BRIDGING THE EDIBLE OIL DEFICIT

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Outline

- Status of edible oils in Zambia
- Soybeans
- Groundnuts
- Sunflower
- Suggestions for improvement
Status of edible oils in Zambia

- Edible oils industry plays a critical role in Zambia’s economy
- Employs about 2000 people in the manufacturing process and primary oilseeds producers
- Demand for oilseeds (mainly soybeans) increased tremendously over the last 10 years
- Demand is currently being met through imports of palm oil, rather than through domestic production
The problem.....

<table>
<thead>
<tr>
<th></th>
<th>Edible oil amounts tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Domestic production of edible oils (semi-processed + Refined) in 2012.</td>
</tr>
<tr>
<td>2)</td>
<td>Total imports of edible oils (crude, semi-refined and refined)</td>
</tr>
<tr>
<td>3)</td>
<td>Total national supply of edible oils (1) + (2)</td>
</tr>
<tr>
<td>4)</td>
<td>Exports of edible oils</td>
</tr>
<tr>
<td>5)</td>
<td>National requirements (3) - (4)</td>
</tr>
<tr>
<td>7)</td>
<td>National requirement supplied by domestic production</td>
</tr>
<tr>
<td>8)</td>
<td>National requirement supplied by utilizing local oilseeds</td>
</tr>
</tbody>
</table>

Source: ZNFU, 2013
The problem....

- Imports undermining prospects growth in the domestic industry
  - Reduced up-take of soybeans by edible oils processors
  - Reduced crushing capacity by oilseed crushers
- High imports causing processors to have less incentive to utilize local oilseeds in the production process.
- It is cheaper for the processors to import crude and semi-processed oils for refining domestically.
- Official figures show that 90% of imports are in crude.
The problem...cont.

Source: ZNFU, 2013
The problem cont.

- Edible oils industry in Zambia mainly utilizes soybeans, cotton seed and sunflower as raw material
- Globally the main source of edible oil is palm oil which produces more oil
- Groundnuts has high potential but not highly utilized in Zambia
Edible oil raw materials

1. Soybeans
Developments in Soybeans production

- Large-scale soybeans production increased by five times since 2003
- 64.5% hectares per farmer under soybeans production
- 2014 production slightly declined. Among other factors, the decline was due to...
  - Increase in large-scale maize production (area planted increased by 89%)
  - Favorable maize price
  - Normal crop rotation
Soybeans production trends

Smallholders contribute on average 20% of total production.
Smallholder production of soya bean in relation with other crops

**Total production of crops**

- Maize
- Groundnuts
- Sunflower
- Soyabeans

![Bar chart showing total production of crops](chart1.png)

**Share of Crops Sold versus Retained for Home Consumption**

- Maize: 53%
- Groundnuts: 73%
- Sunflower: 63%
- Soyabeans: 30%

![Bar chart showing share of crops sold versus retained](chart2.png)

Source: CSO/MAL 2010

Source: CSO/FSRP 2008
Indaba Agricultural Policy Research Institute
Buyers of soybeans and use in Zambia

- Stock feed demand is the major off-taker of soybeans from commercial farmers.

<table>
<thead>
<tr>
<th>Soybeans Buyer</th>
<th>Main utilization of soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Zamanita</td>
<td>Oilseed crushing</td>
</tr>
<tr>
<td>2) Mt. Meru</td>
<td>Oilseed crushing</td>
</tr>
<tr>
<td>3) Olympic milling</td>
<td>Stock feed</td>
</tr>
<tr>
<td>4) Tiger feed</td>
<td>Stock feed</td>
</tr>
<tr>
<td>5) Nutri feed</td>
<td>Stock feed</td>
</tr>
<tr>
<td>6) Quality feeds</td>
<td>Stock feed</td>
</tr>
<tr>
<td>7) National milling</td>
<td>Stock feed</td>
</tr>
<tr>
<td>8) Ross Maclaude</td>
<td>Stock feed</td>
</tr>
</tbody>
</table>
## Soybeans Deficit

