Dairying in Kenya: An Assessment of Competitiveness and Profitability

Stella Wambugu and Lilian Kirimi

1

Introduction

- Kenya has the largest dairy herd in SSA, with estimated 3.5-3.8 million milking cows (MoLD). Dairy contributes 14% of Agr GDP and 3.5% of total GDP
- In Africa, Kenya is the only country, after South Africa, that produces enough milk for both domestic consumption and export
- Sudan is the largest producer of milk in the COMESA, but it does not produce enough to satisfy both domestic and export markets

3

- In the world, India is the largest milk producer (108 million tons), New Zealand largest exporter (exports about 95% of its milk production, 15 million tons) and Mexico is the world's largest importer (105,000MT)

- Country Production, 2009 (litres)-Sudan (5.32b), Kenya (4.07b), Egypt (3.2b), South Africa (3.09b), (Morocco 1.7b) (FAO Statistics)

4

Objectives

- To assess the Kenya's dairy sector through a synopsis of its competitiveness regionally and locally
- Examine milk productivity trends and the variable cost of production at farm level, *vis a vis* the constraints in the dairy industry
- To outline the policy implications in relation to the socio-economic issues in milk production and marketing

5

- In Africa, Kenya's main competitor in exports is South Africa, which has captured most of the export market
- Why is RSA the competitor?

6

SOUTH AFRICA	KENYA
Differences	
• Capital intensive, highly specialised-fewer producers, managing larger dairy operations	• Dominated by SSF (80%)
• Production/cow/day:15.2L-herds average more than 30 litres a day	• 8-10 L/ cow/day
• About 89% marketed through formal channels, and almost all the fresh milk sold is pasteurised.	• About 30% marketed through formal channel
• Processors estimated at about 300	• 27 processors
• Large number of smaller processors operate regionally or locally and (5 000 to 400 000L/day)	• Very few processors export their dairy produce, apart from the large ones
• Net exporter, net importer of dairy products or in balance	• Kenya is self sufficient in milk production

7

Similarities

- **Seasonality in production**
- **High input costs – cost of fertiliser and feeds**
- **5 larger processors operate nationally & process over 75% of the raw milk in RSA including Nestle, Parmalat & Danone. In Kenya 3 processors command more than 85% of the market**
- **Global competitive pressures – from countries who are subsidised**
- **Volatile markets**

8

Data and Methods

- **Data sources**
- ***Panel data (2000-2010)***
  - sample - 1245 SSF in 8 agro- regional zones
- ***Cross sectional data (January –June 2010)***
  - Sampling – 5 milk producing regions purposively selected - Kericho, Nyeri, Kinangop, Githunguri, Trans Nzoia
  - 8 dairy cooperatives-randomly selected from Kericho, Nyeri, Kinangop, and Trans Nzoia . 3 dairy farmers –randomly selected from each =96
  - 1 dairy cooperative purposively selected in Githunguri- 10 farmers randomly selected
  - Sample - 106 SSF with dairy enterprises
  - 7 dairy processors
- **Method - Descriptive statistics and gross margin analysis**

10

Panel data sample (2000-2010)

Agro-regional zones	Districts	No. of households
Coastal Lowlands	Kilifi, Kwale	74
Eastern Lowlands	Machakos, Mwingi, Makueni, Kitui, Taita-Taveta	141
Western Lowlands	Kisumu, Siaya	149
Western Transitional	Bungoma (lower elevation), Kakamega (lower elevation)	146
Western Highlands	Vihiga, Kisii	128
Central Highlands	Nyeri, Muranga, Meru	241
High-Potential Maize Zone	Kakamega (upper elevation), Bungoma (upper elevation) Trans Nzoia, Uasin Gishu, Bomet, Nakuru, Narok	332
Marginal Rain Shadow	Laikipia	34
Overall sample		1245

11

Cross sectional data sample (Jan-June2010)

Milk shed	Number of households
Githunguri	10
Kinangop	22
Trans Nzoia	24
Nyeri	26
Kericho	24
Total	**106**

