

# COST OF MAIZE ACROSS DIFFERENT SYSTEMS AND REGIONS IN KENYA: IMPLICATIONS FOR FOOD SECURITY AND PRICING

**Introduction and Meeting Objectives** 



#### Introduction

- Agriculture contribution in Kenyan Economy
- The Constitution of Kenya under the Bill of Rights provides for
  - the "right to food of adequate quality and quantity at all times for all"
- Principal thrust is to attain food security for all --- a priority in Kenya as emphasized in various key government policy documents:
  - Food and Nutrition Security Policy (F&NSP)
  - Agricultural Sector Development Plan (ASDS)
  - Medium Term Investment Plan 2013-2017.
  - Kenya Vision 2030



# Maize production

- In Kenya Maize is a major staple crop, often equated to food security
- Maize production in Kenya has continuously faced a number of challenges that have hampered food availability and access:
  - Lack of competitiveness of maize evidenced by production systems of our neighbors (Tanzania and Uganda)
  - Insufficient budget allocation to agriculture-research
  - Farm level issues- Credit facilities, high input costs, post-harvest losses
  - Unimpressive/stagnating growth in crop productivity
  - Climate variability and change, among others.
- To address the challenges, the government has launched several interventions



## Kenyan government interventions

#### 1. Fertilizer subsidy program

- The main objectives were:
  - To influence fertilizer prices
  - Bring down the cost of production
  - To increase yields hence output
- To achieve above objectives the program aimed at absorbing 40% of the annual fertilizer requirement so that the rest can be provided by the private sector.

#### 2. Producer price support through NCPB

 Purchase of maize from farmers at prices higher than market prices to provide incentive to producers



- Irrigated agriculture identified by Kenyan government as a way to:
  - Moderate the effects of climate change.
  - To increase food production
- Irrigation has the potential to increase food output by about 100-400% (National Irrigation Policy 2015).
- The sector has been funded up to about 13.5 billion in the 2014/15
- Only 10% of irrigable land is in use
- Flagship project-Galana Kulalu irrigation scheme in Tana River Kilifi was launched in January, 2014.
  - One of the objectives of the project is to bring 1 million acres under irrigation.
  - It is expected to have several enterprises: maize at 50% of the area, sugarcane at 20%, beef and game at 15%, horticulture at 10%, and dairy animals at 5% (NIB, 2014).



 Given the strategic role that maize plays in food security and household income

- » It is imperative to have continued assessment and deliberation on feasible options that could lower costs of production
- » hence ensure competitiveness in production and lower food prices.



# Tegemeo Institute's work

Tegemeo has recently conducted a study to:

- Assess the cost of maize production for the 2014/15 cropping year under different production systems and fertilizer access regimes
- Assess the viability and cost of production of irrigated maize
- The status of the current food situation and prices in Kenya

 Study used newly collected data and the Tegemeo household survey 2014



# The major questions are:

- 1. What is the cost of maize production in Kenya and how does it vary
  - –across different production systems?
  - -across regions/counties?

2. Are the cost of maize production sustainable under smallholder farming system?

- 3. How does the cost of maize production differ with the generalized fertilizer subsidy provided by Government?
  - Does it achieve its intended goals?
  - —What is the cost saved per unit with use of subsidized fertilizer?



- 4. What is the effect of producer/output price support provided by Government (through NCPB)?
  - Consistency with the input/ fertilizer subsidy?

5. What is the cost of maize production under irrigated production system and what are the potential benefits and limitations of irrigated maize?

6. Trends in maize grain and meal prices and implications for pricing?

7. What is the current country's food situation following the 2014/2015 cropping year



# **Objectives of Meeting**

 Tegemeo to share the findings of the study with key stakeholders (public, private and civil society)

Discussion and feedback

- Provide a forum for open discussion among stakeholders
  - Identify appropriate policy options and



# **Program**

#### • Three Presentations:

- Cost of maize production across different systems and regions in Kenya:
   Implications for Policy and Food Security: Mr. Joseph Opiyo
- Can irrigation be an answer to increased maize production and food security in Kenya? Dr. Dennis Otieno
- Trends in maize grain and flour prices: Implications for food security: Mr.
   James Githuku

Plenary and Way Forward



# Cost of Maize Production Under Different Systems in Kenya

The Role of Policy Interventions

# Joseph Opiyo

Cost of maize production across different systems and regions in Kenya: policy interventions for food security and pricing



# Methodology

- Agri-bench Approach (prototype farm) —A prototype farm is defined by a certain production system and specific structural features such as ownership of land, credit, and labor organization (family vs hired).
- The method establish production cost in an FGD set-up for a system that is common among the majority of farmers in a selected area and validating with local experts (extension staff, input stockists, group leaders)
- Same instrument used to collected data from large scale producers at household level then aggregated to form a representative budget for the area



# Production systems considered

# Large Scale

# Small Scale

Over 30 acres under maize

Hired land for maize production

Highly mechanized

Majority use commercial fertilizer

Chemical weed control

farmers interviewed in three counties

Trans Nzoia, Uasin Gishu Nakuru

10 acres and less under maize

Majority 80% cultivate own land (TAPRA, 2014)

Less mechanized,

Majority use commercial fertilizer

Manual weed control

2 FGD established per county by fertilizer source

Trans Nzoia, Uasin Gishu, Nandi, Kakamega,

Bungoma, Narok Nakuru and Migori



# Results



#### Large Scale Cost of Production- By Region

County	Trans Nzoia	Uasin Gishu	Nakuru
Maize yield (bags/acre)	24	25	30
Sale price per 90kg bag	2,400	2,300	2,300
Total revenue/acre (TR)	57,600	57,500	69,000
Land preparation	6,000	4,500	6,000
Planter hire	1,000	1,500	1,000
Seed	1,500	1,500	1,500
Fertilizer	10,300	10,250	13,947
Other intermediate costs	6,227	6,193	8883
Land rent (LR)	8,000	8,000	8000
Labor (family & hired)	3,982	5,608	4103
Working capital (WC)	2,961	3,004	3875
Total production costs with WC	39,969	40,555	47308
Cost per bag with LR &WC	1,665	1,622	1,577
Breakeven yield (90kg bags)	17	16	21
Profit per acre with LR & WC	17,631	16,945	21,692
Profit per bag (Ksh) with LR & WC	735	<i>678</i>	723
Profit as a % of cost per bag with LR &WC	44%	42%	46%
Cost per bag without LR & WC	1,209	1,182	1181
Profit per bag (Ksh) w/o land rent	1,191	1,118	1119
Profit per bag w/o LR & WC (%)	99%	95%	95%



