Key informants made of the Provincial Director of Agriculture and Livestock Extension, Provincial Crops Officer and one officer each in positions of authority in the National Cereals and Produce Board and Agricultural Finance Corporation in Western Province, were interviewed using an interview guide. Data were analysed by use of descriptive statistics with the help of Statistical Package for Social Sciences version 11.0 (Field, 2000).

3. RESULTS AND DISCUSSION

The results of the study revealed that farmers in Western Province lack awareness of improved agricultural practices and technical knowhow because the extension staff to farmer ratio (This is the number of farmers advised by one extension staff) is high. Besides the extension staffs lack transport and finance to enable them reach many farmers and also carry out demonstrations and field days which would reach many farmers at a time. As a result small scale farmers in Western Province, lack market and technical information that would enable them compete with the large number of traders who have flooded the maize market as a result of agricultural reforms. There also exists a weak linkage between researchers, extension staffs and farmers as a result both the extension staffs and farmers lack information on new and improved innovations.

3.1 Challenges Faced by Small Scale Framers Related to Acquisition of Seed

Other problems encountered by small scale maize farmers in Western Province are use of uncertified seed and late planting as cited by 42.9% and 41.7% of the respondents respectively (Table 2). Use of uncertified seed and late planting could have been as a result of lack of finance which was also a problem cited by 33.3% of the respondents (Table 2).

Table 2: Opinion of Extension Staff regarding factors affecting Maize Production in Western Province

Factors hindering maize production	Percentage
Lack of farm inputs	8.3
Lack of labour	3.6
Lack of farm machinery	9.5
Lack of finance	33.3
Use of uncertified seed	42.9
Poor storage facilities	3.6
Low adoption of technology	9.5
Lack of fertilizer	32.1
Late farm operations	41.7
Subsistence mentality by farmers	16.7
Lack of awareness of improved agricultural practices	11.9
Lack of technical know how	20.2

Another challenge facing farmers in Western Province was the choice of seed varieties because most farm inputs including maize seed are manufactured or imported by thirty (30) companies located outside the region, mainly in Nairobi, Kenya. These seeds may not have been tried on the farms in the province and the extension staffs may not have been familiar with them (Citizens' Network for Foreign Affairs (CNFA) and Agricultural Market Development Trust Kenya (AGMARK), 2005; Nyangito, 2003).

Farmers were therefore confused on which seed to purchase as a result of the presence of a wide variety of maize seeds in the market. Further analysis revealed that a high percentage of respondents from Lugari District (43.3%) and Mt. Elgon District (17.2%) experienced problems with the right choice of seed variety as compared to 7% of respondents from Bungoma District and 11.9% of the respondents from Busia District. The low percentage of respondents from Busia and Bungoma districts experiencing the problem of choice of

certified seed could be because most of these respondents did not use certified seed for planting (Table 3).

Table 3: Percentage of the respondents in the study districts who adopted various improved maize production practices

Parameters	BUNGOMA		LUGARI		MT. ELGON		BUSIA	
	Yes	No	Yes	No	Yes	No	Yes	No
Use of fertiliser for planting	70.7	29.3	91.7	8.3	84.5	15.5	54.2	45.8
Use of fertiliser for top dressing	58.6	41.4	93.3	6.7	58.6	41.4	39.0	61.0
Use of manure	77.6	22.4	61.0	39.0	37.9	62.1	69.5	30.5
Use of certified seed	37.9	62.1	96.6	3.4	87.9	12.1	32.2	67.8
Use of local seed from neighbouring country	15.5	84.5	0	100	0	100	11.9	88.1
Use of local seed from local market	12.1	87.9	3.3	96.7	8.6	91.4	52.5	47.5
Use of local seed from neighbours	15.5	84.5	18.3	81.7	8.6	91.4	6.8	93.2
Use of own seed from farm	3.4	96.6	1.7	98.3	0	100	37.3	62.7

When asked how they solved the problem of seed acquisition, most of the respondents said they did nothing about the problem because it was beyond them. However, 13.3% said that they use local/own seed, 9.9% said that they acquire seed form reputable input stockists and plant early.