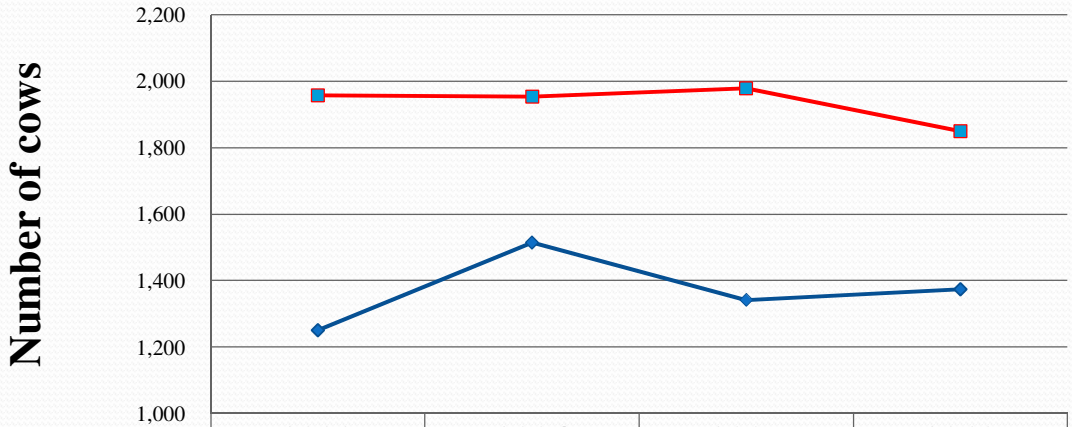
12

Results
(panel data analysis)

- Trends in the number of cows in the sample between 2000-2010
- A decline between 2007 and 2010- because of loss of cows during post election violence and drought
- Most of the sample was from **Trans Nzoia, Uasin Gishu, Bomet, Nakuru, Narok-most affected areas by PEV**
- **Over 70% of households in these areas kept improved animals**
- Over 80% of households in Central Highlands kept improved animals
- Local cows – Over 50% of households in Western, Eastern Lowlands, and Western transitional zones

14

Total Number of Cows (Improved and local) owned – (2000-2010)

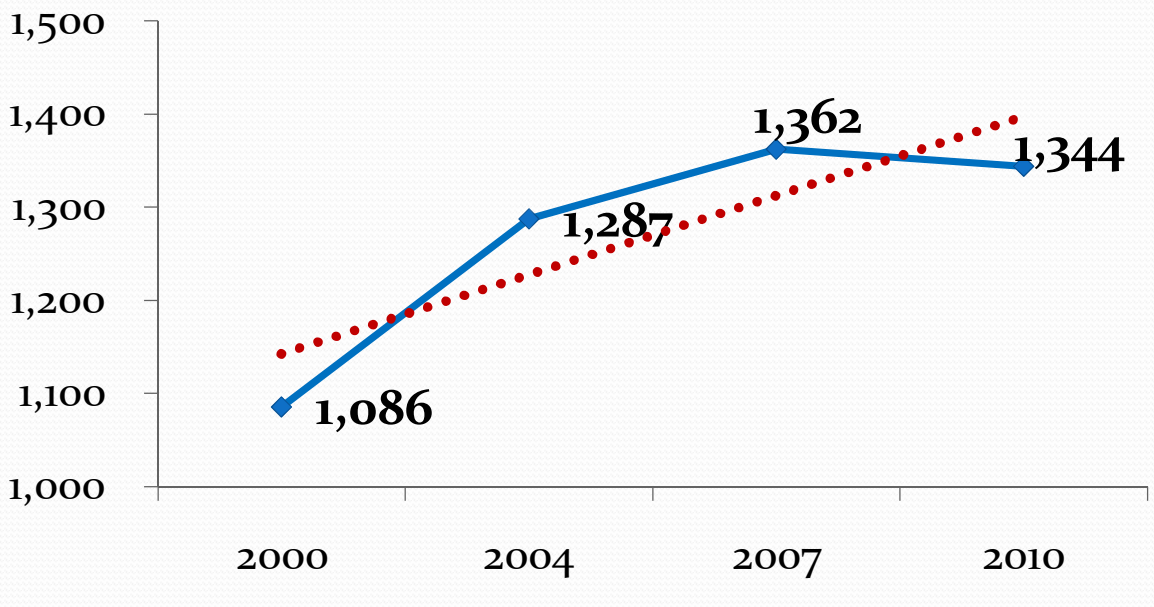


	2000	2004	2007	2010
Local	1,251	1,515	1,342	1,374
Improved	1,957	1,953	1,978	1,850