# Small Scale Cost of Production By Region

County and development	Trans Nzoia	Uasin Gishu	Bungoma	Kakamega	Nandi	Nakuru	Narok	Migori
Maize yield (bags/acre)	17	21	16	17	16	9	7	11
Sale price per 90kg bag	1,950	1,700	1,800	2,400	1,800	2,200	2,000	1,900
Total revenue/acre (TR)[1]	33,150	35,700	28,800	40,800	28,800	19,800	14,000	20,900
Land preparation	3,800	4,500	3,500	3,000	5,000	2,500	5,000	3,000
Planter hire	1,000	1,500	-	1,000	1,200	-	-	-
Seed	1,500	1,500	1,500	1,500	1,500	1,500	1,800	1,800
Fertilizer	5,800	5,350	5,900	5,250	5,500	5,200	3,050	5,700
Other intermediate costs[2]	2,585	3,018	1,500	2,018	1,309	1,295	683	833
Labor (family & hired)	5,952	7,918	5,570	6,018	3,750	8,560	7,749	12,420
Land rent (LR)	8,000	8,000	6,000	8,000	7,000	8,000	4,000	4,000
Working capital (WC) [3]	2,291	2,543	1,918	2,143	2,021	2,164	1,783	2,220
Total production costs (TC) with LR &WC	30,928	34,329	25,888	28,929	27,281	29,219	24,065	29,973
Cost / bag with LR & WC	1,819	1,635	1,618	1,702	1,705	3,247	3,438	2,725
Breakeven yield (90kg bags)/acre	11	14	10	8	10	9	9	13
Profit / bag (Ksh) with LR & WC	131	<i>65</i>	182	<i>698</i>	<i>95</i>	-1,047	-1,438	-825
Profit per bag with LR & WC (%)	7%	4%	11%	41%	<i>6%</i>	-32%	-42%	-30%
Cost per bag w/o LR & WC	1,214	1,133	1,123	1,105	1,141	2,117	2,612	2,159
Profit per bag (Ksh) W/o LR & WC	736	567	677	1,295	659	83	-612	-259
Profit as % of cost/ bag w/o LR & WC	61%	50%	60%	117%	58%	4%	-23%	-12%



TEGEMEO INSTITUTE OF AGRICULTURAL	Large Scale	Small Scale
Maize yield (bags/acre)	26	17.4
Sale price per 90kg bag	2,333	1,930
Total revenue/acre (TR)	60,667	33,582
Land preparation	5,500	3,960
Planter hire	1,167	1,175
Seed	1,500	1,500
Fertilizer	11,499	5,560
Other intermediate costs	6,210	2,086
Land rent (LR)	8,000	7500
Labor (family & hired)	4,564	5,842
Working capital (WC)	3,075	2,210
Total production costs with LR & WC	41,515	29,833
Cost per bag with LR &WC	1,597	1,715
Breakeven yield (90kg bags)	18	10.4
Profit per bag (Ksh) with LR & WC	737	215
Profit per bag with LR &WC (%)	46%	13%
Cost per bag without LR & WC	1,171	1,156
Profit per bag (Ksh) w/o LR & WC	1,162	774
Profit per bag w/o LR & WC (%)	99%	67%



#### Large Scale Cost of Production -With Subsidy

County THE OF AGRICULTURAL	Trans Nzoia	Uasin Gishu
Maize yield (bags/acre)	25	26
Sale price per 90kg bag	2,400	2,300
Total revenue/acre (TR)	60,000	59,800
Land preparation	6,000	4,500
Planter hire	1,000	1,500
Seed	1,500	1,500
Fertilizer	7,300	5,425
Other intermediate costs	6,614	6,718
Land rent (LR)	8,000	8,000
Labor (family & hired)	4,089	5,627
Working capital (WC)	2,760	2,662
Total production costs with WC	37,128	35,932
Cost per bag with LR &WC	1,485	1,384
Breakeven yield (90kg bags)	16	14
Profit per acre with LR & WC	22,872	23,868
Profit per bag (Ksh) with LR & WC	915	916
Profit as a % of cost per bag with LR &WC	<b>62%</b>	66%
Cost saving/bag with LR & WC	11%	15%
Revenue gain/acre with LR & WC	30%	41%
Cost per bag without LR & WC	1,060	972
Profit per bag (Ksh) w/o land rent	1,340	1,328
Profit as a % of cost per bag w/o LR & WC	126%	137%



## Small Scale Production Budget - With Subsidy

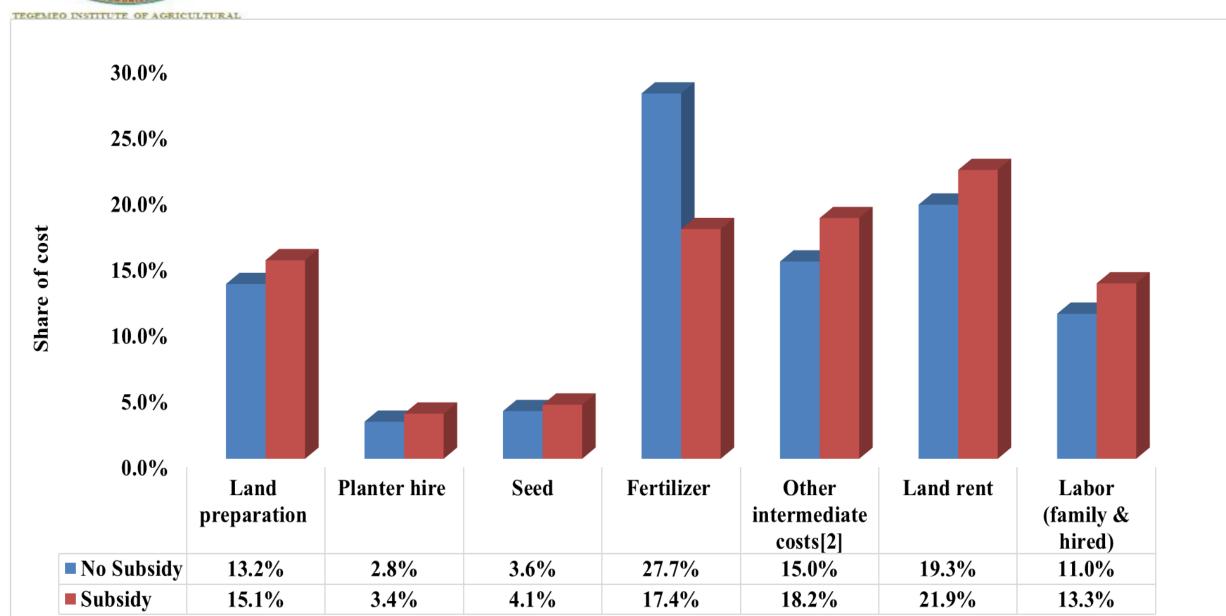
County Institute of AGRICULTURAL POLICY AND DEVELOPMENT	Trans Nzoia	Uasin Gishu	Bungoma	Kakamega	Nandi	Nakuru	Narok	Migori
Maize yield (bags/acre)	18	23	16	17	17	9	7	11
Sale price per 90kg bag	1,950	1,700	1,800	2,400	1,800	2,200	2,000	1,900
Total revenue/acre (TR)[1]	32,400	39,100	28,800	40,800	30,600	19,800	14,000	20,900
Land preparation	3,800	4,500	3,500	3,000	5,000	2,500	5,000	3,000
Planter hire	1,000	1,500	-	1,000	1,200	-	-	-
Seed	1,500	1,500	1,500	1,500	1,500	1,500	1,800	1,800
Fertilizer	3,700	4,500	3,200	3,700	4,700	3,760	2,100	3,700
Other intermediate costs[2]	2,585	3,216	1,500	2,018	1,410	1,295	683	833
Labor (family & hired)	6,032	8,038	5,570	6,018	3,855	8,560	7,749	12,420
Land rent (LR)	8,000	8,000	6,000	8,000	7,000	8,000	4,000	4,000
Working capital (WC) [3]	2,129	2,500	1,702	2,019	1,973	2,049	1,707	2,060
Total production costs (TC)	28,746	33,754	22,972	27,255	26,638	27,664	23,039	27,813
Cost per bag with LR & WC	1,597	1,468	1,436	1,603	1,567	3,074	3,291	2,529
Breakeven yield (90kg bags)	10	14	8	7	10	8	9	11
Profit per bag (Ksh) with LR & WC	353	232	364	797	233	-874	-1,291	-629
Profit/loss per bag with LR & WC (%)	22%	16%	25%	50%	15%	-28%	-39%	-25%
Cost saving/bag with LR & WC	15%	11%	15%	8%	9%	8%	5%	8%
Revenue gain/acre with LR & WC	10%	33%	25%	7%	23%	193%	-22%	-70%
Cost per bag w/o LR & WC	1,034	1,011	954	1,014	1,039	1,957	2,476	1,978
Profit per bag (Ksh) w/o LR & WC	916	689	846	1,386	761	243	-476	-78
Profit per bag w/o LR & WC (%)	89%	68%	89%	137%	73%	12%	-19%	-4%

