



## Food Situation Assessment: October 2013

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### Summary

The maize crop performance in 2013 is expected to be below that of last year. According to our assessment, the long rains maize output is estimated to be 28.8 million bags, representing a shortfall of 14 million bags or 33 percent from the Ministry of Agriculture, Livestock and Fisheries' target of 43 million bags. Crop performance is likely to be dampened by delays in farm operations due to heavy and irregular rains at the time of planting; late fertilizer application and lower application rates due to delay or lack of subsidized fertilizers and high cost of inputs. An additional 4 to 5 million bags are expected from the short rains (normally 15% of the long rains harvest). Therefore, the estimated total output for 2013/14 year is at 33.9 million bags, which is 15 percent below the national consumption estimated at 40 million bags. Our assessment of maize stocks as at the end of January 2014 is 12 million bags. If the country realises the normal Short rains harvest of 4million bags, then this will last an additional 3-4 months (April/May). While the food security situation looks positive in the short-term, there is need for close monitoring of the 2013/14 maize crop performance and food stocks in order to guard against volatility in food prices or shortfalls in maize supply that could threaten the country's food security in the medium-term. The government needs to rethink intervening in the maize markets since this leads to high and volatile maize prices. Also if the fertilizer subsidy program is to achieve its intended purpose, there is need to restructure the current distribution channels to ensure that it reaches a larger number of farmers in different maize growing areas, and is delivered in a timely manner.

### Acknowledgements:

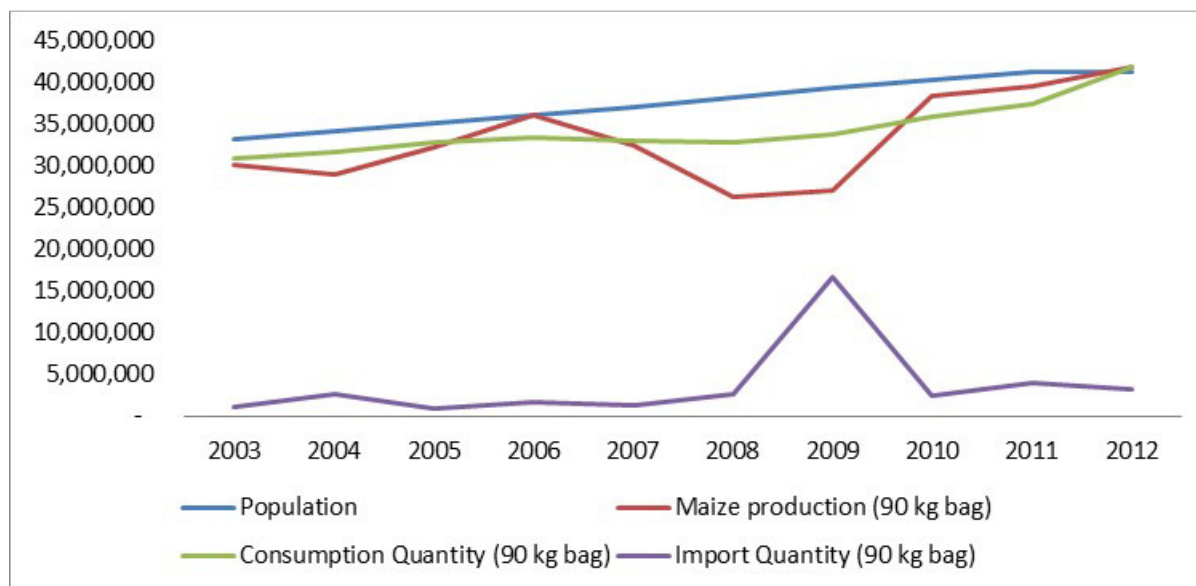
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## Introduction

Food security remains a critical issue that Tegemeo Institute of Egerton University continues to analyze and inform on appropriate policy options. In Kenya, food security has generally been viewed as synonymous with maize availability by policy makers and other segments of society. This is because maize is not only the main staple food but also the crop that is grown by most of the rural households, mainly for food.

Maize production in Kenya is mainly rain-fed dependent and hence erratic, and in recent years, it has sometimes failed to meet national demand (e.g. 2008 and 2009), while at other times, production has matched consumption (e.g. 2007 and 2012) (Figure 1). It is only in a few years that the country has produced a surplus. It is believed that the government's delayed decision in allowing maize imports may have precipitated the food crises experienced over the years. Serious maize shortages in 2008 and 2009 resulted in a spike in food prices, with devastating effects on consumers of maize grain and meal. Consequently, in the years of maize shortage, the government has had to intervene directly in the food market as a way of ensuring the citizens, particularly the poor, are able to access food at affordable prices.