Year

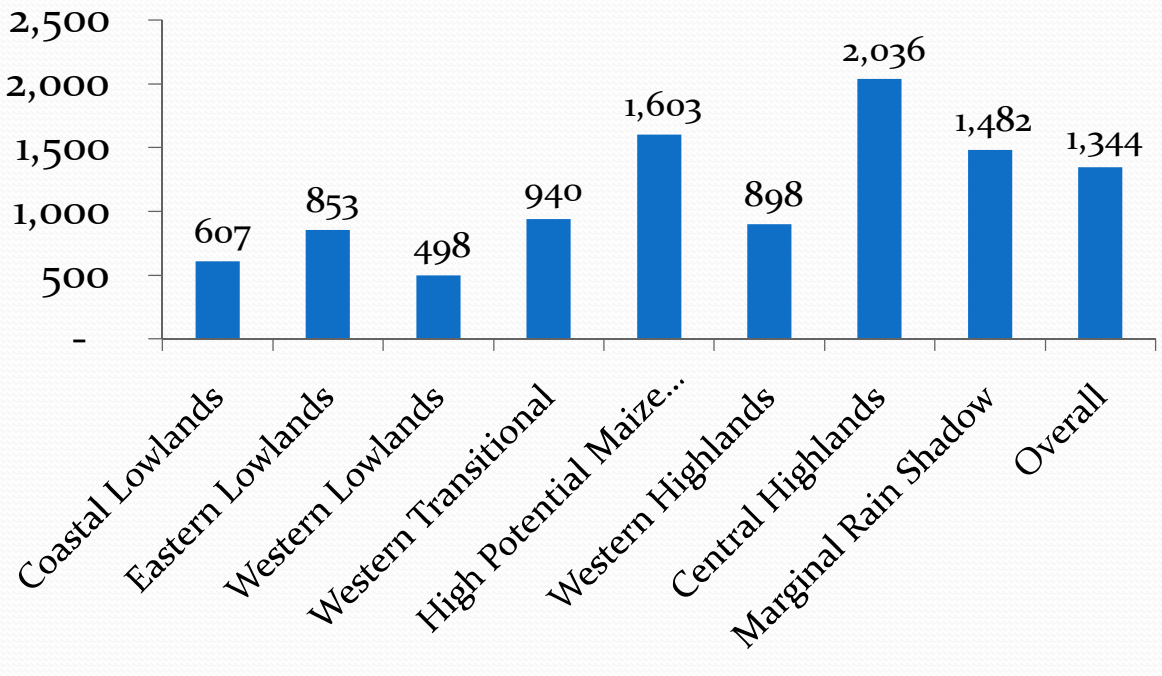
15

Trends in milk productivity (litres) per cow per year 2000-2010



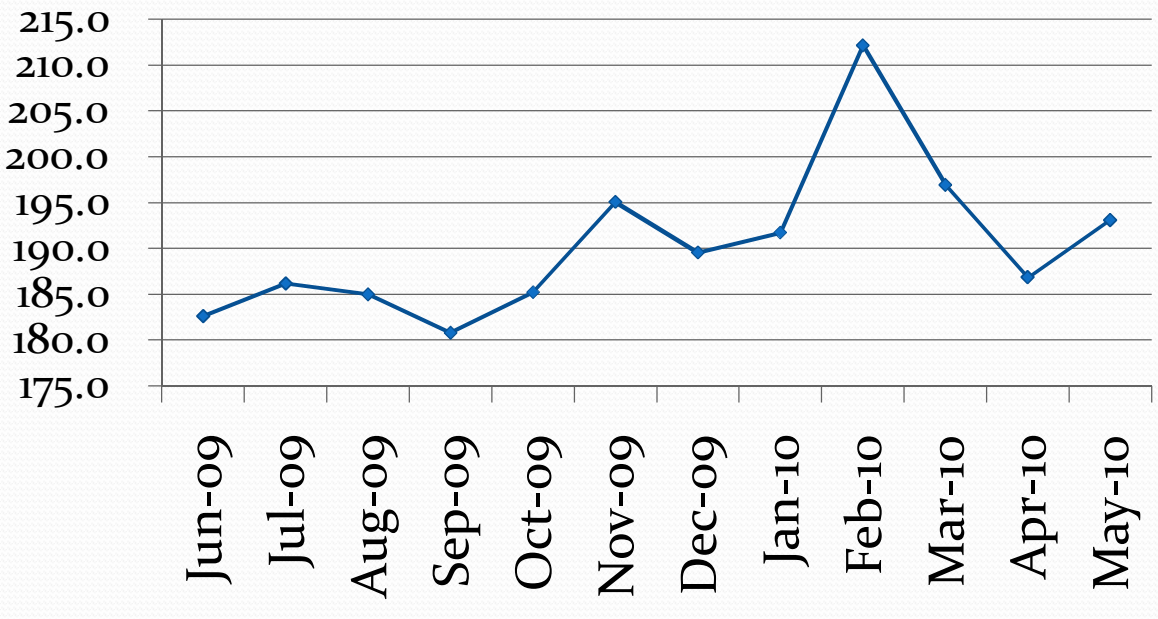
16

Milk productivity (litres) per cow by Agro regional zones (2010)



17

Mean quantity of milk produced per cow per month between 2009 /2010, by agro regional zones