## EGERTON UNIVERSITY Cost of Maize Production - National Average With Subsidy

Large Scale	Small Scale
26	18.2
2,333	1,930
60,667	35,126
5,500	3,960
1,250	1,175
1,500	1,500
6,363	3,960
6,666	2,146
8,000	7500
4,858	5,903
2,731	2,091
36,530	28,235
1,405	1,551
15	9.7
928	379
66%	<b>24%</b>
12%	11%
26%	22%
1,005	1,024
1,328	906
132%	88%
	26 2,333 60,667 5,500 1,250 1,500 6,363 6,666 8,000 4,858 2,731 36,530 1,405 15 928 66% 12% 26% 1,005 1,328

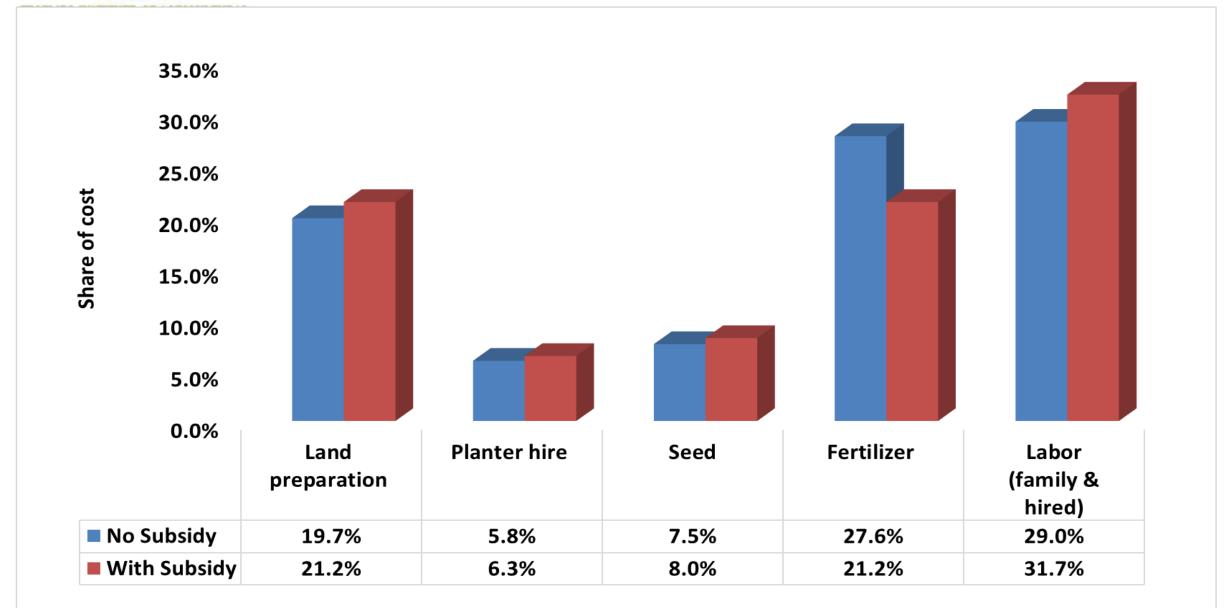


#### Share of cost components -Large Scale Production system





#### Share of cost components - Small Scale Production System



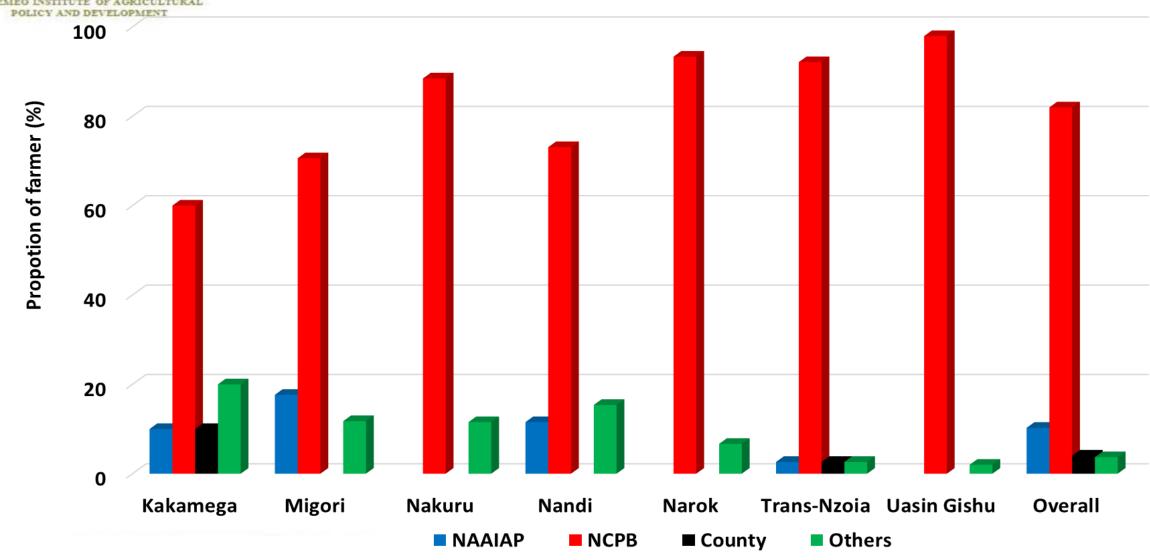


#### Share of labour cost components to total labour cost

TEGEMEO INSTITUTE OF AGRICULTURAL POLICY AND DEVELOPMENT	Trans	Uain						
Share of labour components	Nzoia	Gishu	Bungoma	Kakamega	Nandi	Nakuru	Narok	Migori
Planting	2	1.3	22	15	3	19	19	14
Weeding	50	50	36	53	53	47	52	48
Fertilizer Application	3	5	4	5	4	5	0	5
Harvesting	35	29	30	13	26	21	22	22
Plant protection	0	5	0	5	0	2	0	0
P/H handling	11	10	9	9	15	6	7	10
Share of labour to total cost	31	34	34	33	21	47	44	43
Average cost per bag	1124	1072	1039	1059	1090	2037	2544	2068

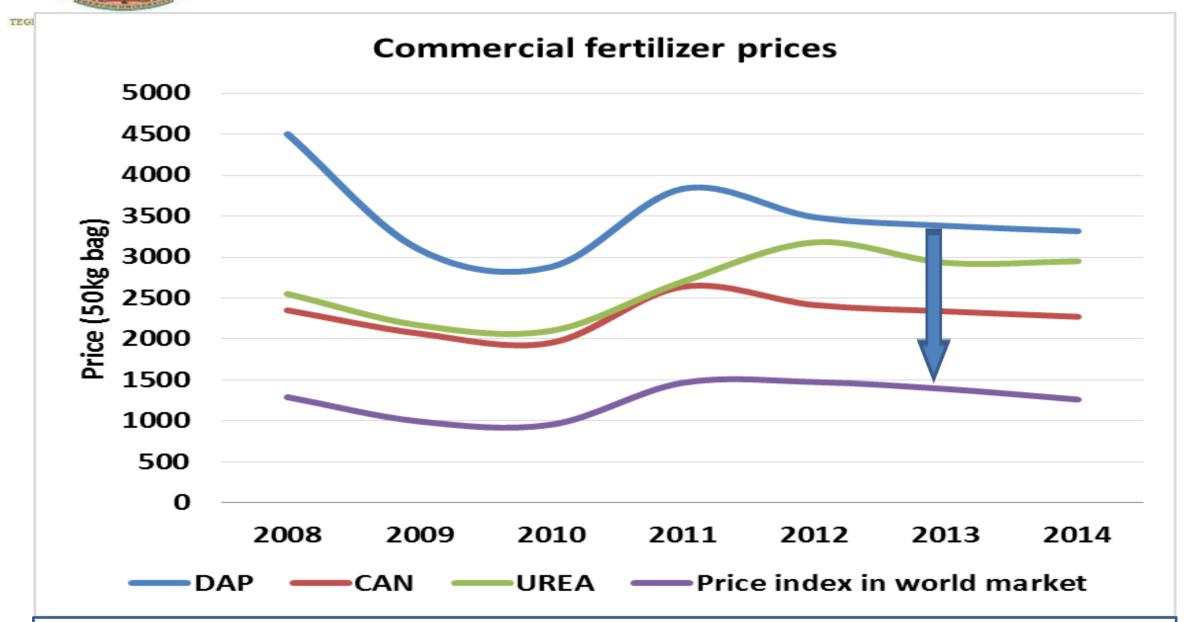
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#### Sources of Subsidized fertilizer