**Figure 1: Trends in Maize Production, Consumption and Importation (2003-2012)**



Source: MOA reports, KNBS

The food situation assessment report, one of the key outputs by Tegemeo Institute provides an indication of the expected performance in domestic food supply in terms of production and food stocks. The information supplements forecasts provided by other players in the food and agricultural sectors, including the Ministry of Agriculture, Livestock and Fisheries (MoALF). Such information has been found relevant and useful in informing Kenya's policies on food, agriculture and trade as well as food safety and relief programmes.

## Method

This year's food situation assessment study was conducted between mid-May and June and captured critical information on the expected maize and wheat supplies from domestic production and factors affecting the supplies. The assessment covered several maize growing areas which have been classified as maize surplus, self-sufficient or deficit areas based on historical maize production in those areas (Table 1).

**Table 1: Areas Covered by the Food Assessment Study**

Surplus areas	Self-sufficient areas	Deficit areas
Uasin Gishu	Kakamega	Kisumu, Nyando
Trans-Nzoia	Migori – Kuria	Bomet
Bungoma	Meru	Kitui
Narok	Embu	Mwingi
Nakuru		Makueni

Key informant interviews were conducted with various players in the food supply chain including farmers, officers from the MoALF, maize traders, transporters, millers and the National Cereals and Produce Board (NCPB). The team also relied on observation and past experience to assess the situation in the crop fields and stores. This information was used in providing projections on expected maize and wheat supplies and expected food price trends.

## Results

### a. Crop Performance and Outlook (2013)

The national maize acreage achieved in the 2013/14 cropping year as at the time of the assessment was 1.3 million hectares, which was 85 percent of the MoALF's target (Table 2). The assessment of the 2013 maize crop performance shows that the expected output for the Long Rain (LR) season is 28.9 million 90 kg bags against a target of 43.4 million bags, which represents a 33 percent drop in expected domestic production. Tegemeo Institute's assessment of maize production translates to productivity estimates of 9 bags per acre (22.3bags/ha), which is lower than the projected yield of 11.5 bags/acre (28.5 bags per ha) by the MoALF. This performance is lower than what was achieved last year and probably below average due to a number of factors which include:

- i. Delayed planting: maize planting in the bread basket areas was delayed by two to four weeks as a result of:
  - o The anxiety and activities surrounding the campaigning period leading to the general election on 4<sup>th</sup> March, 2013.
  - o Heavy rains at planting-time which led to delayed land preparation
  - o Delayed arrival of the Government of Kenya subsidized fertilizers for planting (DAP)
- ii. Reduced or lack of application of planting and topdressing fertilizers, attributed to late or lack of subsidized fertilizers. In addition, the NCPB which was experiencing financial problems may not have had the capacity to supply the required top dressing fertilizers. This coupled with the dry weather experienced when the maize crop was at the top-dressing stage means that a large proportion of the maize crop may not have been top-dressed. In spite of commercial fertilizer being readily available in the market, farmers particularly in the North Rift delayed their planting and fertilizer application, while others cut-back on amounts used. This resulted in diminished crop performance, which is highly related to timeliness in operations and intensity of fertilizer use.
- iii. Nutrients from the planting fertilizer may have been leached due to heavy rains at the time of planting. Visible yellowing of crop in many maize fields was perhaps due to nutrient deficiency occasioned by leaching.

- iv. Change of enterprise mix. Many farmers are diversifying away from maize production into other enterprises such as seed maize, sugarcane, tea and dairy, which are viewed as being more profitable.

Other factors contributing to lower crop performance include: (i) harvesting and sale of green maize which has increasingly become more common in these areas; (ii) land sub-division which has resulted in small units of land that are uneconomical for maize and wheat production; (iii) the Maize Lethal Necrosis Disease (MLND)<sup>1</sup>. Although there has been a decline in the crop area affected by the disease this year compared to 2012, there have been reports of the disease in isolated places within the counties of Bomet, Narok and Nandi, and suspected cases in Uasin Gishu and Trans-Nzoia counties, during the long rains season.