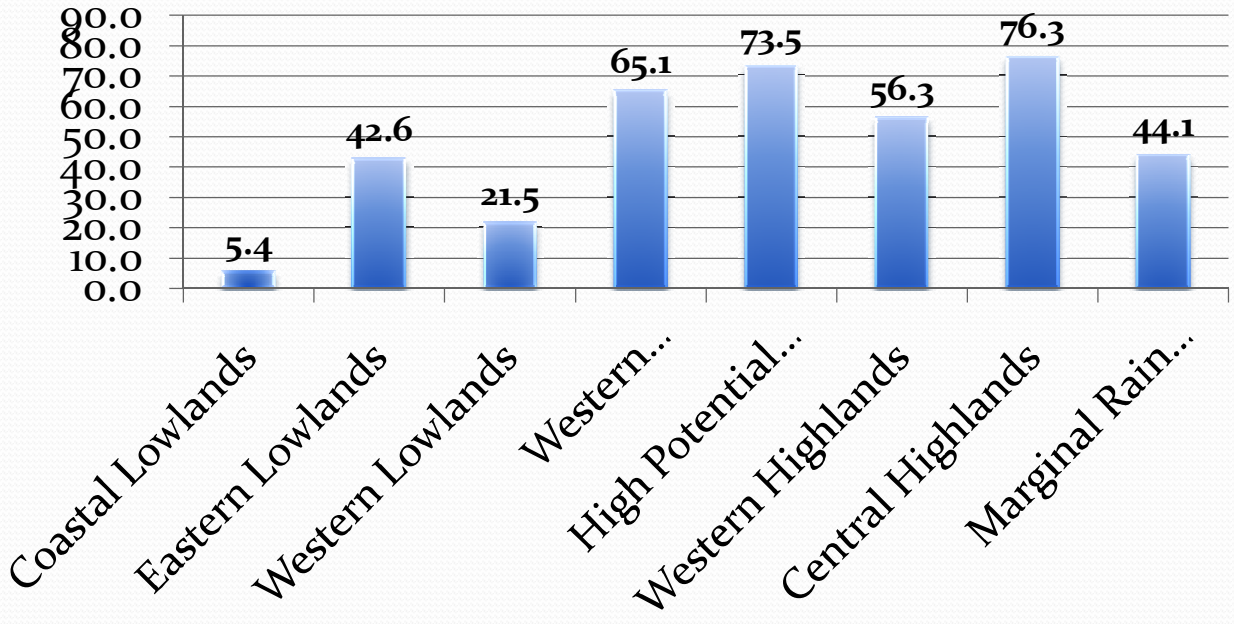


18

- Participation in milk markets
  - The proportion of households selling milk increased from 51 percent in 2000 to 57 percent in 2010
  - Central Highlands and High Potential maize zones – over 70% of households sold milk – high productivity in these zones and more improved animals

