Consumption of Dryland Indigenous Fruits to Improve Livelihoods in Kenya. The Case of Mwingi District.

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Introduction

- Dry areas of Kenya rely on alternative food products such as indigenous fruits to supplement their diets.

*Hyphaena compressa*
• Kenya has an estimated 400 indigenous fruit plants, most of which are not fully exploited

Tamarindus idica
• This is because these species have not been fostered by agricultural and forestry institutions.
IFTs show great potential for providing food, vitamins and income to communities e.g. *Sclerocarya birrea* fruit contain 180 mg of vitamin C per 100 g, surpassing exotic lemon, orange and mango.
• Experts have recommended a daily intake of ~ 200 g of fruits for a healthy diet, East Africa consumption is only ~ 40 g.

Berchemia discolor tree and fruit
• Increased IFT consumption therefore has strong potential to reduce existing micronutrient deficiencies among populations of dryland Kenya, especially in mothers and children.
Introduction continued....

- survey conducted to establish intake levels of indigenous fruits in the drylands of Mwingi District in Kenya.

Balanites aegyptiaca
Introduction continued....

- Study assessed patterns of consumption and perspectives and practices of use and cultivation of IFTs by smallholder farming communities.

*Dobera glabra tree*
Objective

- To provide a baseline for evidence-based strategies to promote both consumption and cultivation of IFTs in the region in order to lift fruit consumption toward the recommended level.

Annona senegalensis (wild casurda apple)
Materials and methods

• Survey was undertaken in Mwingi District, an area with a high prevalence of poverty (70%) and probability of food crop failure (66%).

• Data was collected in two agro-ecological zones (LM5 and IL6)
Materials and methods cont…

• A stratified random sampling design was employed, equal numbers of women, men, girls and boys (children < 18 years old) were interviewed.
Materials and methods cont.....

- 104 householders were surveyed, 26 by each gender/age
Materials and methods cont.....

• A combination of pre-designed and semi-structured questions and visual aids were used to collect detailed and reliable data on the frequency and quantity of fruit consumption over time.
Results

A total of 57 Indigenous edible fruit species were documented as useful to local communities.

Azanza garckeana
Results

• Despite this large number, the average consumption of indigenous fruits per person per day was only 19 g, most of which was harvested from wild stands (table 1).

  *Boscia coriacea*

• The consumption of exotic fruits was even lower (9.1 g) and focused on market days when small quantities could be purchased.
Table 1. Indigenous fruit consumption in Mwingi District, Kenya, based on responses from 104 interviewees

<table>
<thead>
<tr>
<th>Month</th>
<th>&lt;=9yrs</th>
<th>10-19yrs</th>
<th>20-49yrs</th>
<th>&gt;=50yrs</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>6.6</td>
<td>7.1</td>
<td>5.4</td>
<td>6.4</td>
<td>6.4</td>
</tr>
<tr>
<td>February</td>
<td>26.1</td>
<td>28.0</td>
<td>14.0</td>
<td>10.2</td>
<td>21.1</td>
</tr>
<tr>
<td>March</td>
<td>35.2</td>
<td>36.4</td>
<td>26.4</td>
<td>11.6</td>
<td>29.7</td>
</tr>
<tr>
<td>April</td>
<td>27.1</td>
<td>30.3</td>
<td>21.0</td>
<td>7.2</td>
<td>23.8</td>
</tr>
<tr>
<td>May</td>
<td>11.4</td>
<td>10.6</td>
<td>6.2</td>
<td>6.3</td>
<td>9.0</td>
</tr>
<tr>
<td>June</td>
<td>31.7</td>
<td>25.5</td>
<td>27.0</td>
<td>13.0</td>
<td>25.1</td>
</tr>
<tr>
<td>July</td>
<td>33.6</td>
<td>26.5</td>
<td>29.4</td>
<td>12.6</td>
<td>26.5</td>
</tr>
<tr>
<td>August</td>
<td>29.4</td>
<td>25.0</td>
<td>20.3</td>
<td>11.0</td>
<td>22.2</td>
</tr>
<tr>
<td>September</td>
<td>18.3</td>
<td>13.7</td>
<td>10.3</td>
<td>9.6</td>
<td>12.8</td>
</tr>
<tr>
<td>October</td>
<td>21.3</td>
<td>21.5</td>
<td>11.1</td>
<td>7.0</td>
<td>16.5</td>
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<tr>
<td>November</td>
<td>19.6</td>
<td>22.4</td>
<td>11.4</td>
<td>7.3</td>
<td>16.7</td>
</tr>
<tr>
<td>December</td>
<td>19.1</td>
<td>20.5</td>
<td>10.0</td>
<td>4.5</td>
<td>15.5</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>23.6</strong></td>
<td><strong>22.5</strong></td>
<td><strong>16.6</strong></td>
<td><strong>9.1</strong></td>
<td><strong>19.2</strong></td>
</tr>
</tbody>
</table>
• Generally, the consumption of indigenous fruits by children was much higher than for adults, and there appears to be a general trend in which consumption reduces with age (Table 1).

• However, adults do continue to consume selected fruits, such as *Adansonia digitata* and *Tamarindus indica*.

• For many fruits, adults view them as food only for children.
Results conti.....

- Seasonal variation appears to be an important factor contributing to low fruit consumption, because months of high consumption correspond with the fruiting periods of important species (Table1).
Results conti.....

• There is very little planting of indigenous fruit trees on the farm. Only 6% of the households indicated that they have planted any of the IFTs.

Annona senegalensis
Results conti…..

• Many farmers prefer protecting IFTs that exist. 58% of the households had protected at least one indigenous fruit tree on their farm.

*Ficus sycomorus*
Conclusion

• If bottlenecks to use are addressed, the promotion of indigenous fruits in dryland Kenya could lead to significant changes in the diversity and total amount of fruit that is consumed and marketed by local communities, with significant health benefits.

*Cordia monoica*
Conclusion cont.....

- From a domestication perspective, there is a need to enhance access to improved germplasm *Pachystigma schumannianum* and to develop appropriate management, production and processing systems.
Recommendation

• More research and development needed on IFTs regarding utilization and conservation.

Uvaria scheffleri
THANK YOU FOR LISTENING & INTERESTS TO PROMOTE CONSUMPTION OF INDIGENOUS FRUIT FRUITS TO IMPROVE LIVELIHOODS IN THE DRYLANDS