About 4 to 5 million bags of maize are expected from the Short Rains (SR)<sup>2</sup> (normally 15% of the long rains harvest), bringing the total expected maize production in the 2013/14 year to about 33.9 million bags. This amount of maize is 15 percent below the estimated annual national consumption of 40 million bags (equivalent of expected national population). The KNBS population projection for 2013 is 43.5 million suggesting that maize shortfall could be as high as 21%.

**Table 2: Maize Performance and Outlook for 2013**

Targets 2013					Achievements 2013		Expected			
Province	Target Area (Ha)	Target Production (bags)			Ha	%	Bags/Acre	Production bags	Difference (bags)	Difference %
	LR	Bags/Ha	Bags/acre	LR						
<b>Nyanza</b>	175,520	17.92	7.17	3,145,715	132,167	75%	6	1,958,708	-1,187,007	-38%
<b>Central</b>	114,693	22.75	9.1	2,608,879	66,912	58%	7	1,156,908	-1,451,971	-56%
<b>Western</b>	216,350	27.34	10.94	5,915,025	202,565	94%	9	4,503,020	-1,412,005	-24%
<b>R. Valley</b>	663,347	40.59	16.24	26,926,725	594,529	90%	12	17,621,840	-9,304,885	-35%
<b>Eastern</b>	249,344	14.78	5.91	3,686,079	211,934	85%	5	2,617,385	-1,068,694	-29%
<b>Coast</b>	111,083	14	5.6	1,555,162	91,088	82%	4.5	1,012,444	-542,718	-35%
<b>N. Eastern</b>	2,825	2.11	0.84	5,950	569	20%	0.75	1,054	-4,896	-82%
<b>Nairobi</b>	569	29.76	11.91	16,935	427	75%	9	9,487	-7,448	-44%
<b>Total</b>	1,521,731	28.5	11.4	43,373,363	1,300,190	85%	8.99	28,880,846	-14,492,517	-33%

Note: Calculations are based on the acreage already achieved in every county which are aggregated to the province level.

From the acreage of each province, we project the likely performance of the maize crop based on various factors that may affect the output as observed during the field assessment tour. The estimated yield (per province) is then applied in the calculations for expected national production.

<sup>1</sup> In 2012, the disease destroyed maize crop to the tune of 90% in South Rift, especially in Bomet and Narok Counties.

<sup>2</sup> The recent outlook from the Kenya Meteorological Department pointed to a likelihood of depressed rainfall which may result in reduction in the maize output from the 2013/14 short rains harvest.

### Maize Stocks as at May/June 2013

As at the end of May 2013, the MoALF estimated the national maize stock to be 18 million bags (Table 3). Imports from the EAC region for the months of June and July were estimated at 200,000 bags. Without factoring in any harvests, the stocks of maize available nationally was 18.4 million bags. When post-harvest and storage losses (10%) were factored in, the stocks reduced to 16.5 million bags. Assuming a national monthly maize consumption of 3.7 million bags and 181,957 bags for animal feed and seeds (1.5% of household stock), the maize stocks as at end of July 2013 stood at 8.9 million bags. This would last the country about 2.5 months i.e. until October, just in time for the next harvest from the long rains crop. This level of stocks implies the need to closely monitor the 2013/2014 maize crop performance and food stocks, in order to avoid volatility in food prices or food shortfalls that might threaten the country's food security.

**Table 3: National stocks of maize as at 31<sup>st</sup> May 2013**

Stocks as at 31 <sup>st</sup> May 2013 in 90kg bags	18,099,205
a) Total East Africa imports (cross border trade) expected between May 2013 to 31 <sup>st</sup> July 2013	200,000
b) Private sector/relief agencies estimated imports outside EAC between April 2013 to 30th June 2013	100,000
<b>Estimated harvest between April 2013 to 30th June 2013</b>	
a) Balance long rains harvest up to end of 2012 season	0
b) Short rains projections- balances	0
Total available stocks by 31 <sup>st</sup> July 2013	18,399,205
Post – harvest and storage losses estimated at 10%	1,839,920
Projected national availability as at 31 <sup>st</sup> July 2013 (90kg Bags)	16,559,285
Total exports to East Africa Community region	0
Exports outside the EAC region	0
Amount used as animal feeds and seeds (1.5% of household stocks)	181,957
National consumption at a monthly rate of 3.72 million bags for estimated population of 40 million people for the next two months	7,440,000
<b>Balance as at 31<sup>st</sup> July 2013 (surplus)</b>	<b>8,937,328</b>