#### Fertilizer Subsidy and Commercial Fert. Trends



Source: ERA 2013, TAPRAII-2014, World Bank Data

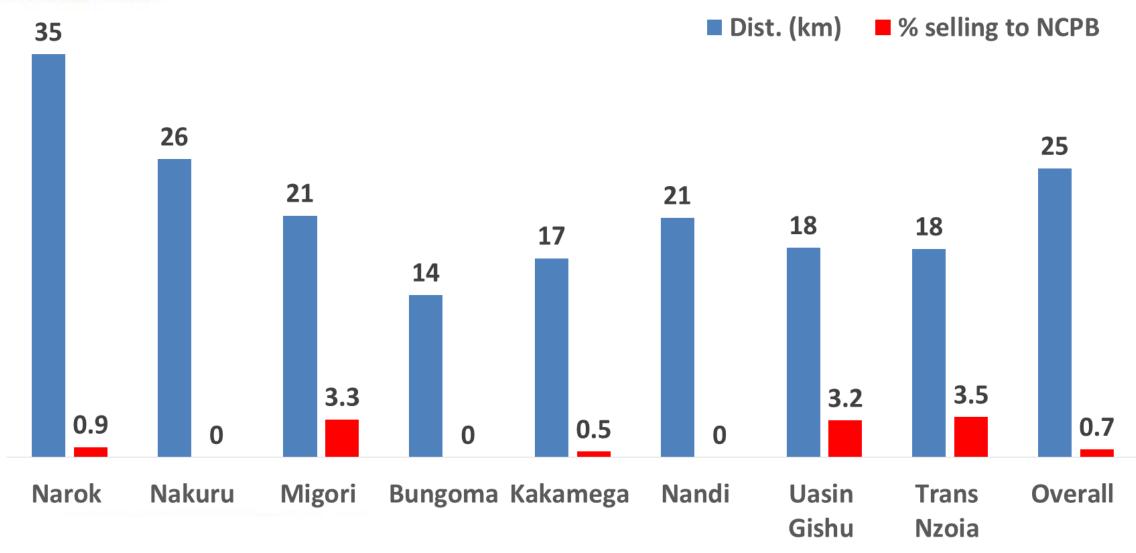


#### Cost of Production with Input and Output Price Support

TEGEMEO INSTITUTE OF AGRICULTURAL POLICY AND DEVELOPMENT	Large Se	cale	Small S	cale
	No subsidy No NCPB	No Subsidy with NCPB	No subsidy No NCPB	No Subsidy with NCPB
Maize yield (bags/acre)	26	26	17.4	17.4
Sale price per 90kg bag	2,333	2,800	1,930	2,800
Cost per bag with LR &WC	1,597	1,597	1,715	1,715
Profit per bag (Ksh) with LR & WC	737	1,203	215	1,085
Profit per bag with LR &WC (%)	46%	<b>75</b> %	13%	63%
Cost per bag without LR & WC	1,171	1,171	1,156	1,156
Profit per bag (Ksh) w/o LR & WC	1,162	1,629	774	1,644
Profit per bag w/o LR & WC (%)	99%	139%	67%	142%
	Subsidy	Subsidy	Subsidy	Subsidy
	No NCPB	with NCPB	No NCPB	with NCPB
Maize yield (bags/acre)	26	26	17.4	17.4
Cost per bag with LR &WC	1,405	1,405	1,551	1,551
Profit per bag (Ksh) with LR & WC	928	1,395	379	1,249
Profit per bag with LR &WC (%)	66%	99%	24%	81%
Cost saving/bag with LR & WC	12%	12%	11%	11%
Cost per bag without LR & WC	1,005	1,005	1,024	1,024
Profit per bag (Ksh) w/o LR & WC	1,328	1,795	906	1,776
Profit per bag w/o LR & WC (%)	132%	179%	88%	173%



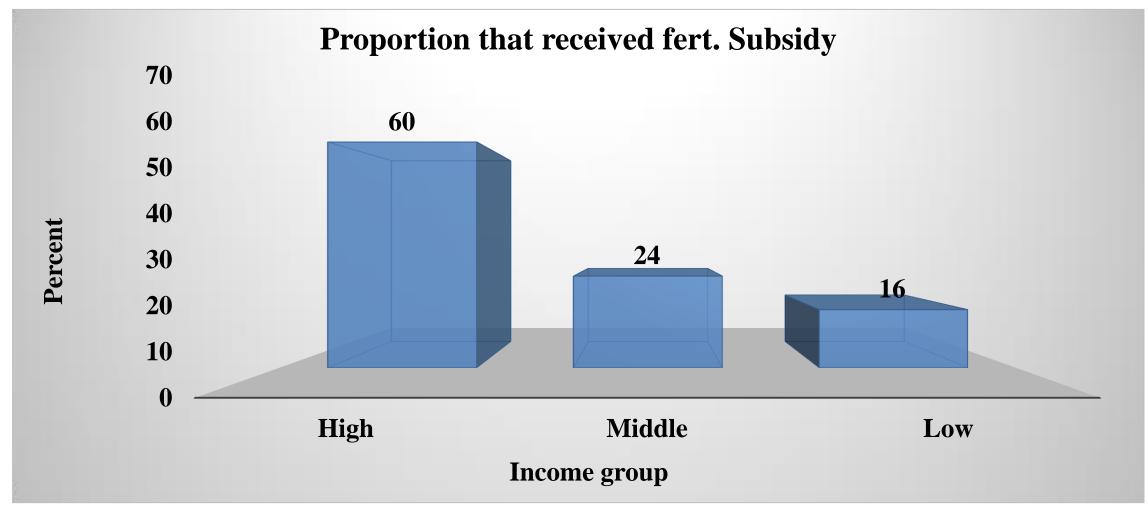
#### **Proportion of Farmers Selling to NCPB**





#### Characteristics Recipients of fertilizer subsidy

According to TAPRAII data set of 2014, only 9 percent received fertilizer subsidy between 2012 and 2014



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	Key Agricultural	& Household	Characteristics	hy Access to	Fertilizer Subsidy
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Variables DEVELOPMENT	Without Fertilizer Subsidy	With Fertilizer Subsidy	P-value
Age of head	51	50	0.144
Male (%)	76	81	0.007
Education (%)			0.000
No education	19.4	7.4	
Primary	<i>55.8</i>	48	
O level	18.9	30.2	
A level	0.6	1.1	
College	4.1	9.6	
University and above	1.2	3.6	
Years of using fertilizer	3.7	4.4	0.000
Acreage under maize	1.6	2.0	0.002
Maize yield per acre	6.9	11.5	
Maize sales (kgs)	288	1,383	0.000
Total net household income	228,827	373,517	0.000
Net crop income 2014	50,199	<i>127,165</i>	0.000
Total net off-farm income	136,607	167,991	0.012

#### **Conclusion**



#### **Cost of maize production**

- Cost of maize production is high where land rent and working capital are used
- 2. Major cost components
  - Fertilizer, Land rent, intermediate inputs, Labour and land preparation
