MAKING AGRI-FOOD SYSTEMS WORK FOR THE RURAL POOR THROUGH INTEGRATION INTO LARGER, MORE LUCRATIVE MARKETS

TEGEMEO INSTITUTE OF AGRICULTURAL POLICY AND DEVELOPMENT

Presented during an outreach workshop held on 14th & 15th February 2012 in Kirinyaga West and Mbeere South
Outline

- Objectives
- Methodology
- Production system
  - Gross margin analysis
- Marketing and marketing channels
- Value chain analysis
  - Mapping of key players
  - Cost build ups
- Constrains, areas of intervention, opportunities and threats facing farmers and traders
Sweet potato Value chain analysis in Kirinyaga West

- Value chain analysis examines the interrelationships between diverse actors/players involved in all stages of marketing channels.

- It also indicates the activities related to the flow of a particular product and associated services from the farmers to the targeted buyer/consumer.
Objectives

- The main objective was to identify constraints, opportunities and incentives for expanding market access for sweet potatoes farmers
Specific Objectives

- To identify the actors involved in sweet potato value chain, their interrelationships and activities
- Identify constraints hindering small farmer participation in more profitable and competitive sweet potatoes markets;
- Identify opportunities for expanding market access and sustained commercialization among farmers
Methodology

- Mapping of key players was done with the help of MOA in Kirinyaga West District.

- Key players along the value chain were sampled and interviewed by use of a checklist through semi structured interviews.

- The key players interviewed include: farmers, traders, brokers and service providers.

- Focus group discussions were utilized to collect data from the farmers.

- Farm budgets were developed together with the farmers.
# Sample Size

## Farmers Interviewed

<table>
<thead>
<tr>
<th>District</th>
<th>Division</th>
<th>Location</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kirinyaga West</td>
<td>Ndia west</td>
<td>Kiini</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Sagana</td>
<td>Kareti</td>
<td>55</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>70</strong></td>
</tr>
</tbody>
</table>

## Traders Interviewed

<table>
<thead>
<tr>
<th>Market</th>
<th>District</th>
<th>Large</th>
<th>Medium</th>
<th>Small traders</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kibingoti</td>
<td>Kirinyaga West</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Sagana</td>
<td>Kirinyaga West</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Karatina</td>
<td>Mathira East</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Makutano</td>
<td>Mwea West</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Murang’a</td>
<td>Murang’a</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>5</strong></td>
<td><strong>6</strong></td>
<td><strong>23</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>
Production system

- About 10 to 15 percent of the farmers grow the crop; mainly grown as a cash crop.

- The average scale of production ranges from **0.25 to 2 acres**.

- There are two production systems: **Rain fed** and **irrigation**.
Sweet Potato Production in Kirinyaga West

- Two main seasons:
  - Long Rain Season: March/ April
  - Short Rain Season: October/ November

- Maturity period is 4 to 6 months depending on the variety

- There has been rapid promotion of improved varieties by the Ministry of Agriculture, KARI, and other research institutions including CIP and University of Nairobi
Production cont’d

- The most common varieties are Bungoma and ex-rwambiti

- The major competing crops ranked are tea, coffee, bananas, macadamia and french bean

- Gender roles:
  - Women: planting and weeding
  - Men: Irrigation and harvesting, washing, grading, assembling, bulking, loading and off loading activities
Cost of Production per Acre (in KES)

Kareti (Rainfed) vs. Klini (Irrigated)

- Spraying chemical
- Irrigation water
- Fertilizer
- Manure
- Harvesting
- Chemical spraying
- Pruning
- Irrigation labour
- Weeding
- Planting
- Rigging
- Mulching
- Digging

Cost Breakdown:
- Karel (Rainfed):
  - 1.200
  - 4.800
  - 11.200
  - 4.000
  - 2.400
  - 2.400
  - 3.200
  - 1.600
  - 2.400

- Klini (Irrigated):
  - 10.200
  - 3.600
  - 6.000
  - 6.000
  - 7.200
  - 1.800
  - 3.600
  - 2.100
  - 2.100

Total Costs:
- Kareti: 33,400
- Klini: 48,200
Cost Component (Share (%) in total production cost)
Cost of Production contd.

