Sweetpotato value chain and the potential role for commercial fresh root storage in selected areas of Mozambique

Ilaria Tedesco (NRI), Roland Brouwer (CIP)

Dar-es-Salaam, 16/03/16
INTRODUCTION

OBJECTIVES, STUDY AREA AND METHOD
Objectives of the study

• Position sweetpotato in relation to other staple crops (i.e. cassava, maize, Irish potato)
• Describe the SP value chain in the provinces of Manica and Maputo.
• Use the value chain and root supply information to identify opportunities for establishing fresh SP root storage facilities.
Localization

Beira Corridor:
- Two provinces
- 10 districts
- 1.7 million inh
- Chimoio and Beira main urban markets
- Focus on Chimoio and Macate

Maputo corridor
- One province
- 6 districts
- 2.9 million inh
- Maputo/Matola main urban markets
- Focus on Maputo and Manhiça, Namaacha, Boane
Methodology

- Limited literature review
- SIMA “Quente Quente” – weekly market monitoring boletim
  - Cassava, maize, Irish potato and sweetpotato prices
- SIMA data collected for CIP in Maputo & Chimoio markets
  - WFSP/OFSP, prices from selected markets
- CIP data collected in Maputo markets
  - OFSP prices from selected markets, varieties and origins, margins
- Individual and group interviews with actors in Manica and Maputo
  - Modus operandi, prices, costs, seasonality, agents

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Maputo</th>
<th>Manica</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmer focus group</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Individual farmer</td>
<td>XXXX</td>
<td>XXX</td>
</tr>
<tr>
<td>Retailers</td>
<td>XXXXXX</td>
<td>XXX</td>
</tr>
<tr>
<td>OFSP Processors</td>
<td>X</td>
<td>XXX</td>
</tr>
<tr>
<td>Extn &amp; NGO</td>
<td></td>
<td>XXX</td>
</tr>
<tr>
<td>Urban consumers</td>
<td>XX</td>
<td></td>
</tr>
<tr>
<td>Total=25</td>
<td>14</td>
<td>11</td>
</tr>
</tbody>
</table>
THE SWEETPOTATO VALUE CHAIN
R&D, PRODUCTION, COMMERCIALIZATION AND CONSUMPTION
Percent distribution of area of crops Manica, Maputo and Mozambique (TIA, 2012)

Production: Manica 150,000 ton and Maputo 54,000 ton, all smallholders
Estimated annual SP consumption of SP in Maputo

<table>
<thead>
<tr>
<th>Stated frequency (number of meals)</th>
<th>Less than one per month</th>
<th>Up to one per week</th>
<th>Up to one per day</th>
<th>More than one per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Converted to meals per year by central value</td>
<td>12/2 = 6 meals/year</td>
<td>(12+52)/2 = 32 meals/year</td>
<td>(52+365)/2 = 209 meals/year</td>
<td>365*2 = 730 meals/year</td>
</tr>
<tr>
<td>Percentage of 1.2 million people</td>
<td>30%</td>
<td>35%</td>
<td>25%</td>
<td>9%</td>
</tr>
<tr>
<td>Tonnes assuming 0.1 kg per capita per meal (0.2 kg)</td>
<td>216 (432)</td>
<td>1,344 (2,688)</td>
<td>6,270 (12,540)</td>
<td>7,884 (7,884)</td>
</tr>
</tbody>
</table>

Own production: about 24% of population grows SP, so that estimated demand is between 11,000 and 24,000 tonnes per year.

Comparison: Total IP demand is 677,000 tonnes per year. For Maputo (1.2M inhabitants) that would mean roughly 36,000 tonnes per year, so SP is between one and two thirds of IP market in Maputo.
SP Commodity Chain in Mozambique

CIP dominates R&D focused on OFSP

Farmers dominate seed system

Farmers
- Roots
- (leaves)
- Vines

100% of all WFSP

95% of all OFSP

100% of all WFSP

95% of all OFSP

7 meticais

38 meticais

25 - 50 meticais

No bulking, some on-farm storage, no middle (wo)man

Farmers
- Roots
- (leaves)
- Vines

Traders
- Roots
- (leaves)

Market women
- Roots
- (leaves)

Consumers

CIP
- OFSO Varieties
- Basic seed

IIAM
- DVM
- Vines
- Roots

DVM
- Vines
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Consumers
LAYEROED SPACE: Markets in Maputo City

“Peri-urban”
- Zimpeto
- Aeroporto
- Xiquelene
- Xipamanine
- Malanga/Fajardo
- Compone

“Urban”
- Janete
- Do Povo
- Central

<table>
<thead>
<tr>
<th>Area of origin</th>
<th>Type of market where sample was taken (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban</td>
</tr>
<tr>
<td>Albazine</td>
<td>2%</td>
</tr>
<tr>
<td>Boane</td>
<td>3%</td>
</tr>
<tr>
<td>Bobole</td>
<td>10%</td>
</tr>
<tr>
<td>Chokwe</td>
<td>2%</td>
</tr>
<tr>
<td>Unknown</td>
<td>20%</td>
</tr>
<tr>
<td>Gaza</td>
<td>2%</td>
</tr>
<tr>
<td>Inhambane</td>
<td>2%</td>
</tr>
<tr>
<td>M. Fajardo</td>
<td>8%</td>
</tr>
<tr>
<td>M. Xiquelene</td>
<td>2%</td>
</tr>
<tr>
<td>M. Zimpeto</td>
<td>10%</td>
</tr>
<tr>
<td>Macia</td>
<td>2%</td>
</tr>
<tr>
<td>Manhica</td>
<td>31%</td>
</tr>
<tr>
<td>Maputo</td>
<td>2%</td>
</tr>
<tr>
<td>Marracuene</td>
<td>5%</td>
</tr>
<tr>
<td>Xai-Xai</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Market N Mean
Urban 71 38.09
Peri urban 59 17.85
PRICES AND VARIATION