The presence of a wide range of seed varieties is as a result of the government not regulating the marketing of farm inputs as was required by the Structural Adjustment Programmes. Furthermore, the farmers are experiencing high input prices because the government has removed subsidies on farm inputs resulting in the farmers bearing the whole cost of farm inputs (World Bank, 1994; Nyangito, 2003)

3.2 Challenges Faced by Small Scale Framers Related to Finance

The results further revealed that 37.9%, 36.6%, 20.3% and 38.9% of respondents from Bungoma, Lugari, Mt. Elgon and Busia districts repectively lacked finance for purchasing farm inputs. This may be because most of these respondents were poor with 57%, 61%, 53% and 67% of the population in Bungoma District, Lugari District, Mt. Elgon District and Busia District respectively living below the poverty line (CNFA and AGMARK, 2005). Lack of finance among small scale maize farmers is a problem that is recognized by the Government of Kenya. According to GOK (2008), credit to finance inputs and capital investment is a main cause for low productivity in agriculture. While the Agricultural Finance Corporation (AFC), the Cooperative Bank of Kenya and the co-operative movement, have made considerable efforts to provide affordable credit to farmers, the high interest rates charged by these organisations make it impossible for most farmers to access credit. (GOK, 2008)

It is interesting to note that though the respondents lacked finance to purchase farm inputs, most of them did not acquire credit (89.5%). Of the respondents who acquired credit most of

them (7.7%) acquired credit from nongovernmental micro financing institutions. Very few (1.3%) respondents borrowed from the Agricultural Finance Corporation (which is a parastatal set up by the government to give loans to farmers) claiming that the conditions put in place by AFC are tough. The results further revealed that of the respondents who acquired credit 16% were from Bungoma District, 20% were from Lugari District, 60% were from Mt. Elgon District and 4% were from Busia District.

3.3 Challenges Faced by Small Scale Framers Related to Credit Acquisition

The respondents were asked why they did not acquire credit. The results revealed that 15.2% of the respondents did not acquire credit because they were afraid that they might be unable to pay back. Analysis by districts revealed that of the respondents who feared that they might be unable to pay back 20%, 25.7%, 11.4% and 43.9% were from Bungoma District, Lugari District, Mt. Elgon District and Busia District respectively. Only 5.9% of the respondents in the province said that they did not acquire credit because they had not seen the need for credit.

Lack of knowledge of the source of credit was cited by 28.8% of the respondents as a reason for not acquiring credit. Analysis by districts revealed that 26.5%, 13.2%, 30.9% and 29.4% of the respondents from Bungoma District, Ligari District, Mt. Elgon District and Busia District respectively did not acquire credit because they had no knowledge of where to acquire the credit.

The extension service needs to put more effort in advising farmers where to source credit from. This can be achieved by the extension staff collaborating with the lending institutions and involving them in solving farmers' problems. This is advocated for by the National Agricultural Extension Policy (NAEP) currently being used by the extension service (MOARD, 2001a; MOARD, 2001b; MOARD, 2002).

Lack of collateral, tough conditions imposed by lending institutions and small land sizes were some of the reasons that were cited for preventing the respondents from acquiring credit. Analysis by district revealed that 41.7%, 12.5%, 25% and 20.8% of respondents from Bungoma District, Lugari District, Mt. Elgon District and Busia District lacked collateral to enable them acquire credit. A high percentage of farmers from Bungoma District cited lack of collateral because most (81%) of the farmers interviewed from this district had land sizes of less than three acres.