  - Weeding constitute between 36-53% of total labour cost for smallholder farmers



#### Conclusion

#### **Fertilizer Prices and Input Subsidy**

- 1. Commercial fertilizer prices have stabilized but still relatively high.
  - **❖** Attributed to perfect price transmission reflected in the world market fertilizer prices
  - **❖** Funding to the subsidy program has been inadequate to meaningfully influence commercial fertilizer price (*has not achieved the target 40% of the annual requirement*)
- 2. Design of the programme is not ideal for resource poor small scale farmers

#### Conclusion



#### Maize producer policy

- 1. Government output price support creates
  - Undue advantage to some farmers
  - Relatively higher maize prices to producers
  - **❖** Why not let market forces determine the prices and buy SGR at existing market prices?

#### **Food Situation**

- \* Maize production and productivity has declined in the last two years
- ❖ The Maize surplus in the balance sheet is based on the project June –September 2015 But this needs close monitoring
- **SGR** should me moved on time to deficit area to avoid structural deficit

# TEGEMEO INSTITUTE OF AGRICULTURAL

#### Recommendation

#### To reduce cost of maize production and improve productivity

- Need to explore other options to complement fertilizer subsidy
  - Increase area under irrigation since weather variability has been a major threat to production

#### To better manage fertilizer prices and input subsidy

**Explore** private sector managed subsidy program with given their wide distribution network in the country

#### Most resource poor farmers excluded

Recommend mobile payment to improve inclusiveness

Have other distribution points (agro dealers) close by for farmers to access the fertilizer

**\*** Why not buy fertilizer from private sector and sell it at subsidized price?



# Thank You





Maize in Perkerra



# **IRRIGATION**

☐ Inadequate information about irrigated maize production in Kenya.



## **METHODOLOGY**

- ☐ To contribute information on viability of irrigated maize
- A survey was carried out---Lower Kuja, Bunyala, Nandi, Perkerra, Mwea, Bura, Hola and Galana.
- ☐ Primary data was collected by the use of
  - Questionnaires,
  - > FGDs,
  - > Key informant interviews
  - Published materials were the main source of secondary data
  - ➤ Additional data for non irrigated maize from 2014 TAPRA II data for the same areas.