19

Participation in markets-proportion of households that sold milk (2010)



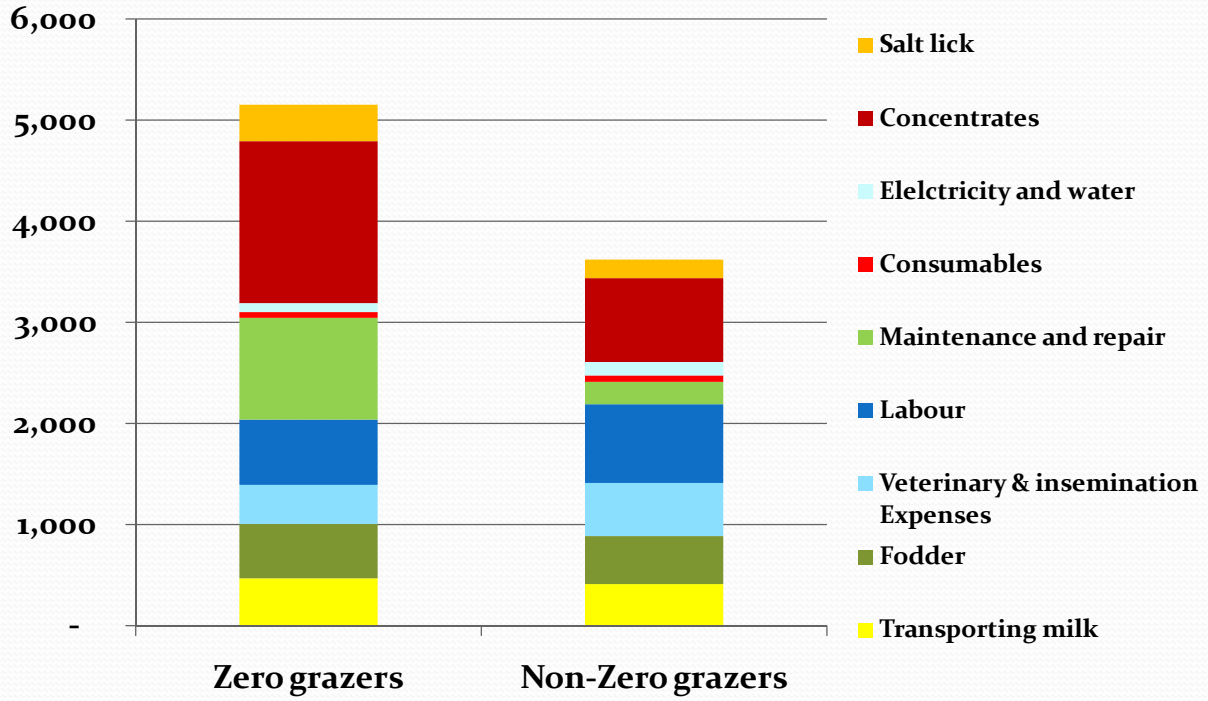
20

Gross margin analysis (Cross sectional data)

- Gross margin analysis-total income derived from an enterprise less variable costs
- Revenue – (milk sales + value of milk produced at home)
- Variable costs (milk transport, fodder, concentrates, salt/minerals, veterinary & insemination, labour , maintenance and repair, consumables ,electricity and water)

22

Structure of variable costs



23

Gross margin analysis by grazing system-sample

	Zero grazing	*non-Zero grazing*	*Sample*
Total Revenue	***6091***	***5189***	***5563***
Total Variable Expenses	**5,156**	**3,622**	**4,301**
Gross margin/cow/month	**935**	**1567**	**1262**
Gross margin/variable expenses	**0.20**	**0.40**	**0.30**
Gross margin/concentrates cost	**0.58**	**1.89**	**1.05**
Average milk produced per cow per month	**436.2**	**393**	**410.9**
Variable cost of production per litre of milk	**12**	**9**	**10**
average milk selling price	**21.2**	**20.5**	**20.8**
(price/litre-variable expenses/litre)	**9**	**11**	**10**