- The costs incurred in production include:
  - Labour: Digging, mulching, ridging, planting, weeding irrigation, pruning, spraying and harvesting
  - Inputs: manure, fertilizer, irrigation water, chemicals and vines (in some cases)

- Production cost of sweet potatoes:
  - under rain fed was **KES 34,800** and
  - under **irrigation** system was **KES 43,500** (25% higher more than rain-fed)

- In Kareti, manure constituted the highest proportion of cost of production (**KES 11,200**) while in Kiini irrigation constituted the highest proportion **KES 17,400** (labor and cost of water)
Production Cont’d

• The average yield per acre was:

  • Rain fed- **24 bags** of grade 1 and **12 bags** of grade 2

  • Irrigation: **30 bags** of grade 1 and **6 bags** of grade 2
Gross Margin Analysis

- The Gross Margin Per Acre;
  - **KES 51,874** in Kareti (rain-fed)
  - **KES 66,000** in Kiini (irrigated)
  - Gross Margin higher (21%) in Kiini

- For every **KES100** spent on producing 1 bag of sweet potatoes the rate of return was;
  - **KES 49** in Kareti (rain-fed)
  - **KES 51** in Kiini (irrigated)
Marketing

- Average price for one bag:
  - Harvest period; **KES 1,200 - 1,400**
  - Lean period; **KES 2,800 - 3,000**
- About 80% of the farmers sell the produce at the farm gate while 20% deliver in the markets (within and outside the district)
- About 50% of the total produce is sold directly to the large traders whereas 30% is sold to medium traders and approximately 10% to the brokers.
Marketing-cont’d

Small Traders

- More than 95 per cent of this category of traders are women

- They handle less than 5 bags per week and sell within the local markets in the District.

- They sell in bunches of KES 20, 30, 40, 50 and 100.
Marketing cont’d

Medium traders

- 80 per cent of these traders are usually from other markets outside the District (Karatina, Nyeri and Murang’a)

- On average they handle about 10 bags per week and sell to other small traders at the markets where they are based.
Marketing cont’d

Larger traders

- About 50 per cent of this category are women

- They handle up to 100 bags of per week during harvest and as low as 10 bags per week during lean season

- They sell the produce in major markets like Thika, Nairobi and Mombasa.
Marketing cont’d

• Brokers

  • All are men and act on behalf of a traders by connecting them to the farmer or a middleman

  • Other roles include: assembling to the collection point, Sorting and grading, bulking, packing, loading and offloading.
Assemblers

- All were men and their major roles include: washing, assembling to the collection point, Sorting and grading, bulking, packaging, loading, and offloading.
Sweet potato marketing channels

- The three main sweet potato marketing channels are summarized in the diagram below:

[Link to Sweet potato marketing channels.docx]

- Sweet potato value chain mapping is as shown in the diagram below

[Link to sweet potato value chain.docx]
Cost-Build-Up Analysis
Cost Build up to Karatina Market (KES) During Harvest and Lean Season

During Harvest and Lean Season

- **Karatina from local market**
- **Karatina from farm gate**
- **Karatina from local market**
- **Karatina from farm gate**

- **Traders margin at Karatina**
- **Traders cost at Karatina**
- **Traders margin at local market**
- **Traders cost at local market**
- **Farmers margin at farm gate**
- **Cost of production**
Cost Build up to Karatina Market (KES)

- **During the harvest period**
  - Disaggregating the selling price of a bag of sweet potatoes in Karatina, when purchased from the local market;

  - On costs- farmers incurred the highest costs (KES 1,450) compared to traders at the local market (KES 100) and Karatina (KES 385)

  - On margins, traders in Karatina made the highest margins (KES 215) compared to traders in the local market (KES 100) while the farmers made a loss of KES 50
Cost Build up to Karatina Market (KES) During Harvest Season

- Disaggregating the selling price of a bag of sweet potatoes in Karatina, when purchased from the Farm gate

  - Farmers still incur the highest costs (KES 1,450) than traders (KES 385)

  - Traders made the highest margins of (KES 415) while farmers made a loss of KES 50
Cost Build up to Karatina Market (KES) During the Lean Season

- Disaggregating the selling price of a bag of sweet potatoes in Karatina when purchased from the local market:

  - On costs: farmers incurred highest costs (KES 1,450) compared to KES 100 by local traders and KES 385 by traders in Karatina

  - On margins: farmers made the highest margin KES 1,550 compared to local traders (KES 100) and Karatina traders (KES 415)
Cost Build up to Karatina Market (KES) During Lean Season

- Disaggregating the selling price of a bag of sweet potatoes in Karatina, when purchased from the Farm gate