*Source: MoA, Food Situation Report, May 2013*

Table 4 provides an update of the estimate maize balance sheet from August 1st 2013 to January 30th 2014. These factors in the LR harvest of about 28 million bags (some 2 million already harvested from South Rift, Nyanza and parts of Western Kenya). The Short Rains harvest is difficult to predict at the moment given that planting is yet to take place. In addition the Met department has forecast less than normal rains for the short season. The average production from the SR contributes some 15% of normal national harvest which translates to 4 – 6 million bags. Tegemeo estimates that the LR harvest will take the country to between March and April 2014 and additional production from the SR can only add 1 or 2 more months depending on performance.



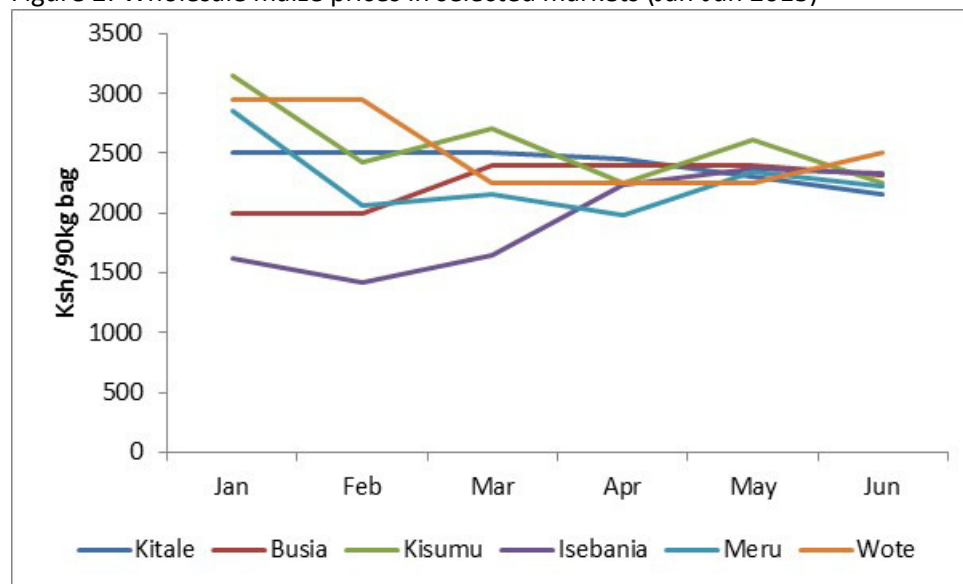
**Table 4: Estimated Maize Balance Sheet August 1<sup>st</sup> 2013 to January 31<sup>st</sup> 2014**

<b>Household stocks held by farmers as at July 31<sup>st</sup> 2013</b>	8,541,466	<b>If lower estimates</b>
National Stocks as at 31 <sup>st</sup> July 2013 in 90kg bags	10,937,328	10,937,328
a) Total East Africa Imports* (cross border trade) expected between July 2013 to 31 <sup>st</sup> January 2014	1,200,000	1,200,000
b) Private sector/ Relief agencies estimated imports outside EAC between April 2013 to 30 <sup>th</sup> June 2013	600,000	600,000
<b>Estimated harvest between July 2013 to 31<sup>st</sup> Jan 2014</b>	<b>26,000,000</b>	<b>21,000,000</b>
Total available stocks by 31 <sup>st</sup> January 2014	38,737,328	33,737,328
Post – harvest and storage losses estimated at 10%	3,873,733	3,373,733
Projected national availability as at 31 <sup>st</sup> January 2014 ( 90kg Bags)	34,863,595	30,363,595
Amount used as animal feeds (2% of household stocks)	170,829	170,829
Amount used as seeds (1.5% of household stocks)	128,122	128,122
Amount used for industrial products (1% of household stocks)	85,415	85,415
NATIONAL CONSUMPTION at a monthly rate of 3.72 million bags for estimated population of 40 million people for 6 months (August 2013 - Jan 2014)	22,320,000	22,320,000
<b>Balance as at 31<sup>st</sup> Jan 2014</b>	<b>12,159,229</b>	<b>7,659,229</b>
Short Rains Harvest 4 million bags	4,000,000	4,000,000
Grand balance	16,159,229	11,659,229
<i>Months to last from January 2014 - Consumption of 3.72 million bags</i>	<b>4.34 - May</b>	<b>3.13 - April</b>