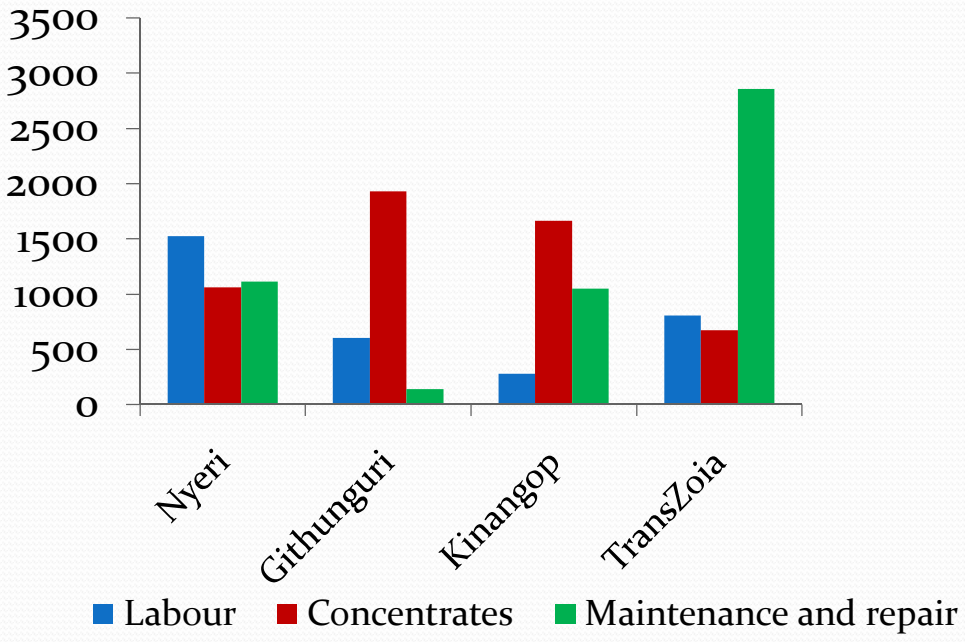
24

Gross margin analysis for the zero grazing system

	Githunguri	*Kinangop*	*Transzoia*	*Nyeri*
Total Revenue	**9377**	**5539**	**6458**	**4551**
Total Variable Expenses	**3,971**	**5,107**	**5479**	**4927**
Gross margin/cow/month	**5,406**	**432**	**979**	**-376**
GM/variable expenses	1	0.10	0.20	-0.10
GM/concentrates cost	2.8	0.26	1.46	-0.23
Productivity/ cow /month	565	436	476	358
Variable cost of production /litre	7	11.7	11.5	13.7
average milk selling price	26	19.4	22.9	19.5
(price/litre-variable expenses/litre)	19	7.7	**11.4**	**5.8**

25

Structure of some variable costs



26

Gross margin analysis for the non-zero grazing system

	Kinangop	TransNzoia	Nyeri	Kericho
Total Revenue	**4741**	**4449**	**5505**	**5888**
Total Variable Expenses	**3,933**	**4,072**	**3711**	**2,942**
Gross margin/cow/month	**808**	**377**	**1794**	**2,946**
GM/ variable expenses	0.21	0.09	0.5	1
GM/concentrates cost	0.8	0.4	1.7	5.2
Productivity/cow/month	381	317	492	429
Variable cost of production /litre	10.3	12.9	7.5	6.9
average milk selling price	18.2	22.0	17.3	21.7
(price/litre-variable expenses/litre)	7.9	9.2	9.8	14.8