  - On costs-Farmers incurred highest costs (KES 1,450) compared to traders at Karatina market (KES 385)

  - On margins- farmers made the highest margins (KES 1,550) compared to the traders in Karatina (KES 615)
Cost Build up to Nairobi Market (KES) During Harvest and Lean Season

- Harvest Period:
  - Nairobi from local market: 1,395
  - Nairobi from farm gate: 1,450
  - Traders margin at Nairobi: 505
  - Traders cost at Nairobi: 188
  - Farmers margin at farm gate: 505
  - Cost of production: 1,450

- Lean Period:
  - Nairobi from local market: 1,595
  - Nairobi from farm gate: 1,550
  - Traders margin at Nairobi: 505
  - Traders cost at Nairobi: 188
  - Farmers margin at farm gate: 505
  - Cost of production: 1,550
Cost Build up to Nairobi Market (KES)

- **During harvest period**
  - Disaggregating the selling price of a bag of sweet potatoes in Nairobi, when purchased from the local market;
  - On costs-farmers incurred highest costs KES 1,450 compared to traders at the local market (KES 100) and in Nairobi (KES 505)
  - On margins- Traders in Nairobi made highest margins KES 1,395 compared to KES 100 made by the traders at the local markets. Farmers made a loss of KES 50
Cost Build up to Nairobi Market (KES) During Harvest

- Disaggregating the selling price of a bag of sweet potatoes in Nairobi, when purchased at the farm gate:
  - On costs-farmers incurred highest costs KES 1,450 compared to traders in Nairobi (KES 505)
  - On margins- Traders in Nairobi made highest margins KES 1,595 compared to farmers who made a loss of KES 50
Cost Build up to Nairobi Market (KES) During the Lean Season

- **During the Lean period**
  - Disaggregating the selling price of a bag of sweet potatoes in Nairobi when purchased from the local market:

  - On costs; farmers incurred highest costs (KES 1,450) compared to KES 100 by local traders and KES 505 by traders in Nairobi

  - On margins; traders in Nairobi made highest margin KES 1,559 followed by farmers KES 1,550 and local traders margins were KES 100
Cost Build up to Nairobi Market (KES) During the Lean Season

- Disaggregating the selling price of a bag of sweet potatoes in Nairobi when purchased at the farm gate:
  - On costs-farmers incurred highest costs **KES 1,450** compared to **KES 505** for traders in Nairobi
  - On margins- Traders in Nairobi made highest margins **KES 1,795** compared to farmers whose margin were **KES 1,550**
Marketing Costs

- Transport cost constitute the highest proportion of the total marketing cost in markets away from the local market
  - KES 100 to Karatina market
  - KES 200 to Nairobi market
Major constraints facing sweet potato production and marketing

**Farmers**
- Small land sizes
- Soil borne diseases and pests
- Lack of irrigation water
- Exploitation (extended bags)
- Lack of farmers marketing group
- Lack of access to lucrative markets
- Poor access to credit facilities
- Storage problems
Traders

- Poor access of other markets (lucrative) outside the district
- Low supply - not able to meet the demand
- Low/no access to credit facilities
- Storage problems - short shelf
- Crowding in the market
- High cost of transport costs
Areas of improvement

• **Farmers**
  - Linking farmers to the lucrative markets
  - Training on value addition skills
  - Ban of use of extended bags
  - Introduction of superior varieties
  - Enhance access to credit

• **Traders**
  - Provision of a processing factory
  - Linking to lucrative markets (supermarkets, exporters, processors)
  - Access to credit
  - Improvement of the roads
  - Improved market infrastructure (space, construct shades, provision of toilets, security e.t.c)
Opportunities

- **Farmers**
  - Access to other markets in and out of the country
  - Access to organized markets like the supermarkets and companies
  - Value addition

- **Traders**
  - Access to organized markets such as supermarkets and food companies
  - Value addition through processing
  - Access to credit through BIMAS, KWFT, Equity group
**Threats**

- **Farmers**
  - The rising cost of fertilizers and other inputs
  - Land sub-division which may lead to low production
  - Lack/ limited access to irrigation water
  - Soil borne pests and diseases which may further lead to soil degradation hence low yields of sweet potatoes.
There is Great Potential in the marketing of sweet potatoes

- Supermarkets e.g. Uchumi, Naivas,
- Urban markets eg in Nairobi and Mombasa
- Agro processors/ Food companies
How do we tap into this opportunity?

Thank You