DIFFICULT DATA AND DISTRIBUTION OF BURDENS AMONG ACTORS
Variation in price on the basis of statistics

- Price influenced by season and by inflation
- Variation of between 30 and 60%; higher at farm level
- SIMA’s published prices for Chimoio 4x too high: difficult data!
ADDITIONAL OBSERVATIONS

• WFSP and OFSP sellers

<table>
<thead>
<tr>
<th>Market</th>
<th># selling SP</th>
<th># selling OFSP</th>
<th>% OFSP retailers</th>
<th>Data count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xiquelene</td>
<td>17</td>
<td>1</td>
<td>6%</td>
<td>05/05/2015</td>
</tr>
<tr>
<td>Central</td>
<td>13</td>
<td>7</td>
<td>54%</td>
<td>10/04/2015</td>
</tr>
<tr>
<td>Central</td>
<td>12</td>
<td>6</td>
<td>50%</td>
<td>01/05/2015</td>
</tr>
<tr>
<td>Fajardo</td>
<td>8</td>
<td>2</td>
<td>25%</td>
<td>??</td>
</tr>
<tr>
<td>Zimpeto</td>
<td>8</td>
<td>4</td>
<td>50%</td>
<td>06/05/2015</td>
</tr>
<tr>
<td>Zimpeto</td>
<td>7</td>
<td>5</td>
<td>71%</td>
<td>26/03/2015</td>
</tr>
<tr>
<td>Fajardo</td>
<td>6</td>
<td>2</td>
<td>33%</td>
<td>28/03/2015</td>
</tr>
<tr>
<td>Janete</td>
<td>6</td>
<td>3</td>
<td>50%</td>
<td>31/03/2015</td>
</tr>
<tr>
<td>Janete</td>
<td>5</td>
<td>2</td>
<td>40%</td>
<td>04/05/2015</td>
</tr>
<tr>
<td>Xiquelene</td>
<td>4</td>
<td>1</td>
<td>25%</td>
<td>31/03/2015</td>
</tr>
</tbody>
</table>

• Pricing factors
  - Position in the commodity chain
  - Type of market (urban/peri-urban)
  - Colour (in Maputo)
  - Root size
  - Season
  - General depreciation of the currency (trends in food prices)
  - Price fluctuations are supported by farmers and consumers as traders negotiate price.

NB: Per kg price is manipulated by traders who change the size and composition of the piles
STORAGE

INITIAL OBSERVATIONS ON OPPORTUNITIES AND CONSTRAINTS
OPPORTUNITIES

• Mitigation against seasonal price variation
• Empowering farmers who currently support most of the burden of seasonal price variation in their dealing with traders
• Development of processing in Manica (and elsewhere?) will require more stability in supply
• Quality increase through grading and curing linked to storage may make it possible to start supplying to higher profile outlets such as supermarkets
• Storage facilities allow for achieving economies of scales through bulking that are not realized now as there is no middle (wo)men
• Improved protection from post harvest los due to rodents, SP abuse, etc.
THREATS

• Increasingly less reliable power grid plus costs of connection are supported by the client (distance!)
• Costs of storage will affect consumer price excessively
• The rate of return on investment in storage may be lower than that on investment in irrigation
• Farmers prefer to be paid immediately on harvest
• Consumers like to receive roots freshly from the ground with sand so they know that they roots have not been damaged during cleaning
• The maximum willingness to pay is probably what people currently spend on on-site storage at markets (4 meticais per kg per month)
OPTIONS FOR THE FUTURE

Financial analysis of capital and operation costs suggest that with the estimated willingness to pay Plan A storage is viable. However, alternatives were developed which need to be tested and partners need to be engaged.

- Maputo
  - Plan A: Mariza company with outgrowers in Mafuiane (50 km from Maputo)
  - Plan B: Oliveira farm feeding COMPAL juice factory in Umbeluzi (30 km from Maputo)
  - Plan C: Mata SP trading operation in Manhiça (70 km)

- Manica
  - Plan A: ZebraFarm with outgrowers in Vanduzi (40 km from Chimoio)
  - Plan B: Independent business with outgrowers in Vanduzi (40 km from Chimoio)
CONCLUSIONS

• SP markets exist, are significant but small compared to other Staples
• About one third of the production goes to the market
• Supply and trade are dominated by small scale informal operators
• Climate induced seasonal variation leads to variation in price which affects mostly the producer, while the traders maintain their margins
• Storage will empower producers and offer a more steady supply to the market
• Even though there are threats storage appears a viable investment with alternative options available
ASSANTE SANA