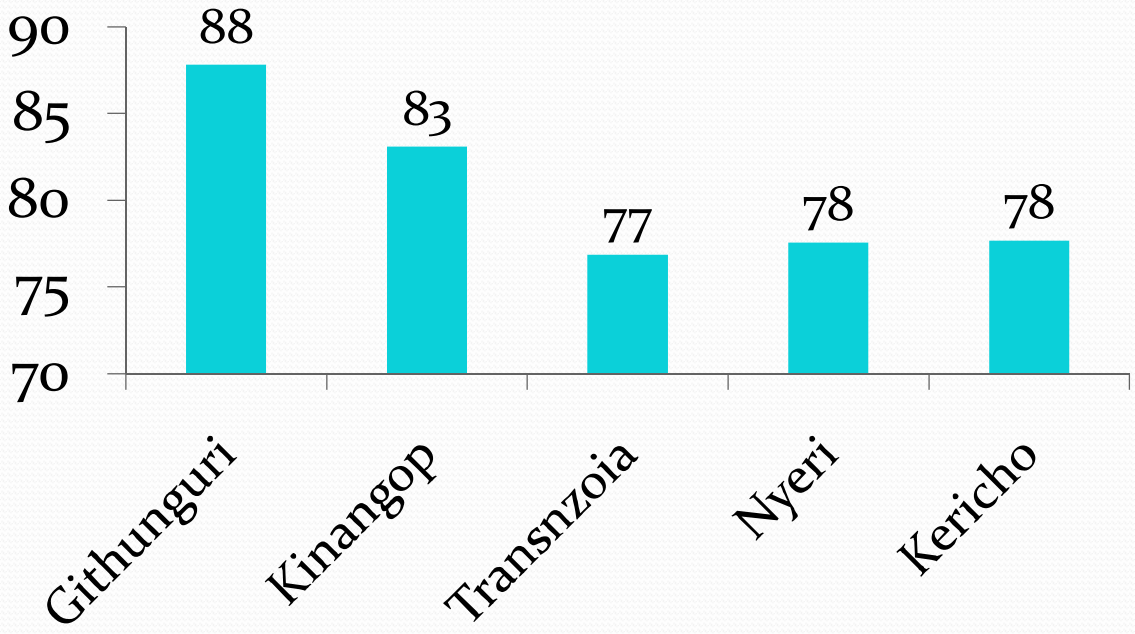
27

Average price/litre of milk in different market channels

Sale channel	Githunguri	Kinangop	Transnzoia	Nyeri	Kericho	Sample
Insitutions	27		40	25	25	27
large traders	25	18	26		19	24
individual consumers		20	24	23	22	22
Processors	26	21	19	20	21	22
SSMVs		19	21		21	20
Dairy cooperatives		18	22	18	19	19
Sample	26	19	22	19	22	21

28

% Value of milk sales to the value of production



29

- Dairying is economically attractive for SSF, though marginally
- Positive trend in milk productivity/ cow /annum (2000-2010)
- However ,various challenges face the industry along the chain
- At processing, the processors interviewed reported the following as the main challenges;
  - Seasonality in production leading to reduced exports and loss of export market to competitors
  - Cost of electricity/ fuel
  - Heavy cost in initial investment
  - Infrastructure bottlenecks
  - Competition from cash based informal market
  - In the past, high-quality standards of global producers have prevented countries like Kenya from competing with major exporters

30

Other challenges in the dairy industry…

- Liberalization in 1992- emergence of informal milk trade and private processors
- Informal sector – about 70% of raw milk. Important due to traditional preferences for fresh raw milk
- but with several challenges relating to quality control and standards, and the associated health and safety concerns

31

- In production - feed quality & cost; poor access to breeding, animal health and credit services; cost of AI and inefficient distribution mechanism, poor interaction and priority setting between research, extension and training

- In marketing - poor infrastructure (roads, electricity-leading to spoilage), inadequate milk collection & marketing system, high transport cost

32

Policy Implications

- An important policy implication is that the smallholder dairy system is profitable under current conditions, which is the likely driving force behind its success in Kenya
- Dairy sector is thus an important area for public and donor investment for income and employment generation
- However, some specific policy themes could have a major positive impact on smallholder dairying cost structure and profitability in future

34

- Strategic milk reserve
  - to stabilize milk production shortfalls in the dry season
- Invest in processing of long life dairy products
  - Absorb excess production
  - Expand to non traditional markets
- Investment in infrastructure
- Speedy implementation of the national livestock feed policy- to guide and promote on farm feed preservation

35

Thank you