### Maize Marketing and Market Prices

The level and stability of maize prices influence the country's food security situation. In recent months, maize prices in the country seem to have stabilized and margins between surplus and deficit areas narrowed. In January 2013, prices were as high as Ksh 3,000 per 90kg bag but continued to decline to about Ksh 2,200 by June 2013 in all the major markets. This scenario was unprecedented. The exception was in the border points of Isebania and Busia where prices were low at the beginning of the year but have since risen to merge with the prices in inland markets. By June 2013, all prices were converging at the Ksh 2,200 mark (Figure 2).

Figure 2: Wholesale maize prices in selected markets (Jan-Jun 2013)



Source: Collected and compiled by the Research Team

This stability in prices may be attributed to the good harvest realized across many counties in the 2012/13 production year. By June 2013, some farmers were still holding maize stocks in excess of their consumption needs, having kept the maize with the anticipation that prices would rise to levels seen in recent years (KES 3,000 or more). The expected price hike did not occur and the prices remained steady, as shown on Figure 2.

Unlike in previous years, wholesale maize prices across major markets did not rise during the March-June period (Figure 3), which may have been due to, among other reasons, the absence of NCPB as a buyer of maize during this period. Annex 1 indicates a declining trend NCPB's maize market participation. These findings coupled with the existing maize stocks imply that in the short-term, the food security situation does not raise serious concerns.

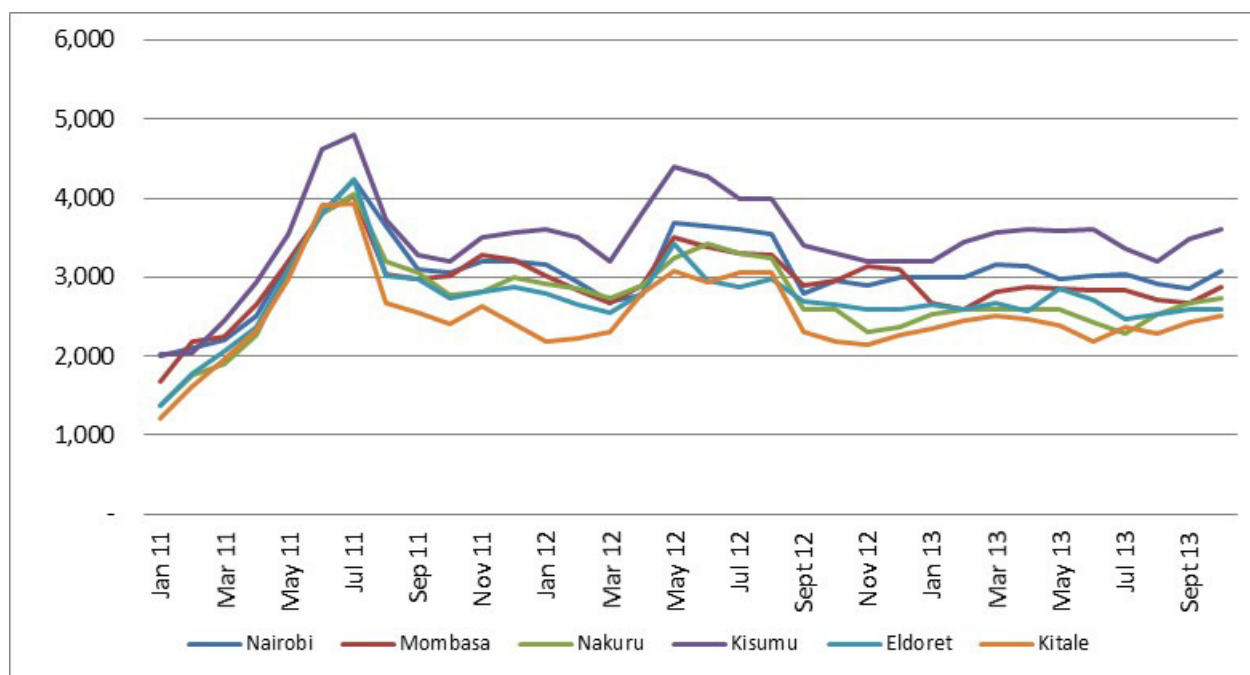
Price have however started inching up from the month of August and now averaging about Ksh 3,000 per bag in urban centres and about 2,800 in maize surplus towns.