# **BUDGET RESULTS**

	Irrigated	Non irrigated	Simulated	2 crops
Maize yield (bags/acre)	11	7.6	11	22
Sale price per 90kg bag	2,200	2382	2,382	2,382
Sold to	Traders	Traders	Traders	Traders
Total revenue	24,200	18,103	26,202	52,404
Land preparation	2,500	2,500	2,500	5,000
Seed	1348	1597	1,348	2,696
Fertilizer	4853	4331	4,853	9,706
Other intermediate costs	1857	2872	1,857	3,714
Labor (family & hired)	2061	1800	2,061	4,122
Water	3,086		3,086	6,172
Total production costs (TC)	15,705	13,100	15,705	31,410
Working capital (WC) 10%	1571	1310	1,571	3,141
Total production costs (TC) with wc	17,276	14,410	17,276	34,551
Cost per bag w/o WC	1,428	1,724	1,428	1,428
Cost per bag with WC	1,571	1,896	1,571	1,571
Profit=TR-TC (per acre)	8,495	5,003	8,927	17,853
Breakeven yield (90kg bags)	7.14	5.50	6.59	13.19
Margin per bag (Ksh) w/o WC	772.3	658.3	954.3	954.3
Margin per bag as % of cost w/o	54%	38%	67%	67%

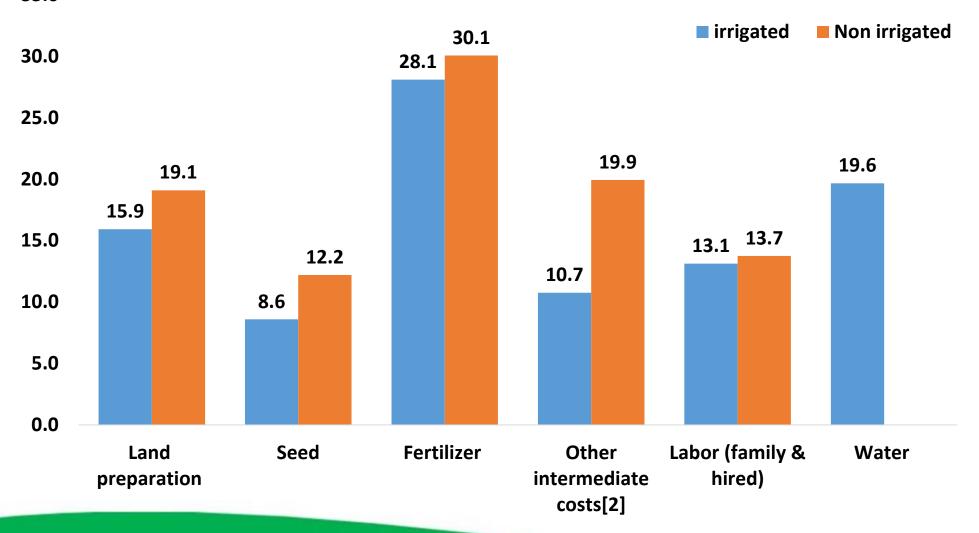


# Impact on food security

- ☐ Positive impact of irrigated maize production.
  - ➤ High output, high income , high profit
  - > Can produce more maize output than non irrigated maize in comparable fields
  - > Has a potential to produce 2 to 3 crops annually
  - Price change does not affect the costs of production
  - > but affects the margins per bag, GM, and the profit levels
  - > There exists a potential to produce it on a large scale given the available land
- ☐ However, for irrigation to be used
  - > costs of production should be lowered / profit margins should increase

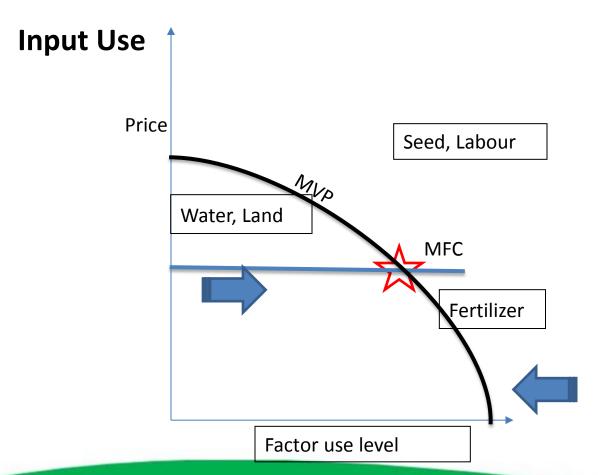


# Comparative factor use levels





# Input Efficiency



#### **Efficiency Test**

Factor	GM MVP	price	ratio	Decision	Policy direction
Water	16,852.13	4911	3.43	Under	Efficiency
Labor	25.56	312.61	0.08	Excess	High rates
Land	5,977.48	3000	1.99	Under	intensificati on
Seed	3,365.74	3750	0.9	Excess	Excess
Fertilizer	1,078.08	2400	0.45	Excess	under



#### LESSONS FOR GALANA KULALU.

- ☐ The potential output of Galana Kulalu
  - > can produce 5.5 million bags of maize in one season (about a half of the national food requirement in three seasons)!
  - > the project can solve Kenya frequent structural food insecurity
- ☐ However, the high cost of the factor use needs to be addressed through
  - > Efficient use of water use and water application methods
  - > Intensify Land use in maize production.
  - > Use reduction in the use of fertilizer to optimal levels
  - Extensification which exploits/ economies of scale/mechanization and solves the labour problem.
- > Issues
- ➤ Water, not able to use the gradient system so opting for the centre pivot , high cost of inputs, average productivity of available seeds



## **Conclusion / Recommendation.**

☐ Actions are recommended to address the high costs production of irrigated maize.

To improve the efficiency of factor use levels

- Fertilizer use levels to decrease to optimal levels
- >Land use to be intensified to increase output
- > Water use choice of efficient water application method
- □ Irrigated maize production-
  - **!** Improve food security and the standards of living for the farmers
  - \* High incomes can contribute to the country's GDP



# **POLICY INSIGHT**



# Trends in maize grain and flour prices: Implications for food security

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Cost of maize production across different systems and regions in Kenya: implications for food security and pricing