### Soybeans demand (MT)

<table>
<thead>
<tr>
<th>Demand Description</th>
<th>MT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poultry feed (TechnoServe, 2012)</td>
<td>120,000</td>
</tr>
<tr>
<td>Other livestock feed (4:1 ratio with poultry feed) (TechnoServe, 2012)</td>
<td>30,000</td>
</tr>
<tr>
<td>Crushed locally for cooking oil (Chisanga and Sitko, 2013)</td>
<td>164,529</td>
</tr>
<tr>
<td><strong>Exports</strong></td>
<td></td>
</tr>
<tr>
<td>Soybeans (CSO Trade Database)</td>
<td>2,475</td>
</tr>
<tr>
<td>Cake (CSO Trade Database)</td>
<td>9,918</td>
</tr>
<tr>
<td>Oil (CSO Trade Database)</td>
<td>56</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>326,978</td>
</tr>
</tbody>
</table>

### Soybeans supply (MT)

<table>
<thead>
<tr>
<th>Supply Description</th>
<th>MT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local production (CFS, 2012)</td>
<td>203,038</td>
</tr>
<tr>
<td><strong>Imports</strong></td>
<td></td>
</tr>
<tr>
<td>Soybeans (CSO Trade Database)</td>
<td>505</td>
</tr>
<tr>
<td>Cake (TechnoServe, 2012)</td>
<td>34,722</td>
</tr>
<tr>
<td>Oil (TechnoServe, 2012)</td>
<td>63,789</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>302,054</td>
</tr>
</tbody>
</table>
## Seed varieties and source for smallholders

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Seed variety category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local recycled</td>
</tr>
<tr>
<td>Ha planted to soybeans</td>
<td>0.39</td>
</tr>
<tr>
<td>Kg soybeans harvested</td>
<td>269</td>
</tr>
<tr>
<td>Soybeans yield (kg/ha)</td>
<td>834</td>
</tr>
<tr>
<td>Kg soybeans sales</td>
<td>254</td>
</tr>
<tr>
<td>% Household sold soybeans</td>
<td>75</td>
</tr>
</tbody>
</table>

*Source: CSO/MAL/IAPRI RALS, 2012*

*Potential yield 2700kgs/ha*
Soybean yields 2002-2014

Source: CFS 2002-2014
Soybeans price and cost of production

![Graph showing Soybeans price and cost of production]

- Price per tonne
- Variable costs/tonne

2008 2009 2010 2011 2012

Price, cost of soy beans per tonne
Challenges in Soybeans production

- Unreliable availability of commercially certified seed
  - Cash constrained public research institute
  - Planning period for how much seed to produce and deliver has up to a 2 year horizon
    - But smallholder demand is difficult to predict that far into the future
      - As such seed companies prioritize large scale farmers
- Farmers prefer local seed
  - They are inexpensive, can be recycled
Challenges cont.

- Seed contamination is also a major concern
  - Can occur at seed multiplication
  - Seed retail- other dealers go beyond contamination and counterfeit entire bags of seeds

- Farmers rarely use inoculum (an important input in soya production)
  - Lack of knowledge about the benefits
  - Problems of acquisition and storage-liquid inoculant
  - Problems of acquisition and rehydration-powder inoculant
Challenges cont.

- Poor agronomical management practices
  - Farmer do not harvest the entire area planted because yields on those fields are too low to justify the cost of harvesting
- Ultimately – low yields
Marketing and Price Challenges

Farmers turn their crop into cash when the prices are the lowest.

Number of Households Selling Soybeans by Price Movement

Source: IAPRI/CSO/MAL 2012
How to Improve Soybeans production

- Need to engage the seed producers, farmer organizations and agro-dealers on forecasting demand for both soya bean seed and inoculum
- Farmers need to be aware on the benefits of using inoculum and how to apply
- Improve the extension service with regard to agronomic practices
- Private sector-led out grower schemes, increased investment in public research, development, and extension
How to improve soybeans production cont.

- To address the challenges associated with grain marketing there is need to
- There is need to focus efforts on improving farmers’ capacity to engage with the already existing market
  - Through training on negotiation and market identification
- Formation of oil seed association may help look into these challenges
II. Groundnuts production
The problem....