A recent ministerial statement on the likelihood of the government releasing some Ksh 3 billion for the purchase of maize is already exciting maize farmers who view this good signal for increased maize prices has been importing inorganic fertilizers through NCPB for distribution and sale to farmers at a subsidized price. The

### Fertilizer availability and prices

Fertilizer and seed are key inputs in maize and wheat production. Supply of maize seed in the 2013 long rains season was as expected. Since 2008, the government policy seeks to boost domestic food production by increasing fertilizer use and also improve profitability in fertilizer use. The subsidized fertilizer was priced 30 to 41 percent lower than fertilizer from commercial outlets (Table 4). Lower priced fertilizer is seen as a likely trigger for bringing down the price of food (maize and maize flour) through increased supply. However, farmers reported many challenges in accessing subsidized fertilizer whereas no problem was reported in the case of commercial fertilizer.

**Figure 3: Wholesale maize prices in selected markets (2011–2013)**



Source: MoA- Monthly Wholesale Commodity Prices Reports

Firstly, the quantity of subsidized fertilizer is much lower than the demand<sup>3</sup>. Secondly, its usefulness is constrained by the timing since the subsidized fertilizer is often delivered late. For instance, in the 2013/14 long rains planting season, planting fertilizer (DAP) was delayed by one to four weeks, while the topdressing fertilizer (CAN) was equally late or not delivered at all. Thirdly, the subsidy tends to favour regions where planting is done during the months of March and April. Fourthly, the subsidised fertilizer which is distributed through the NCPB depots is difficult to access by many farmers especially those who are far away from the depots. Altogether, these issues limit the usefulness of the subsidized fertilizer scheme in conferring benefits to both farmers and consumers.

### Conclusions

The assessment of the food security situation in Kenya, which was carried out in June-July 2013 showed that the available national maize stocks are expected to last until October 2013, thus coinciding with the beginning of the next harvest. In addition, maize prices had remained relatively stable in the major markets between March and June 2013, a period which in previous years has been characterized by significant price spikes due to shortages in supply. This was notable given that there has not been any producer price support this year. These findings indicate that the food security situation is positive in the short-term. However, given the expected reduction in the long rains and short rains maize supply, it will be prudent to closely monitor the performance of the 2013/14 maize crop. Although commercial fertilizer was readily available in the market, some farmers delayed planting and fertilizer application, while others reduced the amounts used. This means that government activities in the fertilizer market (especially subsidies) may have altered the behaviour of some farmers by creating a dependency syndrome with regard to fertilizer acquisition, thereby negatively effecting production.

<sup>3</sup> Maize farmers in Rift Valley alone plant about 600,000 hectares or 1.5 million acres (1.8 – 2 million ha is planted nationally). If the recommendation is one bag of DAP per acre, the Rift Valley region alone requires 1.5 million bags of planting fertilizers, which is three times the amount of subsidized fertilizer imported by NCPB.