In addition, tough conditions such as having a bank account and land sizes of more than five acres were cited as hindrances to acquiring credit. Relatively more respondents (60.3%) from Lugari District cited tough conditions as a hindrance to acquiring credit. On the contrary fewer respondents (22.4%, 12.1% and 5.2%) from Busia District, Bungoma District and Mt. Elgon Districts respectively cited tough conditions as a hindrance to acquiring credit. This could be because more respondents from Lugari District had been exposed to Agricultural Finance Corporation loaning scheme (which required that the farmer posses at least five acres of land under maize) since the entire district is covered with the scheme. On the other hand respondents from Busia District and parts of Bungoma and Mt. Elgon districts are not covered by the scheme.

From the results only 1.3% of the respondents borrowed from Agricultural Finance Co-operation (AFC), which is a government lending institution, meant to assist farmers. All the respondents who borrowed from AFC were from Lugari. It is interesting to note that though a

high percentage (36.6%) of respondents have farm sizes of over 6 acres very few farmers (1.3%) borrowed from AFC.

An interview with a key informant in Agricultural Finance Corporation revealed that farmers are entitled to seasonal loans which are payable after the farmer harvests in that particular year. The farmers are allowed to borrow up to Ksh. 11,000 per acre. The farmers who are eligible for the credit must have at least five acres of their land under the crop for which they are applying the credit. In addition, the applicant must provide a land title deed in their name, a search certificate from the lands office, a title deed also from the lands office, pass port size photographs and a photocopy of the national identification card.

The applicant will then be required to buy an application form costing Ksh. 500, pay loan application fee of at least Ksh. 2,500, conveyencing fee which is subsidized by AFC of Ksh. 6000 and commitment fee which is 1.5% of the approved amount. The loan is given at an interest rate of 10% per year. The applicant is given 75% of the money and 25% is held for harvesting. However, if the applicant feels that they need the money for other urgent needs such as control of pests or top dressing, they can make a written request to AFC and will be paid the 25%.

The informant further added that as from the beginning of 2007 the farmers were allowed to apply for seasonal loans as registered groups and the conditions remain the same as that for individual farmers. This makes it possible for farmers with less than five acres of land under seasonal crops to benefit from the scheme.

The problems facing maize farmers such as high input prices, uncertainty of the right seed to use due to flooding of the market by many seed companies and lack of credit, marketing and support from the government makes maize farming a risky venture.

The small scale farmers also complained about poor marketing structures and low prices. This resulted from structural adjustment policies that have abolished state controlled price levels and the restructuring of the National Cereals and Produce Board (Redding, 1999; GOK, 2008). Therefore, farmers have been left to set their own prices and look for their own market resulting in exploitation from middlemen.

The study further sought the opinion of extension staff regarding challenges facing maize production among small scale farmers in Western Province of Kenya. The results revealed that a high percentage of extension staffs (42.9%, 41.7%, 33.3% and 32.1%) believed that use of uncertified seed by farmers, late farm operations, lack of finance and lack of fertiliser respectively were the main factors that hindered maize production in Western Province in the agricultural reform era.

Table 2 further shows that other factors that hindered maize production in Western Province chosen by a relatively high percentage of extension staffs included subsistence mentality by the farmers, lack of awareness of improved agricultural practices and lack of technical knowhow.

4. CONCLUSION

(1) There is need to allocate more funds for the agricultural sector within the national budget. These will facilitate hiring of more extension staff and facilitate the existing staff.

(2) There is need to improve the storage of crops by investing in both on-farm and off-farm storage facilities.
(3) There is need to address the lack of incentives for farming communities by improving access to credit, strengthening agricultural institutions and developing policies to reduce market risks.

4.1 Suggestions for Further Research

Research needs to be carried to find out if there is need for establishing a regulatory body owned by both the government and the small scale farmers.

ACKNOWLEDGEMENTS

We are grateful to Egerton University, which gave us the opportunity to carry out this study and partially sponsored it. Our sincere thanks go to the farmers and extension staff in Western Province for their cooperation. We are greatly indebted to the former Provincial Director of Agriculture and Livestock Extension (The late Mr. Wycliffe Omutsani) and the Provincial crops officer (Mr. James Maling'a) for their assistance during data collection.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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