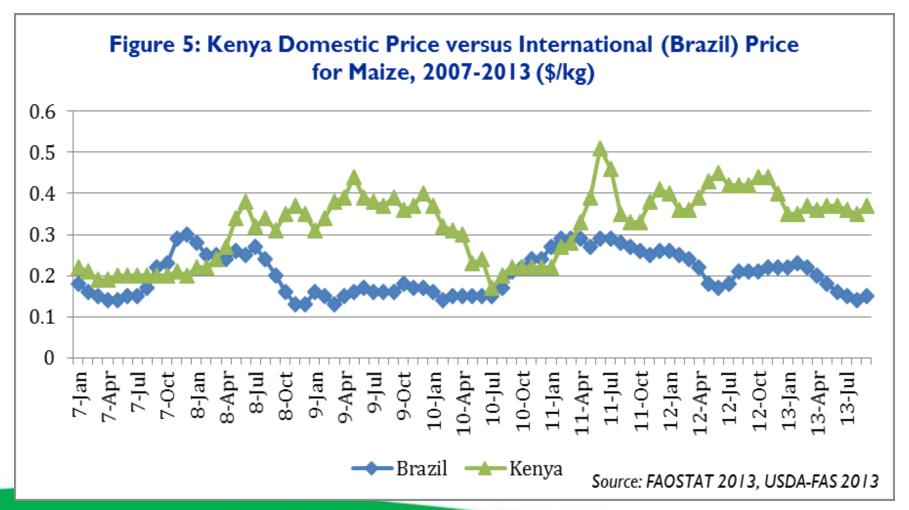
### Introduction

Perfect markets would transfer the cost savings by producers to the consumers
Most small scale farmers (producers of about 75% maize) are net buyers of maize
(Tegemeo Panel Survey).
Kenyan maize market liberalized, government intervenes in both input and output
markets mostly via NCPB
Interventions make Kenyan maize expensive
☐ Producers, uncompetitive in the regional market
☐ Consumers, food becomes expensive
Expect millers to source maize from markets offering more margins
☐ Kenyan maize is most expensive within the EAC (Kamau et al, 2013)



POLICY AND DEVELOPMENT

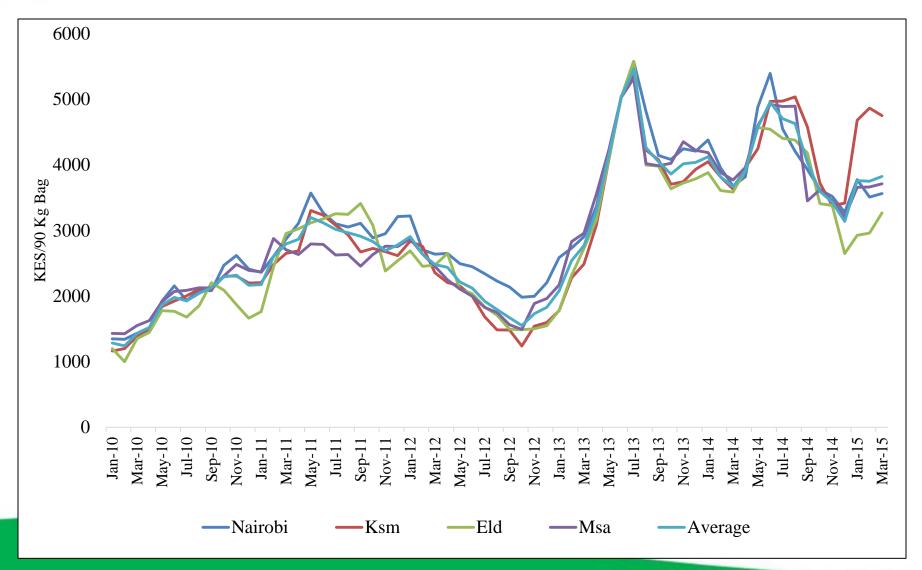
#### Kenya Maize Prices Against International (Brazil) Prices



Source: KAVES 2014



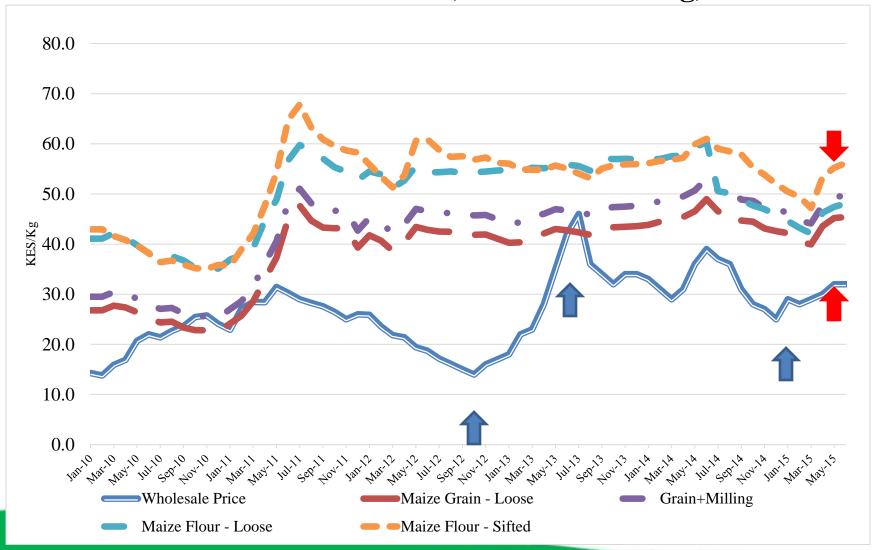
#### Whole Sale Maize Prices in Selected Markets (2010-2015)



July 14, 2015 Source: MIB-MoA 49



Maize Grain & Flour Prices (Nominal KES/Kg) 2010-2015



ulv 14. 2015 Source: KNBS, MIB-MoA

EGERTON UNIVERSITY

# POLICY AND DEVELOPMENT Milling Costs (Generic) and Potential Margins

							<u> </u>	
								D : 1110
				TMC:CG R	Rat10	Nairobi WS	Kitale WS	Busia WS
Cost of grain (K	KES)			1.25		2,860	2,500	2,600
Other Costs (20	)%)					715	625	650
Total Cost Per 9	Okg Bag					3,575.0	3,125.0	3,250.0
	Share	Qty (Kgs)	W/sale KES/Kg	Revenue in KES	Margin (KES)		Margins (%)	
Grain	1	90.0	33	2,970	110	70.0	270.0	120.0
Transport						40	200	250
Mill								
Flour	0.80	72.0	45.0	3,240				
Bran	0.11	9.9	15.0	149				
Germ	0.09	8.1	15.0	122				
Margin						(65)	385	260
		90		3,510		(1.8)	12.3	8.0



# **Milling Sector**

Mai	ze millers shift the burden of grain price increases to consumers
	Cost of maize grain constitutes at least 80 percent of total cost of milling maize (CMA
	Chair, Diamond Lalji as quoted in the Business Daily February 8, 2015)
	Price of maize grain and flour generally move together and maintain a nearly constant price
	margin, (Kamau et al, 2012).
Extra	action rates range between 70 to 85 percent for Grade 1, up to 95 percent for Grade 2,
(KA	VES' survey, 2014). Variation may be due to differences in machinery efficiency.
Med	ium- and large-scale mills account for 90 to 95 percent of the total installed milling
capa	city estimated at 1.4 million MT per year.
	The large millers are members of the cereal millers association (CMA), while the small-
	and medium- scale millers belong to United Grain Millers and Farmers Association
	(UGMFA)
Larg	e millers; build stock of maize supplies to cushion themselves during the low supply
seaso	on, and are also able to get formal imports of maize whenever there is shortage.