**Table 4: Price comparison between commercial and subsidized fertilizers**

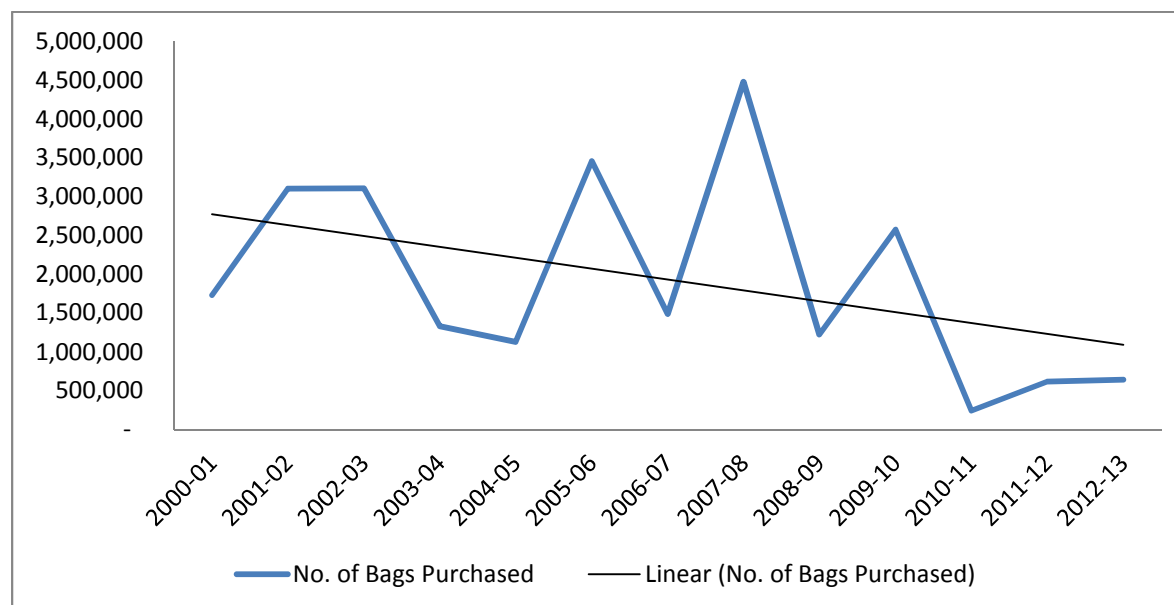
Fertilizer type	Town	Commercial fertilizer prices			NCPB prices	
		2012	2013	Price change (%)	2013	% subsidy
<b>DAP</b>	Meru	3600	3850	7	2480	36
	Kitale	3735	3800	2	2480	35
	Eldoret	3730	3630	-3	2480	32
<b>CAN</b>	Meru	2500	2550	2	1600	37
	Kitale	2400	2700	13	1600	41
	Eldoret	2375	2520	6	1600	37
<b>NPK</b>	Meru	3175	3300	4	2300	30
	Kitale	3400	3400	0	2300	32
	Eldoret	3400	3438	1	2300	33

*Source: Authors' Compilation*

### **Policy Recommendations**

Findings from the food security assessment have various policy implications. First, there is need for close monitoring of the 2013/14 maize crop performance as well as the national food stocks in order to avoid volatility in food prices or shortfalls in supply that might threaten the country's food security. Second, the lack of government interference in the maize market (through producer price support) contributed to stability in maize prices, thus benefitting consumers. This is consistent with the Institute's previous finding that government support (through NCPB) had a negative effect on food accessibility because it contributed to high maize prices observed in the market. Therefore, it is recommended that the government ceases to interfere in the maize markets and allow forces of supply and demand to determine prices. Annex 2 shows the cost of production per bag, for the least efficient farmers to be about Ksh 2,000. Third, if the fertilizer subsidy program is to achieve its intended purpose, there is need to ensure that the subsidized fertilizer reaches a larger number of farmers in different maize growing areas, and that it is delivered in a timely manner.

## ANNEX 1: NCPB Maize Purchases 2000 - 2013



## ANNEX 2: COST OF MAIZE PRODUCTION IN SELECTED COUNTIES 2012/13

COUNTY	NAKURU	U/GISHU	T-NZOIA	KILGORIS
<b>Maize Yields (bags/acre)</b>	<b>23</b>	<b>17</b>	<b>23</b>	<b>10</b>
Price	2,100	2,500	2,400	2,400
TOTAL REVENUE/acre	48,300	43,087	55,200	24,686
TOTAL LABOUR	9,814	3,759	5,628	12,130
Land preparation cost	4,140	5,389	4,044	4,800
planter hire Cost/acre	1,500	1,228	933	
Total seed cost per acre	1,254	1,357	1,283	1,693
Total Fertilizers	4,320	7,882	11,153	
Other intermediate cost	4,755	4,743	6,372	
<b>Land Rent</b>	<b>5,200</b>	<b>6,500</b>	<b>7,333</b>	<b>3,000</b>
TOTAL INTERMEDIATE	19,969	27,098	31,119	9,493
<b>TOTAL COSTS LESS WORKING K</b>	<b>29,783</b>	<b>30,857</b>	<b>36,747</b>	<b>21,623</b>
PROFIT=TR-TC (per acre)	18,517	12,229	18,453	3,063
<b>Cost per bag without working K</b>	<b>1,295</b>	<b>1,790</b>	<b>1,598</b>	<b>2,102</b>
Working Capital	2,680	2,777	3,307	1,946
TOTAL COSTS PLUS WORKING K	32,463	33,634	40,054	23,569
<b>Cost per bag with Working K</b>	<b>1,411</b>	<b>1,952</b>	<b>1,741</b>	<b>2,291</b>