- Low production compared to other countries in the region
  - Low and declining yield resulting from seed recycling
- Supply not meeting demand
  - Markets include Congo DR, Angola, Tanzania
  - This high demand for groundnuts should trigger increased production
- Only 45% of the smallholder producers participates in markets
- Aflatoxin contamination
Trends in groundnuts production and yield

*Graph showing the production and yield of groundnuts from 2008/09 to 2012/13.*

- **Production (MT):**
  - 2008/09: 114
  - 2009/10: 114
  - 2010/11: 139
  - 2011/12: 113
  - 2012/13: 107

- **Yield (MT/ha):**
  - 2008/09: 0.7
  - 2009/10: 0.8
  - 2010/11: 0.6
  - 2011/12: 0.7
  - 2012/13: 0.6
Increase in 2014 Production

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (000 MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>114</td>
</tr>
<tr>
<td>2010</td>
<td>164</td>
</tr>
<tr>
<td>2011</td>
<td>139</td>
</tr>
<tr>
<td>2012</td>
<td>113</td>
</tr>
<tr>
<td>2013</td>
<td>107</td>
</tr>
<tr>
<td>2014</td>
<td>144</td>
</tr>
</tbody>
</table>
Area planted to groundnuts by Province

- Central
- Copperbelt
- Eastern
- Luapula
- Lusaka
- Northern
- North-Western
- Southern
- Western

2008/09
2009/10
2010/11
Challenges limiting production

- At Production
  - Cost of the seed is above what most small scale farmers can afford
  - Inadequate financing for groundnuts research limits the frequency of release of improved various
  - Labour intensive
Marketing challenges cont.

- Perceptions of market unpredictability during this period relative to maize and cotton
  - Declining area cultivated with groundnuts
  - Substituting maize with groundnuts
- Prices are not attractive enough to invest in high yielding varieties
  - Wide spread transaction even before groundnuts are harvested especially
  - Farmers tend to sell at below market prices
- Unstable prices making it difficult to plan production (can range from K1,800/kilograms (kg) to K6,000/kg in one season)
Price Instability

Groundnuts prices (ZWK/kg)

Source: Fewsnet

Source: FAOStat

Indaba Agricultural Policy Research Institute
Smallholder oil pressing

- Smallholder on farm oil pressing at minimal levels at local oil expellers
  - 5 kg unshelled bag produces a 0.75-litre bottle of cooking oil.
  - However, most households prefer pressing oil from sunflower and leave groundnuts for consumption.
  - Sunflower is mainly grown for oil and is rarely consumed in other forms.
To improve groundnuts production

- **At production**
  - Promote out grower schemes
  - Improving on yields through utilization of improved seed is another avenue the private sector can participate
  - Support the development of farmers’ organizations to encourage bulking and coordination in negotiating prices
  - Well targeted FISP through as E-voucher system can promote use of hybrid seed
  - Labour saving technologies especially planting, weeding, harvesting and shelling
At Market Stage

- Support the development of farmers’ organizations to facilitate bulk selling which facilitated improved pricing.
- Promote value addition to groundnuts into peanut butter and oil pressing.
  - Demand for processed groundnuts is high especially by the local supermarkets.
- Promote post-harvest management practices to reduce aflatoxin levels.
III. Sunflower
Status of Sunflower production

- Sunflower has the potential to increase supply of edible oil in the country
- Production lagged behind other oil seeds

Challenges

- Low yields - predominately use recycled sunflower seed
  - Poor crop management practices
- Returns to labor, are fairly elastic with respect to oil prices and yield
  - A 10% increase in oil price results in greater than a 13% increase in returns (and vice versa)
  - Timing of sale can make a difference of up to 20% in the net returns to labor per hectare.
To improve production

- Use of first generation seeds, fertilizers, fungicides or other inputs
- Improve production methods such as earlier plantings, and weeding should be part of the intervention
- Promote commercialization through education and business training
  - Sunflower oil more profitable than sunflower seed
- Enforcement of the current seed laws against those who knowingly contaminate or counterfeit seed sales
  - Promoting awareness of smallholder rights under the Laws of Zambia Seed Act
- Support local governments in enforcing the laws.
Tankyou for your attention!

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