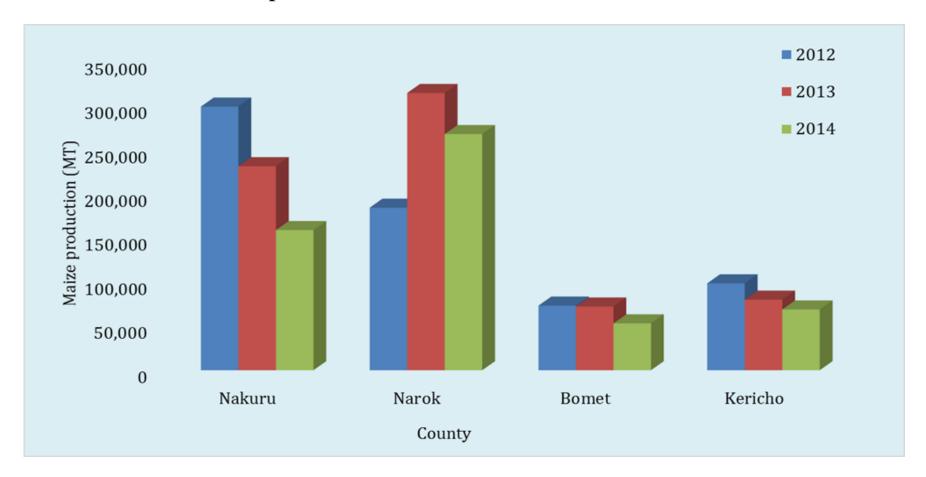
### **Production of Major Food Crops 2012-2014**

Crop	2012 (Baseline)	2013	2014	Net Change (%)
Maize	41,665,332	39,918,751	39,035,228	-7
Beans	7,162,192	9,036,206	8,009,609	8
Wheat	4,910,492	4,996,012	3,651,528	-35
Sorghum	1,851,411	1,744,707	1,867,466	0.5
Millet	787,331	680,118	792,600	-2
Irish Potatoes (tons)	1,470,562	1,565,054	1,575,982	7
Rice (tons)	140,565	137,236	146,477	4
Cassava (tons)	935,617	939,026	888,619	-5

Source: Validated Crop Production Data MOAL&F, March 2015



#### Maize production in the South and Central Rift- (MLND)



Source: Validated Crop Production Data MoAL&F, March 2015



#### Maize Balance Sheet 31st May-30th Sept 2015

Stocks as at 31 May 2015 in 90kg bags	7,194,991
a) Total East Africa Imports* (Private sector cross border trade) expected between June to Sept 2015	1,000,000
b) Imports outside EAC between June to Sept 2015	0
c) Estimated harvests between June to Sept 2015	13,000,000
Total available stocks to Sept 2015	21,194,991
Post –harvest storage losses estimated at 10%	1,300,000
Amount used for manufacture of feeds and other industrial products (2% of stocks)	423,900
Amount used as seed (1%)	211,950
Expected total exports to East Africa Community region	0
Expected exports outside the EAC region	0
Projected national availability as at 30 <sup>th</sup> Sept 2015	19,259,141
CONSUMPTION @3.34 million bags/Month for 43 million people for 4 months	12,420,000
Balance as at 30th Sept 2015 (Surplus/Deficit)	6,839,141
Surplus	6,839,141

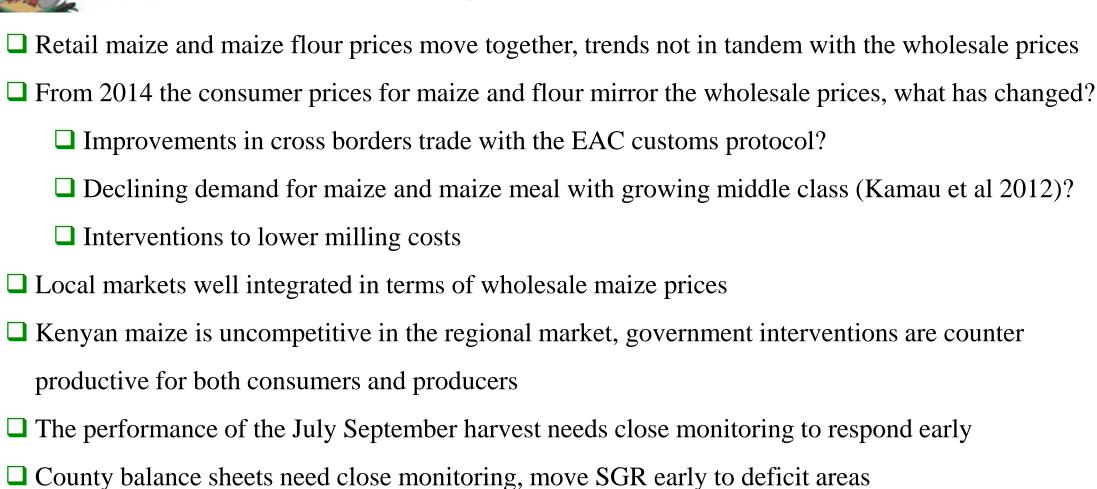
Source: MoAL&F, National Food Security Report, May, 2015







#### Conclusion



July 14, 2015



### **Broader Issues**

## 1. Other ways of reducing cost of maize production in Kenya?

- Varies across regions and scale
- No clear economies of scale

## 2. Viability of maize production

- Need to diversify into other crops
- Comparative advantage

## 3. Fertilizer Subsidy Programme

- Design issues
  - Accessibility
  - Packaging (Less than 50kg)
  - Distortion of the market ( NCPB achieve less that 10% against the 40% market requirement)



### Intended goal

- Affordability of fertilizer?
- Reducing the cost of production and increasing yields?
- Has the price of maize/food reduced?

### Inconsistent policies

- Input subsidy to lower cost of production and lower maize prices
- Producer support leading to higher maize prices for consumers (Why not let market forces determine the prices)



# 4. Maize Price Support

Undue advantage to some farmers

# 5. Potential for irrigation

- Government aims at putting 0.5 million acres under irrigation to get 40 million bags (more than the national requirement) within a year
- What is the future of the smallholder farmers?.
- Viability of irrigation?

# 6. Maize Lethal Necrosis Disease (MLND)

Its 5 years and MLND has not been controlled.



- 7. In practice, prevailing maize prices requires a real balancing act between:
  - Production and consumption
  - Demand and supply
  - Producers and consumers
- Although, this is a million dollar question which some writers call the Food Price Dilemma, it nevertheless requires, sober, prudent and cautious management of domestic policies by government and other stakeholders.